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# Effects of Explanatory Autism Disclosure on Coworker Attitudes

Kathleen M. Henegan

*Illinois Wesleyan University*, [khenegan@iwu.edu](mailto:khenegan@iwu.edu)

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Running Head: EFFECTS OF DISCLOSURE

Effects of Explanatory Autism Disclosure on Coworker Attitudes

Kathleen M. Henegan

Illinois Wesleyan University

### Abstract

People with autism tend to have difficulties with the social relationships in the workplace, which are a crucial aspect to maintaining employment. In this study, we investigated whether disclosure of an autism spectrum disorder would improve adults' attitudes toward a potential coworker with autism. Participants (93 college students, 93 working adults) were randomly assigned to read one of three vignettes describing the same interaction with a potential coworker with moderately severe ASD, but different levels of disclosure. As hypothesized, disclosure, as compared to no disclosure, led significantly more positive attitudes toward and higher willingness to work with the coworker. Disclosure significantly increased positive judgments of the coworker's warmth, although it had no significant impact on judgments of the coworker's competence. This research indicates that disclosure of autism to coworkers may be beneficial in improving attitudes toward people with autism, which could ultimately improve working relationships of those with autism.

### **Effects of Autism Disclosure on Coworker Attitudes**

Autism is a chronic, biologically-based condition characterized by social and developmental deficits (Garcia-Villamizar & Hughes, 2007). People with autism can have social, communicative, and cognitive difficulties, as well as behavioral problems (Patterson & Rafferty, 2001). Recent reports indicate that autism spectrum disorders (ASD) are much more prevalent than previously thought: 1 in 110 children meet the diagnostic criteria for ASD and ever increasing numbers of identified adolescents with ASD are graduating from high school each year (Center for Disease Control, 2010; Hillier et al., 2007; Kogan et al., 2009). While there have been steps taken to provide support for children with autism, there is a lack of support for these same people as they become adults. Because adulthood lasts much longer than childhood, this presents substantial challenges.

Autism is categorized as a cognitive disability under the American Disabilities Act (ADA) of 1991. The legal definition of a disability is a “permanent physical or mental impairment that substantially limits one or more major life activities” (DePaul University, Exploring the Bottom Line, 2007, p. 9). People who have conditions which meet the definition of a disability under the ADA are entitled to accommodations and protections provided by the ADA when they disclose their condition to employers. The major barriers that people with autism face in the workforce, which are often more profound in comparison to those faced by people with other disabilities, primarily revolve around their autistic characteristics (i.e., social deficits, stereotyped behaviors, sensory sensitivities, concrete thinking). While the severity of the impairments can vary, people with autism have difficulty maneuvering through the social environment of their workplace (Hillier et al., 2007). Despite this, there is very limited research

on the workplace struggles of people with autism in comparison to other minority populations who also have difficulties in this setting (e.g., people with physical disabilities). In order to help people with autism overcome barriers in the workplace, the current research study will investigate the effects of the explanatory disclosure of autism on coworker attitudes. In reviewing the previous research, I will first focus on the workplace-related issues facing people with autism. Second, I will examine the effects of workplace stigma and discrimination on people with disabilities, and more specifically on people with autism. Third, I will examine possible methods for addressing the negative responses toward people with autism in the workplace.

### **Autism in the Workplace**

Concerns about the futures of young adults with autism have been more frequently discussed due to the increasing numbers of children diagnosed with autism (Kogan et al., 2009). The worry of educators of young adults with autism is that their charges will not be given the chance to prove their worth in the workplace (Patterson & Rafferty, 2001). Even if they are given a chance at employment, research indicates that people with autism, similar to other people with disabilities, will face stigma and discrimination in their workplace.

**Unemployment and underemployment.** The rate of unemployment is much higher among people with disabilities than among the general population (Ren, Paetzold, & Colella, 2008). For example, previous research has revealed that employers are more inclined to choose non-disabled potential employees over disabled potential employees (Pearson, Yip, & Lo, 2003). Further, only 31% of people with disabilities are employed, full time or part time, and only 56% of those who are capable of working are able to find employment (Taylor, 2000, as cited in, Ren et al., 2008). In addition individuals with disabilities earn less money on average than individuals

without disabilities (Steinmetz, 2006). Unemployment and underemployment are also problems for people with autism. According to Duran (2001), people with autism are among the most difficult populations to assist in finding appropriate employment. In addition to finding employment, one of the largest challenges people with autism face is maintaining their employment (Hurlbutt & Chalmers, 2004). In the United Kingdom, it has been estimated that only 12% of higher functioning people with autism were in paid employment in 2001 (Howlin, Alcock & Burkin, 2005).

**Autism characteristics.** People with autism have characteristics that create additional problems which make it especially difficult for them to navigate the workplace, both socially and professionally. Some of the characteristics of autism that can create problems during the course of their employment include: social skill deficits and poor communication between employees with autism and employers or coworkers (Hurlbutt & Chalmers, 2004). In addition, depending on the severity of the symptoms, people with autism can have sensory issues as well as inappropriate and inflexible behaviors which make it difficult to obtain and maintain employment (Duran, 2001).

**Social and communication issues.** Typically, people with autism do not seem physically different from others. However, their social interactions tend to separate them from their peers as they do not conform to the social norms. Their social and communicative problems typically revolve around missing or misunderstanding the social cues that people give (Standifer, 2009). For example, people with autism might talk for an extended period of time on one particular topic without realizing that others have become bored or uninterested (Grandin & Scariano, 1986 as cited in Chambres, Auxiette, Vansingle, & Gil, 2008). People with autism also tend to struggle with understanding and expressing emotions leading to others misinterpreting their behavior

(Standifer, 2009). Such social inadequacies can be viewed by others as bad manners or rudeness if people are unaware that people with autism's non-socially acceptable behavior is unintentional.

This type of negative social interaction makes it difficult for people with autism to succeed in some work environments, especially those that require interaction with coworkers. More severely than in other disabilities, people with autism failed to create substantial relationships with coworkers both inside and outside of the workplace (Hillier et al., 2007). This is especially problematic because positive interactions and relationships with coworkers often provide opportunities for informal learning (Rocco, n.d.). Without these relationships and informal learning, individuals with autism may fail to learn job skills as quickly as their counterparts without disabilities. Further, a lack of positive relationships with coworkers can also cause employers to feel the need to terminate workers due to the detrimental atmosphere in the workplace (Colella, 2001). This means that in order to maintain jobs, it is important to find ways to help people with autism integrate effectively into the workplace.

***Restrictive behavioral, sensory, and cognitive issues.*** While social interactions showcase the core characteristics of autism, the stereotyped behaviors that people with autism frequently exhibit can also create challenges in the workplace. There are four types of repetitive or restricted behaviors that people with autism typically exhibit (American Psychiatric Association, 1994). These include stereotyped motor behavior (i.e., body rocking), preoccupation with parts of objects, patterns of interest that are unusually narrow, and extreme insistence on sameness (Shtayermman, 2009). Additionally, people with autism can have sensory and cognitive difficulties. In terms of sensory issues, people with autism can have hypersensitive or hyposensitive senses, such as sensitivity, or lack of sensitivity, to the flicker of fluorescent light,

to background noises, and to the feel of fabrics (Standifer, 2009). These sensory issues may contribute to behaviors that are considered unusual or outside the norm.

People with autism can have a range of IQ scores from below average to above average, just as is the case with the general population. However, a high IQ score does not mean that the individual does not have other problems associated with autism. For example, a common cognitive characteristic of autism is thinking in a concrete rather than abstract manner (Standifer, 2009). In particular, people with autism may need to have directions given to them concretely and they might have trouble connecting events or directions to the larger picture. Additionally, many people with autism are uncomfortable with change. Thus, sudden alterations in the workplace might elicit increased anxiety, agitation or confusion. Further, people with autism tend to be very detail-oriented and fixate on a particular interest or activity. This can be helpful in certain workplace circumstances, but also detrimental when a work situation requires they expand beyond this fixation (Standifer, 2009).

**Benefits of employing people with autism.** While there are many barriers to successful employment for people with disabilities and people with autism, there are also many benefits to employing these individuals. Both the workplace and the larger society can benefit from the employment of people with disabilities, generally, and people with autism, specifically. For example, when people with disabilities are unemployed, talents and skills are being left untapped (Stone & Colella, 1996). Society would benefit from the inclusion of these individuals in the workplace. Additionally, the employment of persons with disabilities brings diversity to the workplace, which is an important benefit in and of itself. The inclusion of people with disabilities also benefits these individuals and their families in particular. It has been found that the quality of life and well-being of people with intellectual disabilities and their families are



higher among people with intellectual disabilities who have been employed in comparison to those who are unemployed (Jahoda, Kemp, Riddell, & Banks, 2008). Further, people with disabilities and people with autism have been found to be valuable employees. Employers have indicated that they appreciated having employees with disabilities because they generally tended to be more dedicated and reliable than other employees (DePaul University, 2007).

Research indicates that when people with autism are given the opportunity, they can be efficient workers (Hillier et al., 2007). In particular, people with autism have been valued by companies because of their trustworthiness, reliability and low absentee rates (Hillier, et al., 2007). The quality and quantity of the employee's work often offsets the additional cost incurred for any accommodations the employee might need in the workplace. Similar to the larger picture for people with disabilities in general, there are larger societal benefits to employing people with autism. When people with autism are employed, the rest of the employees are provided with the chance to develop their own social interaction skills and to become educated about autism in particular. Also, it reaffirms the concept that all people in society have value. Through increased contact, the amount of stigma and discrimination that people with autism face, both in the workplace and in society, can be decreased so that society can become more tolerant of people who deviate from what is considered normal (Corrigan & O'Shaughnessy, 2007).

### **Stigma and Discrimination**

Research has shown that people with disabilities often face discrimination in the workplace. Ren et al. (2008) performed a meta-analysis on 31 experimental studies of the effects of disability on human resource judgments. All of the included studies contained control groups, compared more than two disabilities, and were not field survey or qualitative in structure. The findings of this meta-analysis were mixed, with some negative and some positive results related

to disability status. Ren et al. (2008) found that there were significant negative effects of disability on others' performance expectations and hiring decisions, which means that people with disabilities are less likely to be hired and that others held lower expectations for their future performance. In contrast, there was a positive effect of disability on immediate performance evaluations. The results found by Ren and colleagues (2008) bring to light an interesting phenomenon in participants' responses to people with disabilities. People tend to have lower expectations for people with disabilities, which would lead to fewer hires. However, when people rate actual work performance of people with disabilities, they tend to be more positive. This phenomenon may occur because others perceive the person with a disability as working above the lower expectations. Therefore, as Ren and colleagues (2008) suggest, the positive effect on performance evaluations might represent a form of paternalism and a more subtle form of discrimination. At the same time, this can also be perceived as a way for people with disabilities to maintain employment by exceeding the expectations and therefore maintaining positive immediate performance evaluations.

Research has also indicated the presence of both positive and negative disability stereotypes, which are likely to extend to social judgments made in the workplace. For example, Louvet, Rohmer, and Dubois (2009) determined that people with disabilities were viewed to be more warm (i.e., friendly, sociable) and less competent (capable, skilled at tasks) than their counterparts without disabilities. When people with disabilities are perceived as friendly, but not competent, it is implied that they will not be useful in the workplace. Louvet and colleagues (2009) posited that it was possible that these perceptions could be used to justify the economic differences and the societal differences between people with disabilities and people without disabilities.

Interestingly, in addition to possible differences in the way different disabilities could be perceived, the type of disability appears to be linked to the amount of prejudice faced when seeking employment. Disabilities that are perceived as being caused by the individual (e.g., alcohol and drug addictions) tend to be viewed most negatively. Among disabilities which are generally considered to be out of people's control, research indicates that chronic mental illness and sensory disabilities (e.g., visual impairment) are more negatively viewed than physical disabilities (Ren et al., 2008; Stone & Colella, 1996). This apparent hierarchy indicates that certain disabilities are likely to be more accepted than others in the workplace. Most research indicates that the least accepted disabilities to have in the workplace tend to be cognitive and mental disabilities. People with disabilities claim that in comparison to the rest of people with disabilities, those with cognitive deficits were often the most misunderstood (Rocco, n.d.).

Beyond the apparent hierarchy of disabilities, there are several other factors which can contribute to the stigma and discrimination people with disabilities and people with autism face in the workplace. Colella and colleagues (Colella, 2001; Stone & Colella, 1996) developed a model highlighting underlying factors that could impact judgments made by coworkers (i.e., type and need of accommodation, disruptiveness of disability, origin, and performance level). For example, according to this model, disclosure of a disability could cause coworkers to become resentful of the employee with the disability because of a perceived inequality and hardship that the rest of the coworkers would face due to accommodations given to the employee with a disability (Colella, 2001). On the other hand, due to the special characteristics of their condition, people with autism, like people with other disabilities, have a legal right to certain accommodations in the workplace.

Although a complete review of the factors that could affect the amount of stigma faced by people with autism in the workplace and the responses of their coworkers is beyond the scope of this review, three additional factors relevant to the proposed research study will be considered: gender, prior experience, and social desirability. Overall, the majority of the studies I reviewed revealed few gender effects and generally seemed to indicate that gender does not strongly impact attitudes toward people with disabilities (e.g., Ren et al., 2008). There are some trends which indicate that women might be more accepting of people with stigmatized conditions, but non-significant results were most common. Also, Ren et al. (2008) determined that the sex of the target with a disability did not significantly impact or moderate the performance evaluations and expectations. As for prior experience, the quality of the prior interaction (positive or negative) was influential to participants' responses to people with stigmatized conditions (Ren et al., 2008). Finally, when considering possible factors that affect peoples' responses to people with disabilities, it seems logical to consider that people might respond in the manner which would be most socially acceptable or socially desirable. Morgan, Bieberich, Walker, and Schwerdtfeger (1998) found that children responded in a more socially desirable manner when indicating their own willingness to interact with a child with disabilities, than they did in their estimation of how willing their peers would be to interact with the same child. While the study by Morgan and colleagues indicates that there may be an effect of social desirability on participants' answers, the majority of the research studies on stigma and discrimination do not take into account possible social desirability biases. In the current study all three of these factors will be considered.

To date there have been no in depth studies of the perception of people with ASD and specifically the impact of stigma and discrimination toward people with ASDs in the workplace.

Such research would be beneficial in helping people with autism, and the vocational rehabilitation professionals that work with them, to be more prepared to understand and ultimately deal with the perceptions in the work environment. With regard to the relative perceptions of enhanced warmth and decreased competence of people with disabilities, it would be interesting to determine whether this pattern extends to people with autism as they have more difficulty establishing relationships with their coworkers in general. Due to the social and communication problems experienced by people with autism, there is a possibility that they will not be viewed the same way that people with other disabilities might be viewed.

In contrast to the relative lack of experimental studies, there have been a few qualitative studies involving interviews of people with ASD who indicate that they feel stigmatized in relationships and at school (Huws & Jones, 2008). In particular, people with ASD feel they face stigma when sensing that other people prejudged them and their abilities (Huws & Jones, 2008). This perceived or anticipated stigma causes many people with ASD to be reluctant to disclose their condition to employers and other employees. In the current study, I attempt to build on this qualitative research and fill the gap in the experimental research on the effects stigma on people with autism in the workplace. I investigate the effectiveness of using explanatory information and disclosure of autism to improve people's attitudes. By doing so, it could be possible to reduce the amount of stigma and discrimination felt by people with autism and improve the overall experience of interacting with people with autism.

### **Methods to increase positivity of coworker interactions**

In order to receive the full benefit of employing people with disabilities and people with autism, it is important to consider the strategies for decreasing stigma and discrimination and increasing social relationships in the workplace. Research has found that when someone has

stigmatized conditions, certain strategies that can be useful in improving others attitudes toward the stigmatized individual (Singletary & Hebl, 2009). Although a complete review of such strategies is beyond the scope of this review, three methods relevant to the proposed research study will be considered: disability disclosure, contact, and education.

**Disability disclosure.** When done voluntarily, whether or not to disclose a disability is a complex and sensitive decision. When disclosing, or informing others, of a disability, it is important to consider the possibility of both positive and negative responses. There has been research which supports both possible outcomes of disclosing a disability to others (Hastorf, Wildfogel, & Cassman 1979; Pearson et al., 2003). For example, in one study, the researchers sent employers the resumes of fictional employees who were identical with the exception of written disclosure of disability status. The employers significantly preferred the resumes of fictional employees without disabilities (Pearson et al., 2003). Thus, provision of a disability label hurt the opportunity for the fictional employees to be hired most likely due to the stigma of the label itself. However, a substantial line of research suggests that that people without disabilities preferred interacting with people who acknowledged their disability or stigmatized conditions rather than people who did not (Hastorf et al., 1979; Hebl & Kleck, 2002; Singletary & Hebl, 2009). The researchers believed that the acknowledgement of the disability may have reduced the tension that the people without disabilities felt because the person with the disability seemed more comfortable with their disability than the person who chose not to disclose their disability (Hastorf et al., 1979). Researchers also found that acknowledgement of a stigmatizing condition reduced the amount of negativity that stigmatized people perceived in interactions (Singletary & Hebl, 2009). This means that the acknowledgement of a stigmatized condition

improved the experience of the person with the condition and led to greater willingness to interact without fear of their condition becoming known.

Self-disclosure of a disability has also been found to increase the positive thoughts and to decrease the negative thoughts that participants have toward people with disabilities (Fichten et al., 1996). Additionally, there is evidence that disclosure of a disability increases ratings of honesty and conscientiousness, both of which can be important in the workplace. For example, Dalgin and Bellini (2008), as well as Roberts and Macan (2006), found that participants indicated in open-ended responses that they believed that persons who disclosed their disabilities were more honest. This finding was confirmed by Hebl and Kleck (2002) in a study in which participants rated people with physical disabilities who acknowledged their disability as more conscientious and open.

The timing of disclosure has also been indicated to be important in whether the person disclosing information will be viewed more positively or not. In Roberts and Macan's (2006) study, participants rated a person with an invisible, physical disability more favorably than the non-disabled candidate, when the disclosure took place early in the interview. In contrast, participants rated a person with the same disability who disclosed the disability late in the interview less favorably than the non-disabled candidate.

One of the most important factors involved in the positive impact of disclosure may be the amount of controllability the person had over the cause of their disability. For example, in Hebl and Kleck's (2002) study, when a disability (physically handicap, obesity) was perceived as uncontrollable, the candidates who acknowledged their disability were more likely to receive higher hiring ratings than people who did not acknowledge their disabilities. However, when the disability was considered to be the candidate's fault, the participants were less likely to rate them

as hireable when they disclosed in comparison to when they did not disclose. If people consider autism to be a biologically based disorder, rather than something caused by the person with autism, it could cause people with autism to be perceived similarly to people with uncontrollable disabilities, which is generally more positive than those who are perceived as responsible for their disability. Thus, disclosure would be expected to improve people's willingness to work with the coworker with autism.

I was unable to locate any experimental research on disclosure of autism in the workplace. The closest relevant studies to the subject relevant to the topic of this study involve a limited amount of research on perceptions of children with autism. For example, Chambres et al. (2008) found that when children were identified as having autism, adults perceived them more capable and more acceptable socially, than when adults were uninformed of the children's autism condition. Chambres and colleagues also found that when a child with autism exhibited behaviors that did not conform to societal norms (i.e., suddenly leaning back on table and moaning, temper tantrum and crying for no reason), adults perceived the child more positively and as better raised when they were informed of the child's autism condition compared to observers who were not informed. Additionally, Iobst and colleagues (2009) found that brief explanatory disclosure of autism improved adults' acceptance of a child with autism relative to adults who did not receive disclosure. In order to determine how the disclosure of autism will affect coworkers, additional research is necessary. In the current study, I am attempting to fill the gap in research regarding the effect disclosure of autism would have on attitudes toward people with autism.

**Education.** In addition to simply disclosing the disability, there are other ways to reduce tension and possible discrimination found in the workplace. The method of providing education



on a disability is believed to reduce the tension some people experience when told of a disability and decrease the possibility of prejudice in the workplace (Corrigan & O'Shaughnessy, 2007; McLaughlin, Bell, & Stringer, 2004). Such education typically attempts to challenge the myths associated with the disability (Corrigan & O'Shaughnessy, 2007). Research has suggested that training and educating employees without disabilities would improve relationships between employees with and without disabilities. Specifically, the education could be used to reduce the anxiety non-disabled employees have about working with a coworker with disabilities (McLaughlin et al., 2004; Scherbaum, Scherbaum, & Popovich, 2005; Stone & Colella, 1996). Additionally, training employees about their coworkers' autism and encouraging additional interactions between them has also been shown to provide natural supports that enhance the social integration of people with autism (Hillier et al., 2007). Employers and employees without autism can be taught better ways to communicate and work with the employees with autism, which would prevent the misinterpretation of the person's autistic characteristics as rudeness and the resulting tension in the workplace (Standifer, 2009).

While education could help employers and coworkers without autism, it still requires the person with autism to take the risk of revealing his or her condition to the rest of the workplace. While I was unable to find experimental support for the claim that educational material combined with disclosure can improve attitudes toward people with autism; a limited amount of relevant research has been pursued with children. For example, Campbell and colleagues (2004) found that children who were provided with descriptive and explanatory information about other children with autism were more interested in engaging in activities with the children with autism than were children who only received descriptive information. The current study is designed to

study the effects of explanatory disclosure of autism, in the context of a working relationship, in order to fill the gap in the research on adults with autism.

**Contact.** The use of disclosure of autism could lead to an increased interaction and awareness of coworkers with autism. As such, disclosure could ultimately lead to increased chance of contact with a person with autism. The contact hypothesis proposes that increased exposure to people with stigmatizing conditions, such as disabilities or autism, will provide the opportunity to form less stereotyped opinions about a person with a disability (Jones & Stone, 1995). The contact hypothesis has been tested and supported across many different types of disabilities, including physical and psychiatric disabilities. For example, in a study by Kolodziej and Johnson (1996), the contact hypothesis was supported as adults' attitudes toward people with psychiatric disabilities became less stigmatized due to interactions with people with psychiatric disabilities. In addition, the contact hypothesis was supported in a study by Tripp, French and Sherrill (1995) in which children reported more positive attitudes toward peers with behavior disorders when placed in integrated classrooms. Therefore, the contact theory would support the employment of people with disabilities and as well as disclosure. The interactions between the people with disabilities and their coworkers would be the method to reduce the stereotyped and stigmatized view of people with disabilities in general. An important part of increasing the amount of contact between people with and those without autism involves the disclosure of the condition. This study, while not directly addressing contact, focuses on whether disclosure can be a mechanism to improve the willingness to engage in contact between people with autism and their coworkers.

### **Current Study**

This study was designed to answer the question of whether disclosure of autism would affect participants' attitudes towards and willingness to work with a coworker with autism. In reviewing past research, there are clearly multiple issues which require additional investigation before this question can begin to be answered. First, disability research focuses on employee hiring and interaction, but primarily with regard to physical disabilities, thus additional research is needed on ASD to ensure that the findings would apply. Second, in the studies which focus on employing people with autism, much of the research highlights the struggles of being hired and the difficulties of interacting with coworkers. But the responses that coworkers without autism have to working alongside an individual with autism have yet to be studied extensively, especially in an experimental paradigm. Third, there is conflicting evidence that points to both negative and positive responses to disclosure of disabilities. Additional research needs to be done to determine what factors are involved in determining the success or failure of disability disclosure, particularly when disclosing autism to one's coworkers. The current study is designed to address all three of those needs by focusing on autism in the workplace, coworker attitudes toward employees with ASD, and the effects of autism disclosure. More specifically, I am interested in studying whether the degree of disclosure will affect the attitudes of potential coworkers toward a fictional person with autism.

The current study builds on and extends findings from two prior, related studies (both reported in Kuncze & Henegan, 2010). In the first study, the severity of the ASD (moderate or mild) and disclosure (none or basic) was manipulated, while the second study only disclosure of autism was manipulated. The results of these prior studies indicated that if given a choice, people would prefer to work with a coworker with mild rather than moderately severe autism

characteristics. However, when the condition of autism was disclosed, participants' attitudes toward the coworker with moderate autism increased while attitudes toward the coworker with mild autism neither increased nor decreased. In the second of the prior studies, the participants' ratings of their attitudes toward the coworker with autism again became more positive with disclosure of the condition. Additionally, the participants' overall willingness to work with the coworker with autism significantly increased with disclosure.

These prior studies were conducted on a sample of college students, who had limited real life experience in the workforce. In order to understand the complexities which are present in the workplace, the studies need to be replicated with a sample of working adults. This would increase the external validity of the findings by increasing the generalizability beyond the college student population. The current study aims to replicate the findings of the prior studies as well as to move beyond the college student population with a larger and more diverse sample.

The current study utilized a methodology similar to that of the prior studies. Written vignettes were used to describe an interaction, a method frequently used in disability research (McLaughlin et al., 2004). While the participants were forced to rely on their imagination, research indicates that written vignettes and behavioral observations yield similar results. In addition, the written vignette allows for greater control of the information presented to the participants (McLaughlin et al., 2004). In Kunce and Henegan (2010), the participants read a vignette which described an interaction at workplace with a possible coworker. In the current study, the fictional coworker does not have mental retardation, but does have moderately severe symptoms. For example, the described coworker had directly observable characteristics (e.g., handflapping when noisy, difficulty understanding conversational flow), he was still able to interact and work with others (e.g., nonviolent, able to talk to others). The amount of disclosure

was also manipulated in the vignettes, so that participants received either (a) no disclosure information, (b) basic disclosure of autism, or (c) individualized information and tips, in addition to the basic disclosure of autism.

In both the prior studies and in the current study, participants responded to a series of scales designed to determine their responses to the coworker after reading the vignette. Because attitudes are typically defined using three components - - affective (feelings toward), behavioral (intended behaviors), and cognitive (thoughts or beliefs) - - this study attempted to evaluate the participants' attitudes on all three of these components rather than only focusing on one aspect of the attitudes (Campbell, 2006). The current study was also designed to collect information on participant factors that might influence their willingness to work with a coworker with autism: social desirability bias, and prior experience with ASD or other disabilities.

Our hypotheses for the current study pertained to the effects of the amount of disability disclosure on participants' attitudes toward, willingness to work with, and social judgments of a coworker with autism. The primary hypothesis for this study involved the effects of disclosure on coworkers' attitudes toward an employee with autism. Higher levels of explanatory information were expected to lead to more positive attitudes toward the coworker (Campbell et al., 2004; Kuncze & Henegan, 2010). Additionally, I hypothesized that higher levels of explanatory information could also lead to increased ratings of willingness to work with the coworker with autism. If the participants feel more affectively positive, have coping cognitions, and do not feel the need to avoid, then they should be more willing to interact. This has been found for interactions with people with disabilities as well as with children with autism (Campbell et al., 2004; Helb & Kleck, 2002).

Further, I hypothesized that higher levels of explanatory information could affect social judgments made on dimensions of the coworker with autism's warmth and competence. However, the direction of the effect on the warmth dimension was uncertain as being told the person has autism and social difficulties might cause participants' social judgments to be more negative in anticipation of social deficits. In contrast to this idea, Louvet et al. (2007) found that people with disabilities tended to be perceived as being warmer than people without disabilities. This could extend to people with autism, as in Chambres et al. (2008) when people perceived a misbehaving child as better behaved once told that the child had autism. The direction of the effect of competence was also uncertain, as being told the person has autism might cause participants to rate them higher (skill with task) in light of some of the stereotyped perceptions of people with autism. This was the case in Chambres and colleagues' (2008) study as a child with autism was perceived as smarter than average. In contrast, Cuddy, Fiske, and Glick (2007) found that people with disabilities tend to be viewed as warm but not competent.

With the addition of the working adults over the age of 25, I planned to conduct exploratory analyses to investigate any possible differences between the working adults and the college student populations. I was uncertain about whether there will be any difference between the populations and what direction the differences might be in, if there were any, because I was unable to locate any studies which compared the particular populations. However, there was some information indicating that adults were more positive toward persons with ASD than children (Harnum, 2007). So if there were to be a direction, it is expected that the working adults would be more positive toward the coworker than the college students.

## Method

### Participants

**Target Sample.** Data were collected on two samples, college students and working adults over the age of 25 who had been employed within the past 12 months. The analyses reported here were conducted on 186 participants including 93 college students (63 female, 30 male) and 93 working adults over the age of 25 (63 female, 30 male), although data were actually collected on 118 college students and 120 working adults over the age of 25. Some participants had to be dropped from the sample for the following reasons. First, four participants were excluded from the analyses because they did not complete the study, two because they reported difficulties imagining the hypothetical scenario, and one participant within the community sample did not meet the exclusionary criteria of having worked in the last 12 months ( $n = 7$  dropped for these reasons). In addition, in order to increase the robustness of the multivariate analysis of covariance (MANCOVA) to violations of heterogeneity and to control for possible gender effects, it was desirable to have equal sample sizes and gender ratio across conditions. In order to equalize the number and gender ratios of participants across six cells formed by the disclosure manipulation and the student/community status (21 females per cell and 10 males per cell), 46 participants were randomly excluded.

The college student sample was significantly younger ( $M = 18.73$  years,  $SD = .95$ ) than the working adult sample ( $M = 27.88$  years,  $SD = 8.11$ ),  $t(184) = 78.30$ ,  $p < .001$ . In contrast, the samples were similar in terms of their ethnicity and gender (See Table 1). When looking at characteristics typically used as proxy measures for socio-economic status (education, employment, income), the samples were similar in some aspects but different in others. In terms of education level, all of the students had had some college education. The majority of working

adults also indicated that they had high levels of education, but many working adults had education beyond the amount that college students currently have (4 year college degree = 38.7%; advanced college degree = 28%). In terms of recent employment, the majority of participants indicated that they have working in the past 12 months. However, college students were more likely to have worked part-time (76.3%), while working adults were more likely to have worked full time (75.3%). When participants were asked to give their job title, answers ranged from CEOs to waitresses, providing a broad range of interpersonal experiences with coworkers to help them decide if they would realistically work with this person in the situation given. The annual household incomes of the samples were different with the majority of students indicating lower household income (25.8% = less than \$25,000) than the working adults (34.4% = \$100,000-149,999).

The college student population and the working adult population also had comparable familiarity with autism as 62% of students and 61% of working adults indicated knowing someone with autism (See Table 1). But none of the participants in the sample had autism themselves. As workplace experiences are the focus of the current study, the participants reported whether they had had a coworker with autism and only 2% of college students and 4% of working adults reported having worked with someone with autism.

**Recruitment and Compensation.** Both the college student and working adult samples were recruited using convenience sampling techniques. The students were recruited from Psychology classes and the Psychology Department Subject Pool at Illinois Wesleyan University. All college students earned class credit in exchange for their participation. Working adults over the age of 25 were recruited by students from the Psychology Department Subject Pool or from interested organizations (i.e., a local elementary school). The sample recruited by



students in the Psychology Department Subject Pool comprised the majority of the working adult sample. The students sent e-mails, with text supplied by the researcher, asking adults over the age of 25 to participate. Organizations recruited working adults over the age of 25 by sending out an e-mail as well, again with text supplied by the researchers, which explained how to participate and how much money participants would earn for the organization (See Appendix A for recruitment text).

Working adults over the age of 25 earned class credit for the student who recruited them or money for an organization of their choice (i.e., \$2), whichever was appropriate. The adults recruited by students also had the option of entering a raffle for one of four \$25 gift cards.

## **Measures**

**Multidimensional Attitude Scale Toward Persons with Disabilities (MAS).** Findler, Vilchinsky and Werner (2007) developed this measure to assess adult attitudes toward persons with disabilities. The MAS contains three sets of questions used to assess affective, behavioral, and cognitive aspects of attitudes (e.g., (a) feeling nervousness, (b) finding an excuse to leave, (c) thinking to oneself “he seems to be an interesting guy”). The participants rated the likelihood of their responses on a scale of 1 (not at all) to 5 (very much). In this study, the scale was used to assess the attitudes that the participants have toward the depicted coworker with autism. The original version of the MAS has been shown to demonstrate concurrent validity (correlations with similar measures in the field) and acceptable internal reliability for all three subscales ( $\alpha = .83$  to  $.90$ ). The original version of this scale was shortened from 34 items to 14 items for brevity. The retained items were selected based on scale items’ sensitivity to disclosure effects as well as checks on internal consistency and in two previous studies (Kunce & Henegan, 2010). In the

current study, the reliabilities of all three subscales, affect (6 items,  $\alpha = .79$ ), behavioral (5 items,  $\alpha = .85$ ), and cognitive (4 items,  $\alpha = .87$ ), were acceptable.

**Judgment of Coworker Qualities Scales.** This eight item scale was used to measure the participants' social judgments of the hypothetical coworker with autism. Four of the items have been used previously in the social judgment literature to tap perceptions of the coworker's warmth (i.e., friendly, warm) and competence (i.e., capable, competent; Fiske, Cuddy, Glick, & Xu's, 2002; warmth scale  $\alpha = .82$ , competence scale  $\alpha = .90$ ). The other four items assess how warmth and competence might be demonstrated in a work environment (e.g., items drawn from Colella, DeNisi, & Varma, 1998;  $\alpha = .90$ ; items included: "Able to work with others," "Skilled at tasks," "Able to be a team player," "Someone with leadership potential"). The participants responded on a scale of 1 (not at all) to 7 (extremely).

A factor analysis conducted on the current data yielded two expected factors: warmth and competence. However, one item loaded on both factors. The "leadership potential" item, despite our expectation that it would group with competence items, also correlated significantly with the warmth items. For this reason, this item was not included in the subscale computations. The reliability of the two resulting subscales was acceptable: Warmth (4 items,  $\alpha = .86$ ) and Competence (3 items,  $\alpha = .83$ ).

**Willingness to Work with Target Scales.** This scale was developed to assess overall interest and willingness to work with coworkers with autism spectrum disorders (Kunce & Henegan, 2010,  $\alpha = .90$ ). Specifically, participants responded to three Likert-items focused on their willingness and desire to work with a coworker with autism (e.g., "How interested would you be in working alongside this coworker," "how enthusiastic would you be about working with this coworker," "how much would you want this coworker to be assigned to work with you").

Participants responded on 11-point scales, with a response of 5 indicating an average degree of willingness. An additional, open-ended item asked participants to write two or three sentences explaining their answers to this set of items. When analyzing the current data, the reliability for the willingness scale was  $\alpha = .95$ . These items were used to generate two scores for each participant: (a) total score and (b) a group membership variable. The total scores were computed first and then used to assign participants to one of three groups. Two of the groups represented the scores below the neutral point (Reluctant Coworkers, 1 to 3.33; Hesitant Coworkers, 3.34 to 5.33), while the final groups represented the scores above the neutral point (Willing Coworkers, 5.34 to 11). The groups were almost equal in number ( $n = 56$  to  $67$ ).

**Prior experience.** Prior contact with people with disabilities has been shown to have an impact on responses to coworkers with disabilities (Stone & Colella, 1996). Thus, amount, quality and depth of prior experience with autism, specifically, and disabilities, more generally, was assessed using a series of parallel items. Participants' prior experience with autism was evaluated using three 7-point Likert-type scale items (i.e., "to what degree have you been exposed to autism or related conditions," "to what degree has that exposure been positive," "to what degree do you see yourself as part of the autism community"). Prior experience with coworkers with disabilities was measured with three items parallel to the autism focused items. Participants' answers to the items allowed us to judge the depth and quality of their experience on a scale of "not at all" to "very much." A final open-ended question asked the participants to explain their answers to the contact items in two or three sentences. A factor analysis on all six Likert items yielded only one factor; therefore, all six items were included in a single prior experience scale. In the current study, the reliability of this scale was .80.

**Brief Marlowe-Crowne Social Desirability Scale (MCSD).** This 10-item measure is a shortened version of the 33-item measure developed by Crowne and Marlowe (1960) to assess participants' tendency to respond with a social desirability response bias (or "faking good"). The measure has been frequently used, as it will be in this study, to control for bias in self-reported attitudes linked to participants' tendency to respond in a socially desirable manner. Prior research suggests the shortened version has acceptable but marginal internal consistency (approximately  $\alpha = .70$ ). In the current study, the reliability of the scale was low ( $\alpha = .62$ ), but considered marginally acceptable in light of how it will be used (i.e., as a covariate in group assessment; Wasserman & Bracken, 2002).

**Demographics.** Participants were asked to provide basic demographic information (e.g., gender, age, ethnicity, income). An additional item asked participants if they knew anyone with autism and, if yes, what relationship they have to that person (e.g., self, family member, coworker). The participants had the option of not responding to any items they do not want to.

**Integrity Check items.** Two self-report items were used to measure the integrity of the participants' responses in the study. First, directly following the vignette, the participants were asked to indicate how well they were able to imagine the interaction with the coworker (better than most people, probably average, probably worse than most). Second, at the end of the study the participants were asked to evaluate the accuracy of their responses (i.e., Not well at all, pretty well, very well).

**Additional measures.** The current study is part of a larger study. Thus, in addition to the previously mentioned measures, the participants completed an Autism Self-Efficacy scale, a Behavioral Measure and a Willingness to Support an Autism Hiring Plan scale (Appendix). These measures will not be discussed further.

## Procedure

This anonymous, online, experimental study was run through an internet-based research service, *Psychdata.com*. All of the data collected in relation to the study were collected and stored on the secure *Psychdata.com* website. After logging on to the website, the participants entered the provided survey number. The participants were then taken to the Informed Consent page (See Appendix B).

After indicating their consent, participants proceeded to the first part of the experiment. First, all participants read the same introductory script that asked them to imagine that: (a) they worked for a large business corporation, (b) a new employee had been hired to help with data management and (c) their supervisor wanted to conduct an informal assessment in order to determine how well the participant and the coworker might work together (Appendix C).

Second, participants were randomly assigned to one of three possible disclosure conditions: (a) No Disclosure, (b) Basic Disclosure information, or (c) Basic Disclosure information plus individualized information about the specific coworker's symptoms of autism and tips on interacting with the coworker (Basic Disclosure plus Interaction Tips condition).

Participants who were in the No Disclosure condition continued directly to the vignette (described later). Participants in the two disclosure conditions read the appropriate disclosure information prior to continuing on to the vignette. The basic disclosure condition was as follows:

*Before the assessment, your supervisor explains that the person you will work with was born with autism and that you are apt to notice some of his symptoms during the work-session. Your supervisor goes on to provide you with the following information:*

- *Autism is a life-long, developmental condition with a biological cause (most likely genetic)*
- *People born with autism have challenges in communication and social interaction. They also tend to have some unusual behaviors and interests.*

*Many people with autism also have atypical responses to touch, sound or other sensory input. Severity of these symptoms varies widely across people with autism.*

- *Some people with autism also have mental retardation and learn relatively slowly. Other people with autism have average, or above average, levels of intelligence (i.e., High Functioning Autism or Asperger's Disorder).*

Participants who were in the Basic Disclosure plus Interaction Tips condition read the above Basic Disclosure text, along with additional information on ways to interact with the coworker with autism. The additional Interaction Tips were as follows:

*Finally, your supervisor explains that the coworker's autism might influence your interactions during the assessment period as follows:*

- *The coworker uses language to communicate. But, he has difficulties with back-and-forth conversation. You may need to be more patient than usual when waiting for a response.*
- *The coworker likes interacting with others, but may miss or misunderstand typical social cues. You may find it helpful to remember that this is part of his biologically-based disorder rather than becoming upset by any socially inappropriate behaviors.*
- *Despite some unusual behaviors, the coworker is not dangerous. He may react to some noises that don't usually bother others (e.g., lights buzzing, people laughing). You can think of this as any sensitivity you have to certain sounds, such as fingernails on a blackboard.*
- *This coworker's IQ is in the average range. He is very interested in transportation and has an amazing amount of knowledge in this area. You may find it easier to talk with him about his interests rather than other topics.*

Following the appropriate disclosure information, all participants proceeded to read the same vignette text which described an interaction they might have with a new employee during an informal assessment. The vignette depicted core facets of autistic disorders as defined by the DSM IV. These characteristics included communication impairments (e.g., “the conversation seems to take more effort than usual”), deficits in reciprocal social interaction (e.g., “when he finishes the first set of data, he doesn't want to let you to enter the second set,”), and restrictive or stereotyped behaviors (e.g., “he begins to rock back and forth”).

The text of the vignette, which was adapted from two prior studies from the same lab (Dowjotas, 2009; Kunce & Henegan, 2010), was as follows:

*You and your new coworker are introduced. He greets you with a robotic, "Hello. How are you today?" The coworker is a man about your age, but you have not met him before.*

*The supervisor suggests that you talk with one another to get acquainted. You begin but the conversation seems to take more effort than usual. For example, at times you cannot tell if he is understanding or even paying attention. Also, his voice is stiff and a little too loud. Sometimes he takes a really long time to answer a question, and other times he talks excessively and is off-topic.*

*When you ask where he lives, he smiles but doesn't really answer the question. Instead he talks for a long time about bus routes in town and then starts listing all the different bus routes, their colors, and drivers. The supervisor indicates that it's time to work on a data entry task. Your coworker keeps talking about bus routes, and you have to repeat what the supervisor said several times before he begins entering the data.*

*This coworker seems to understand how to enter the data very well. He wants to enter the data first and works hard. When he finishes the first set of data, he doesn't want to let you to enter the second set. When you try to do this, he begins to rock back and forth. As you are working, there is quite a bit of loud noise from an office next door. When it gets really noisy, he flaps his hands and puts them over his ears.*

After reading the appropriate disclosure text and the vignette, all the participants completed the first set of measures to determine their reactions toward the fictional coworker. Specifically, participants completed the *Multidimensional Attitude Scale Toward Persons with Disabilities* (MAS), *Judgment of Coworker Qualities Scale*, and *Willingness to Work with Target Scale* (See Appendix). Then, all the participants completed additional measures to help researchers describe the sample and check for possible confounds. First, the participants answered the *Prior Experience*, *Demographic*, and *Integrity Check* items (See Appendix). Second, the participants completed the *Marlowe-Crowne Social Desirability Scale* (MCSD) to assess their tendency to respond with a social desirability response bias (See Appendix L).

Finally, the participants read the debriefing page (See Appendix P). This page provided the participants with additional information about the study they completed, along with ways to contact the researchers and ways to find additional information on employment of people with autism.

## Results

### Initial Analyses

Before testing the primary hypotheses, I performed several initial analyses. I first conducted a correlational analysis of the dependent measures and the possible covariates. As can be seen in Table 2, the six main outcome variables (3 attitude subscales, 2 social judgment subscales, willingness to work scale) all positively significantly correlated with each other ( $r$ 's = .18 to .66, all  $p$ 's < .05). These correlations indicate that if participants responded positively on one of the scales, they were likely to respond positively on the others as well. Because these outcome measures were all intercorrelated, I decided to test the experimental hypotheses using multivariate statistics (i.e., MANCOVA).

Also shown in Table 2, the covariates showed mixed pattern of correlations with outcome measures. The Prior Experience scale significantly correlated with all six outcome measures ( $r$ 's = .20 to .42,  $p$  < .001), indicating that the more prior experience the participants had, the more positively they reacted to the coworker. Given these correlations, Prior Experience was entered as a covariate in the testing of the experimental hypotheses. In contrast to the Prior Experience variable, the social desirability measure (MCSD) only correlated significantly with MAS affective and behavioral subscales ( $r$ 's = .17 to .21,  $p$  < .05). While these correlations were weak, they were in the expected direction (Kunce & Henegan, 2010). Given this, as well as the



theoretical justification, for considering the influence of social desirability on attitude formation, I also decided to include the MCSD as an additional covariate in the MANCOVA analysis.

An additional set of initial analyses were conducted in order to determine whether gender was associated with participants' responses in the current study. Gender was entered as an additional factor in the MANCOVA used to test the experimental hypotheses and no significant main effects or interactions were found involving it. Because this indicated that there were no significant differences in the ways that men and women responded to the coworker, primary analyses were rerun without gender as an additional factor. These results are reported below.

### **Primary Analyses**

A 2 (Employment status: College students vs. Working adults) X 3 (Disclosure Condition) MANCOVA was performed in order to test employment status and disclosure effects on attitudes of participants toward a coworker with autism. The dependent variables included in this analysis were the three MAS subscales, the two Social Judgment subscales, and the Willingness to Work scale score. Prior Experience with Autism and Disabilities scale and the MCSD scale were the covariates. Significant results were followed up with univariate analysis of variance (ANOVA) tests and Bonferroni corrected pairwise comparisons.

The MANCOVA results were as follows. With respect to the covariates, the MCSD was not found to significantly affect participants' responses. In contrast, Prior Experience with Autism and Disabilities was found to be a significant covariate,  $F(6, 173) = 8.97, p < .001, \eta_p^2 = .24$ , indicating that overall when people had higher levels of prior experience with autism or disabilities, they tended to be more positive in their evaluations. The main effects of disclosure,  $F(12, 348) = 5.41, p < .001, \eta_p^2 = .16$ , and employment status,  $F(6, 173) = 3.75, p = .002, \eta_p^2 = .12$ , were significant above and beyond the effects of prior experience. In contrast, the interaction effect of disclosure and employment status was not significant,  $F(12, 348) = 1.21, p = .275, \eta_p^2 =$

.04, indicating that while there were significant differences in terms of both disclosure and employment status, these differences did not depend upon each other. The significant main effects are described in detail below.

The significant main effect of disclosure was followed up with univariate ANOVAs, which revealed significant disclosure effects for five of the six scales. As can be seen in Table 3, disclosure (regardless of level) tended to result in more positive ratings than when there was no disclosure. Specifically, people in both of the disclosure conditions expressed significantly more positive behavioral and cognitive attitudes toward the coworker than did people in the No Disclosure condition (means were in the same direction for MAS affect subscale, but the post hoc comparisons were not significant). In terms of their social judgments of the coworker, participants in the disclosure conditions were more likely to consider the coworker as warm than the participants in the No Disclosure condition. In contrast, there were no significant differences in participants' judgments of the coworker's competence across the conditions. Finally, participants in the disclosure conditions were more willing to work with the coworker than the participants in the No Disclosure condition. In summary, there was a pattern of disclosure versus no disclosure effects, but no significant differences between the Basic Disclosure and the Basic Disclosure and Tips conditions for any of the scales.

The significant main effect of employment status revealed that the working adults tended to be more positive overall than the college students. However, the follow up univariate ANOVAs did not show a consistent pattern across the six outcome measures. As shown in Table 4, working adults were significantly more positive toward the coworker than students on two of the three attitude subscales (affect, behavior), while students were more positive toward the coworker than working adults on one of the two the social judgment subscales (competence). All

of the other scales were not found to have significant differences between the samples. In general, effect sizes for employment status effects were smaller than for disclosure effects.

### **Supplementary Analyses**

Due to the practical significance and importance of people's willingness to work with a coworker with autism, additional analyses were performed on the grouping variable generated from the Willingness to Work variable. As described in the Method section, participants were classified into one of three groups based on their total mean score on the Willingness to Work scale: Reluctant Coworkers, Hesitant Coworkers, and Willing Coworkers. Figure 1 displays the percent of participants within each disclosure condition classified into each of these groups. The percentage of participants in each of these three groups significantly differed,  $\chi^2(4) = 18.20, p < .001$ . For example, the No Disclosure condition had the greatest percentage of Reluctant participants (53%) and lowest percentage of Willing participants (19%). In contrast, the Basic Disclosure plus Tips group had the lowest percentage of Reluctant participants (24%) and greatest percentage of Willing participants (50%). The percentages in Basic Disclosure fell in between these other two conditions (31%, 32%).

## **Discussion**

### **Disclosure Effects**

Under and unemployment rates are much higher amongst people with autism and, more generally, people with disabilities. Specifically, people with autism tend to have difficulties with social relationships in the workplace, which are a crucial aspect to maintaining employment. In this study, I investigated whether disclosure of an autism spectrum disorder would improve adults' attitudes toward a potential coworker with autism. In line with my hypotheses, the results of the study indicate that participants who received Basic Disclosure and Basic Disclosure plus

Interaction Tips were more positive in their attitudes toward, judgments of and willingness to work with the coworker with autism than were the participants who received no disclosure. In terms of the participants' affective, behavioral and cognitive attitudes, the participants to whom autism was disclosed, regardless of the level of accompanying explanation, were significantly more positive than the participants to whom autism was not disclosed. These results also appear to be in line with the previous research concerning the effects of disclosure of other disabilities and disclosure of children's autism condition (Campbell et al., 2004; Chambres et al., 2008; Hebl & Kleck, 2002; Kunce & Henegan, 2010). For example, as found by Iobst and colleagues (2009), the addition of disclosure of a child's autism condition improved adults' attitudes toward that child.

In terms of participants' social judgments, the use of disclosure, as opposed to no disclosure, increased perceptions of the coworker's warmth. This result coincides with the results of research on other disabilities by Louvet and colleagues (2009), who found that people with disabilities were perceived as warmer than people without disabilities. Results also coincide with arguments made by some vocational rehabilitation professionals who suggest that people might make allowances for the inappropriate social behavior when they know it is not intentional (Standifer, 2009). For example, when the autism condition is disclosed, people might take into account that the person with autism is missing social cues, rather than purposefully being rude. However, also consistent with obtained results, is the possibility that a stereotype of disability was activated by the disclosure of autism. That is, people who received disclosure of autism could have had lower expectations of the coworker's social abilities based on the stereotype of autism, which could create lower expectations for the individuals' social behavior. Because of this, they may have evaluated the coworker's social performance more positively than someone

who did not have disclosure and did not lower their expectations. This result is consistent with previous research in which people with disabilities are rated more positively on performance evaluations (Ren et al., 2008). The activation of a stereotype might be damaging to the person with autism, it could also be beneficial to the degree that it creates greater tolerance in others, thereby providing people with autism with the opportunity to work and prove their capabilities. In light of the disclosure information regarding the coworker's social deficits, the participants might have altered their perception of the coworker's warmth, which could be important to the coworker being accepted in the workplace.

In contrast to the significant effects of disclosure on ratings of the coworker's warmth, there were no significant differences between the disclosure levels on ratings of the coworker's competence. The lack of difference between the no disclosure condition and the disclosure conditions could have occurred for a variety of reasons. For example, on one hand the disability stereotype described by Louvet and colleagues (2009; i.e., high warmth but low competence) might have been activated by disclosure and caused participants to decrease their ratings of the coworker's competence. On the other hand, the vignette text, which described the coworker as relatively capable of the task, may have worked against the stereotype to keep the competence ratings relatively high. Further, the overall higher means for competence, relative to the means for warmth, could be attributed to the description of the coworker's skill at entering data in the vignette or to activation of an ASD-specific stereotype perpetuated by the media's portrayal of autism and savant skills (i.e., *Rain Man*).

Practically, the overall willingness of people to work with a coworker with autism is crucial to people with autism maintaining employment. Willingness to work with coworkers involves multiple aspects including people's attitudes toward, judgments of, and willingness to

interact with the person with autism. The hypothesis that explanatory disclosure would lead to more willingness to work with the coworker with autism was supported by the results of the current study. Specifically, participants in both disclosure conditions were significantly more willing to work with the coworker than people in the No Disclosure condition. Supplemental analysis of the Willingness to Work data clarifies disclosure effects further. For this analysis, I transformed into three classification groups were created based on the total willingness scores (Reluctant, Hesitant, Willing), and found that the percent of participants classified as reluctant to work with the coworker decreased noticeably across disclosure levels (No Disclosure = 53%, Basic Disclosure = 31%, Basic Disclosure plus Tips = 24%). In contrast, the percent of participants classified as willing to work with the coworker increased with disclosure (ND = 19%, BD = 32%, BDT = 50%). These results are important because the more willing people are to work with people with autism, the increased amount of contact individuals can have with people with autism. Increasing the amount of contact between people with autism and people without autism is crucial to reducing the amount of stigma connected to the condition.

Therefore, in light of the current results, disclosure of autism for people with moderately severe, visible autism is beneficial to improving coworker relationships. While there is still the risk of a negative response, the results indicate that people will be more positive toward the coworker with autism when the condition is disclosed than when it is not disclosed. The results also indicate that while there might still be some tension in the affective response of the participants, the behavioral (e.g., non-avoidance of coworker) and cognitive (e.g., coping thoughts such as “we can get along”) responses of the participants are significantly improved by the disclosure of the condition. Additionally, the use of disclosure could ultimately provide people with autism the opportunity to obtain a job and to prove their worth to their coworkers

and employers rather than being dismissed due to misunderstandings of their social behaviors. The mere opportunity to enter the workforce is important to reducing the higher than average levels of unemployment amongst the population of people with autism.

### **Employment status effects**

An important goal of the study was to determine whether beneficial effects of explanatory autism disclosure previously observed in college students (Kunce & Henegan, 2010) could be replicated in a sample of older working adults. I was unsure if it would be possible to replicate the previous college student sample results with the older working adult sample because some research has indicated that older adults have more positive attitudes toward people with ASD when compared to the attitudes of younger people (Harnum, 2007). The results of the study revealed that the working adult sample was generally more positive toward the coworker than the college student sample. However, the results were more mixed than the disclosure effects, with working adults being significantly more positive on two of the scales (MAS affect, behavior) and college students being significantly more positive on one of the scales (Competence). I believe that because working adults had more practical work experience than the college students with a wider range of coworker, working adults might have been more willing to work with a person with autism, despite the challenges it would entail, because working adults were able to recognize that there are challenges when working with any coworker. But due to the small effect sizes of all of these results, further research should be done before a definite statement on whether the two groups differ in their attitudes toward a coworker with autism can be made.

Perhaps more important than the effects of employment status alone, was the *lack* of an interaction effect between disclosure and employment status. This indicates that there were similar disclosure effects for both samples, with disclosure significantly increasing positive

attitudes for working adults as well as college students. These results indicate that disclosure effects can be generalized beyond the college student population to adults with substantial experience in the workforce.

### **Additional analyses**

There were several covariates that were suggested by prior research as potentially being influential in improving peoples' attitudes toward a coworker with autism. In the current study, the participants' prior disability experience as well as their tendency to respond in a socially desirable manner were taken into consideration. Participants with more disability experience were found to be significantly more positive toward the coworker than participants with less experience. The effect size for this scale ( $\eta_p^2 = .24$ ) was found to be even higher than the effect size of disclosure effects, which indicates that Prior Experience accounts for a substantial percentage of the variability in people's attitudes toward a coworker with autism. Such a finding is important for people with autism who are attempting to find a place in the workforce. It indicates that people who have previous experience with autism or disabilities will be more positive toward a coworker with autism. As such, it may be important for vocational rehabilitation professionals to work collaboratively with potential employers to identify businesses having employees with more extensive prior experience with autism or disabilities. In doing so, people with autism could be placed in a work environment that provided them with the best opportunity for successful, positive coworker interactions. Likewise, employers should consider finding ways to have employees with autism, during the early portion of their employment, work with people who have more experience with related conditions. Additionally, while the disclosure effects were still significant above and beyond the effects of Prior Experience, it is important to consider the result as it supports the necessity of increasing contact



between people with autism and people without autism. With the increased contact, people without autism can have additional experiences that can lead them to be more positive toward people with autism in general.

Similarly, I hoped to control potential biases caused by participants' social desirable responding. While the disclosure effects were still significant above and beyond the effects of possible the social desirability response biases, the control for this potential confound may have been inadequate for two reasons. First, the short form of the Marlowe-Crowne measure had unexpectedly low reliability ( $\alpha = .62$ ). Second, it correlated significantly with only two of the outcome measures.

### **Strengths, Limitations, and Future Research**

When evaluating the strengths and limitations of the current study, there are several aspects which should be considered. Particularly, the study has strengths in terms of: (a) research design and statistical strengths, (b) a focus on adults with ASD, (c) the samples of participants, and (d) the methodology.

The current study fills a gap in the autism employment literature in its use of an experimental research design. The previous literature on disclosure of autism and peoples' responses to persons with autism was primarily anecdotal and qualitative. The experimental design increases internal validity, thereby increasing the confidence in the conclusion that disclosure was influencing people's attitudes. In addition, the current study was designed in order to account for possible gender effects and to increase the robustness of the MANCOVA to violations of homogeneity by making the sample size and the participants' gender equal across all the cells. Finally, the overall sample size of the study ( $n = 186$ ) allowed for good statistical

power in the study. Much of the previous ASD research has low sample size which means that the past research might say that results are not significant when there are in fact real differences.

In addition to these design strengths, there are additional strengths in terms of the current study's focus on adults with ASD. Prior research has focused primarily on people's responses to children with autism or on adults with other disabilities. While these studies are important and beneficial, adults with autism need to be considered as well. Thus, the current study focused on people's responses to disclosure of an adult coworker's autism condition. This study placed a particular emphasis on determining if disclosure could help people with autism successfully navigate the workplace, which is rare in ASD employment research.

In the current study, the samples of participants used (college students, working adults) made it possible to generalize the results beyond the college student sample used in the prior study by Kunce and Henegan (2010). The decision to use a sample of working adults over the age of 25 was made because these participants would have greater practical experience in the workplace in comparison to most college students. Also, the addition of the working adult sample made it possible to compare whether the trends found in the college student sample could also be found in a sample of older adults presently in the workforce. The inclusion of the working adult sample in the current study makes it possible to generalize the results to the present work environment and makes the results more applicable for adults with autism who are attempting to maneuver through the workplace.

In terms of the methodology, this study involved the participants imagining the scenario described in the vignette. Because of this, a manipulation check was put in place to account for any participants who were unable to imagine the scenario taking place. Only two participants indicated difficulty imagining the scenario and their data were excluded from the data analysis.

This indicates that the vignette was descriptive enough to allow for participants to adequately imagine the scenario.

While the current study had many strengths, there were also numerous limitations, as is the case with most research studies. It is particularly important to consider the limitations in the following areas: (a) lack of ability to generalize to all adults with ASD, (b) the sample of participants, and (c) the methodology.

While the finding of the benefits of disclosure is important for people with autism, results cannot be automatically generalized to the entire population of people with autism. As with many other disabilities, autism characteristics vary in severity. The current study's vignette described a coworker with moderately severe, observable autism characteristics. As such, the results can only be generalized to people with comparable autism characteristics. The results may or may not hold true for people with more mild or more severe characteristics. In Kunce and Henegan's (2010) study, it was indicated that there was no negative impact of disclosure on the participants' attitudes toward a person with mild autism characteristics. However, there were significant positive effects of disclosure on the participants' attitudes toward the person with moderately severe autism. Thus, based on the results of this prior research, it could be predicted that disclosure of autism might not help or hurt people with mild autism. In terms of possible disclosure effects for a person with more severe autism, it is likely that the disclosure will help attitudes toward them as was the case with the person with moderately severe autism. However, it is also possible that the severity of the person's autism might be too much to overcome and disclosure will not be able to help. People might not be able to see a way for people with severe autism to work successfully due to the disruptive nature of some of the characteristics. Therefore, people might respond more negatively toward the coworker with severe autism.

While adding working adults to the samples of the participants increased some aspects of generalizability, the ability to generalize to all members of the workforce was reduced due to the lack of ethnic diversity in the current sample. The samples of participants were primarily comprised of white participants (90% for both samples). In order to ensure that the results can be generalized to all people, it would be useful to replicate this study with more diversity. Additionally, this study used convenience sampling. The college student sample was recruited from a small, liberal arts college in the midwestern United States. In addition, the working adult sample was recruited with the assistance of college students from the same institution and most likely was comprised of primarily the students' family members. Because of this, the generalizability of the sample may be limited. In the future, it would be worthwhile to recruit participants from outside the college environment, such as recruiting workers directly from a wide variety of businesses.

In terms the methodology used in the current study, there were some strengths, but there were also some limitations and ways to improve the methods in future research. While there was a manipulation check to determine how well the participants imagined the scenario, there should be additional manipulation checks included in order to determine whether participants fully understood the autism characteristics that the coworker exhibited in the vignette. Additionally, the participants' ability to determine whether the hypothetical coworker had autism was not taken into consideration in the current study. The participants' ability to determine if the coworker has autism could impact whether the disclosure effects were as they appeared, as some of the people in the No Disclosure condition may have been aware of the coworker having autism. This means that the disclosure effects might have been stronger if there was an entirely naïve sample, rather than a relatively well informed sample, as is the case in the current study.

Another alteration to the methodology which might increase the honesty and accuracy of the participants' answers would be to have them participate in person, rather than over the internet. The internet allowed for the working adults sample to be accessed more readily, but it removed some of the control that I had over the application of the measures. The internet software used in the current study did allow us to restrict access to only people who were invited to participate through the appropriate channels, but I cannot ensure that the people were who they said they were. Therefore, it might be beneficial to replicate the study without using the internet. Additionally, in future research it might be helpful to consider another method to control for the possibility of a social desirability bias. Perhaps the use of the full Marlowe-Crowne measure, instead of the brief version, would increase internal consistency and control more effectively for participants' social desirability. Another method to control for social desirability would be to have participants complete an implicit attitude measure, such as the Affect Misattribution Procedure, to determine people's unexpressed attitudes toward the person with autism (Payne, Cheng, Govorun, & Stewart, 2005).

It could also be useful in future research to alter the methods of the disclosure and vignette as other previous disability research has done. Previous research has had the person with a disability be the one to disclose, rather than having someone else disclose the disability. For example, Hebl and Kleck (2002) found that the people who disclosed were considered more honest and well-adjusted. It would be interesting to determine if the results of participants' judgments of people disclosing autism would also indicate that they were more honest and well adjusted and whether participants might be more positive toward the coworker with autism who discloses than when someone else discloses on their behalf. Another possible route to future research would be using a videotape vignette and disclosure. The use of videotape stimuli is an

accepted practice in disability research and would prevent people from having to rely on their imagination in the interpretation of the vignette, especially if they were unfamiliar with some of the repetitive behaviors of people with autism (Hastorf et al., 1979; Hebl & Kleck, 2002). While almost all the participants in the current study stated that they were capable of effectively imagining the vignette, the videotaped vignette might also make the entire experience more concrete and realistic for participants. Ultimately, the final step in the research would be creating and analyzing a real life interaction which would make the most real world applicable results. If an experiment could be performed measuring disclosure effects on the attitudes of employees toward their actual coworker with autism, it would be the most concrete and realistic experiment as the participants would actually experience the interactions in a real work environment. However, such research must be handled carefully and ethically to avoid hurting an already vulnerable population.

**Summary.** While the current research successfully replicated previous research on disclosure of autism's positive effects on people's attitudes toward a coworker with autism, additional research needs to be done on this important topic (Kunce & Henegan, 2010). This research topic is particularly crucial because people with autism, perhaps even more than people with other disabilities, struggle to find and maintain employment. Unemployment has a high cost, emotionally and financially, to both the people with autism and the community as a whole (Garcia-Villamizar & Hughes, 2006). As such, ways to improve their success in the workplace is critical. While there are many different aspects that contribute to being successful in the workplace, one of the most important is strong interpersonal relationships with coworkers (Chadsey & Beyer, 2001). This may be especially important for people with autism as their major difficulties in the workplace generally involve social relationships due to their social

deficits. It is important to find ways to improve the relationships between people with autism and their coworkers, not only because social relationships have been found to reduce stress and improve the quality of life of workers, but also because these relationships may improve the likelihood of people with autism remaining employed (Chadsey & Beyer, 2001). The current study's results lead to many serious questions for people with autism as severity levels vary and people with autism still risk negative responses while disclosing their condition. However, the research also indicates that it might be beneficial for people with moderately severe autism to disclose their condition in order to improve their working relationships with their coworkers.

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Table 1

*Descriptives and Demographics: Number and Percent within Subsamples*

	Students	Working adults
Gender		
Female	63 (67.7%)	63 (67.7%)
Male	30 (32.3%)	30 (32.3%)
Ethnicity		
White	84 (90.3%)	84 (90.3%)
Black	2 (2.2%)	2 (2.2%)
Latino/Hispanic	1 (1.1 %)	3 (3.2%)
Asian/Pacific Islander	2 (2.2%)	4 (4.3%)
Multi-Ethnic/Other	4 (4.4%)	0
Education		
Under 12 <sup>th</sup> grade	0	0
High School Diploma/GED	0	12 (12.9%)
Some college or education beyond high school	93 (100%)	14 (15.1%)
Completed Trade School/2 year College	0	5 (5.4%)
4 year college degree	0	36 (38.7%)
Advanced college degree	0	26 (28%)
Employed		
No	10 (10.8%)	0 (0%)
Part Time	71 (76.3%)	20 (21.5%)
Full Time	12 (12.9 %)	70 (75.3%)
Missing	0 (0%)	3 (3.2%)
Income		
Below 50,000	33 (35.5%)	13 (14%)
50,000-99,999	18 (19.4%)	22 (23.7%)
100,000-150,000	14 (15.1%)	32 (34.4%)
Greater than 150,000	14 (15.1%)	21 (22.6%)
Know someone with autism		
Know someone	58 (62.4%)	57 (61.3%)
Have autism (self)	0 (0%)	0 (0%)
Had a coworker with autism	2 (2.2%)	4 (4.3%)

Table 2  
*Correlations between Scales and Covariates*

Scales	MAS			Social Judgments			Covariates	
	Affect	Behavior	Cognitive	Warmth	Competence	Willing to work	MCSD	Prior Experience
MAS								
Affect	1.00							
Behavior	.579**	1.00						
Cognitive	.367**	.466**	1.00					
Social Judgments								
Warmth	.351**	.292**	.584**	1.00				
Competence	.181*	.239**	.310**	.310**	1.00			
Willingness to work	.482**	.479**	.663**	.610**	.292**	1.00		
MCSD	.167*	.212**	.060	-.038	.065	.111	1.00	
Prior Experience	.253**	.285**	.346**	.235**	.202**	.421**	-.069	1.00

\*\* $p < .001$

\* $p < .05$

*Note.* All items keyed in the positive direction.

Table 3

*Overall Means and Standard Deviations of Scales by Disclosure Condition*

Scales	Experimental Conditions			F(2, 178)	Partial Eta squared
	No Disclosure	Basic Disclosure	Basic Disclosure and Tips		
MAS					
affect	3.37 (.79)	3.53 (.70)	3.68 (.67)	3.31*	.04
behavior	3.44 <sub>a</sub> (1.01)	3.91 <sub>b</sub> (.93)	4.09 <sub>b</sub> (.82)	18.80**	.23
cognition	2.37 <sub>a</sub> (.82)	3.13 <sub>b</sub> (.76)	3.33 <sub>b</sub> (.76)	30.53**	.10
Judgments					
Warmth	2.29 <sub>a</sub> (.95)	2.99 <sub>b</sub> (.98)	3.40 <sub>b</sub> (1.09)	19.27**	.18
Competence	4.54 (1.32)	4.87 (1.18)	4.88 (1.12)	1.54	.02
Willingness to work	3.76 <sub>a</sub> (2.44)	4.90 <sub>b</sub> (2.14)	5.30 <sub>b</sub> (2.03)	9.71**	.10

\*\* $p < .001$ \* $p < .05$ 

*Note.* Higher scores indicate more positive responses for all scales. Within rows, means with difference subscripts differ significantly using Bonferroni corrected pairwise comparisons.



Table 4

*Overall Means and Standard Deviations of Scales by Employment Status*

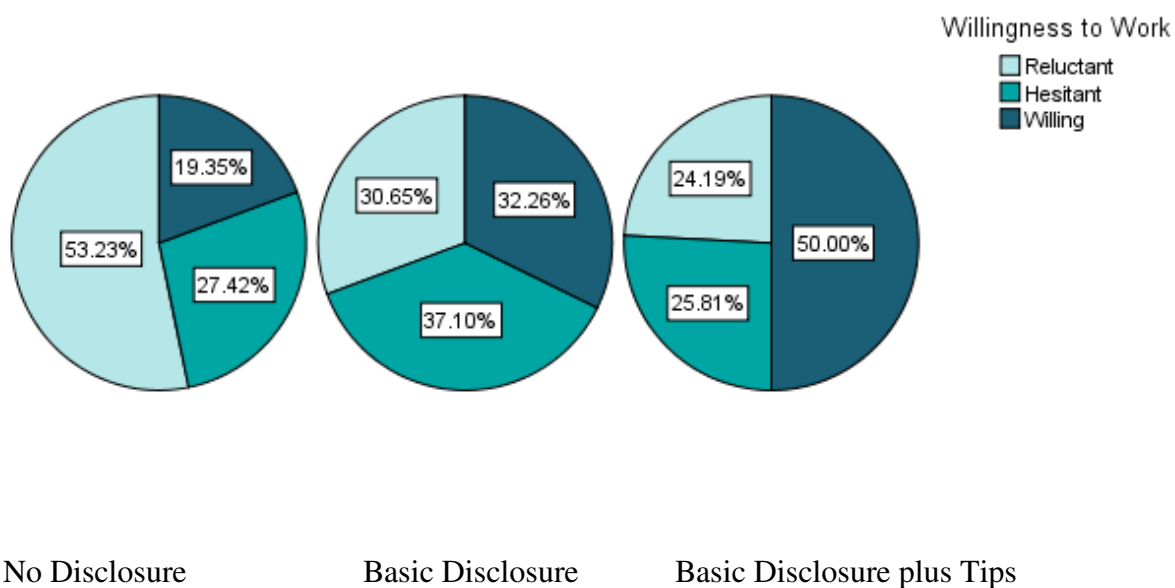
Scales	Experimental Conditions			Partial Eta Squared
	College Students	Working Adults	F (1,178)	
MAS				
affect	3.41 (.71)	3.64 (.72)	4.3*	.02
behavioral	3.64 (.95)	4.00 (.91)	7.38**	.04
cognitive	3.02 (.79)	2.87 (.94)	1.69	.009
Social Judgments				
warmth	2.95 (1.02)	2.84 (1.19)	.47	.003
competence	4.97 (1.12)	4.56 (1.29)	4.81*	.03
Willingness to Work	4.50 (2.11)	4.81 (2.24)	.98	.005

\*\* $p < .001$ \* $p < .05$ 

*Note.* Higher scores indicate more positive responses for all scales.

Figure 1

*Percent of Participants (within Disclosure Groups) Classified as Reluctant, Hesitant, or Willing to work with the Employee with Autism*



$X^2(4) = 18.20, p < .001$

*Note.* Across the disclosure condition (No Disclosure, Basic Disclosure, Basic Disclosure and Tips), percent of Reluctant participants decreased (53%, 31%, 24%) while percent of Willing participants increased (27%, 37%, 50%)

## Appendix A

### **Recruitment E-mail Text for Working Adults recruited by General Psychology Students**

You are receiving this e-mail as the friend, family member, or acquaintance of a student enrolled in a psychology class at Illinois Wesleyan University.

If you are over 25 and have worked outside the home in the past year, you can help the IWU student earn course credit by participating in a brief on-line research study on coworker relationships. In addition, you will be entered in a raffle to win a gift card of your choice (e.g., to Best Buy, iTunes, Olive Garden). We will raffle one gift card for every 25 people that participate.

Please note that your participation is fully voluntary, anonymous and will take about 15 minutes. The student will not be penalized in anyway if you decide not to participate.

Please participate before Feb. 18th. Simply go to [www.psychdata.com](http://www.psychdata.com), and type in survey number #132557. Thanks!

Note: This research study has been reviewed by the Illinois Wesleyan University Institutional Review Board and is being conducted by Dr. Linda Kunce ([lkunce@iwu.edu](mailto:lkunce@iwu.edu), 556-3663).

### **Recruitment E-mail Text for Working Adults recruited by Organizations**

If you are over 25 and have worked outside the home in the past year, we invite you to participate in a brief online research study on coworker interactions. Participation is voluntary, completely anonymous and will take about 15 minutes.

For each participant who completes the study, \$2.00 will be donated to

(insert organization)! (up to 120 participants)

To participate: Just go to [www.psychdata.com](http://www.psychdata.com). In the “Go to Survey” box, type: 129378.

Feel free to invite friends and family to participate (as long as they are over 25 and have worked outside the home). They simply follow the same instructions to begin.

Note. The research study has been reviewed by the Illinois Wesleyan University Institutional Review Board and is being conducted by Dr. Linda Kunce ([lkunce@iwu.edu](mailto:lkunce@iwu.edu), 556-3663).

## Appendix B

### **Coworker Interaction Study Informed Consent Form**

#### 1. Introduction

We invite you to participate in a research study about coworker interactions. You were selected as a possible participant because you are either a college student or a working adult over 25. We ask that you read this document and ask any questions you may have before agreeing to be in the study. This study is being conducted by Linda Kunce, PhD, and Katie Henegan, Senior, of the IWU Department of Psychology (556-3663).

#### 2. Background

The purpose of this study is to examine a variety of factors that influence adult's attitudes toward coworkers.

#### 3. Duration

Your participation will take about 15 minutes.

#### 4. Procedures

You will complete the entire study through this PsychData.com interface. First, you will read a description of a hypothetical coworker and answer some related questions. Second, we will tell you about a hiring plan and ask you to react to it. Finally, we will ask you some questions about yourself so that we can describe our research sample. If you do not feel comfortable answering a question, you do not have to respond to it. At the end of the experiment, you will see a debriefing form that tells you a little more about this research project. You will be able to print the debriefing form for your own use.

#### 5. Risks/Benefits

We do not anticipate any major risks and/or discomforts for you, although some risks may be unforeseeable. It is possible that you may experience discomfort in rating hypothetical coworkers.

To thank you for completing the study, we will award you course credit or donate \$2.00 to the organization that encouraged you to participate (whichever is appropriate).

#### 6. Confidentiality

All responses given during study will be completely *anonymous*. Thus, it will be impossible for anyone to identify you from your responses, either during data analysis or in any reports of the findings from this study. You may be asked to give your name/e-mail (e.g., to earn course credit

if you are a college student). Even if you provide this information, it will never be connected to your answers given during the study. The contact information and the answers from the study will be kept in separate data files. At the conclusion of the study, we will destroy the files with any contact information.

#### 7. Voluntary Nature of the Study

Your decision whether or not to participate will not affect your current or future relations with Illinois Wesleyan University or any of its representatives. If you decide to participate in this study, you remain free to withdraw at any time. To discontinue, simply close the browser window.

#### 8. Contacts and Questions

You have the opportunity to ask, and have answered, all your questions about this research. You may call the principal researcher, Linda Kunce, Ph.D., at (309) 556-3663.

If you have questions or concerns regarding this study and would like to speak with someone other than the researcher(s), you may contact Dr. Jim Sikora, Institutional Review Board Chair, Illinois Wesleyan University, (309) 556-3163.

#### 9. Statement of Consent

**I have read about procedures for this study, and my questions (if any) have been addressed. The information that I provide is confidential and will be used for research purposes only. I understand that my participation is voluntary and that I may withdraw at any time without penalty. If I have any concerns about my experience in this study (e.g., that I was treated unfairly or felt unnecessarily threatened), I may contact the Chair of the Institutional Review Board or the Chair of the sponsoring department of this research regarding my concerns.**

**As a person 18 years or older, I voluntarily agree to participate in this research project.**

- *If you have read and understand the above statements, please click on the 'Continue' button below to indicate your consent to participate in this study.*
- *If you do not wish to participate, thank you for your time. Simply close the browser window to stop this session.*
- *If you have questions or concerns about the study that you wish to have answered before participating, please close the browser, and contact the person in charge of the study: Linda Kunce, 556-3663 or lkunce@iwu.edu."*

## Appendix C

### Introductory Script Text

**Please imagine the following situation  
as vividly as you can:**

- You work for a large business corporation.
- A new person has been hired to help with data management. Depending on where the person is assigned, *you* may have frequent contact with this new hire.
- Therefore, your supervisor asks you to participate in an informal assessment process to determine how well you and the new hire would work together.
- As part of this assessment, you will spend about 45 minutes talking and working with the new coworker.

**You will now read a description of this interaction.  
Please read the description carefully  
as we will ask questions about it.**

**[Participants will read one of the following: no disclosure, basic disclosure, or basic disclosure with individualized information and tips. The disclosure will be followed by the vignette on the next screen.]**

## Appendix D

### Components of Disclosure Text

#### Basic Disclosure

Before the assessment, your supervisor explains that the person you will work with was born with autism and that you are apt to notice some of his symptoms during the work-session. Your supervisor goes on to provide you with the following information:

- Autism is a life-long, developmental condition with a biological cause (most likely genetic)
- People born with autism have challenges in communication and social interaction. They also tend to have some unusual behaviors and interests. Many people with autism also have atypical responses to touch, sound or other sensory input. Severity of these symptoms varies widely across people with autism.
- Some people with autism also have mental retardation and learn relatively slowly. Other people with autism have average, or above average, levels of intelligence (i.e., *High Functioning Autism* or *Asperger's Disorder*).

#### Basic Disclosure with Individualized Information and Interaction Tips

(Basic Disclosure from above included)

Finally, your supervisor explains that the coworker's autism might influence your interactions during the assessment period as follows:

- The coworker uses language to communicate. But, he has difficulties with back-and-forth conversation. You may need to be more patient than usual when waiting for a response.
- The coworker likes interacting with others, but may miss or misunderstand typical social cues. You may find it helpful to remember that this is part of his biologically-based disorder rather than becoming upset by any socially inappropriate behaviors.
- Despite some unusual behaviors, the coworker is not dangerous. He may react to some noises that don't usually bother others (e.g., lights buzzing, people laughing). You can think of this as any sensitivity you have to certain sounds, such as fingernails on a blackboard.

This coworker's IQ is in the average range. He is very interested in transportation and has an amazing amount of knowledge in this area. You may find it easier to talk with him about his interests rather than other topics.

## Appendix E

### Vignette Text

Adapted from Dowjotas, 2009; Kunce & Henegan, 2010

You and your new coworker are introduced. He greets you with a robotic, "Hello. How are you today?" The coworker is a man about your age, but you have not met him before.

The supervisor suggests that you talk with one another to get acquainted. You begin but the conversation seems to take more effort than usual. For example, at times you cannot tell if he is understanding or even paying attention. Also, his voice is stiff and a little too loud. Sometimes he takes a really long time to answer a question, and other times he talks excessively and is off-topic.

When you ask where he lives, smiles but he doesn't really answer the question. Instead he talks for a long time about bus routes in town and then starts listing all the different bus routes, their colors, and drivers. The supervisor indicates that it's time to work on a data entry task. Your coworker keeps talking about bus routes, and you have to repeat what the supervisor said several times before he begins entering the data.

This coworker seems to understand how to enter the data very well. He wants to enter the data first and works hard. When he finishes the first set of data, he doesn't want to let you to enter the second set. When you try to do this, he begins to rock back and forth. As you are working, there is quite a bit of loud noise from an office next door. When it gets really noisy, he flaps his hands and puts them over his ears.

After forty-five minutes, the supervisor tells you the assessment session is finished, and that you now have 15 minutes free time. You and the coworker both go to the break room, which has a variety of newspapers, magazines and a vending machine. You make a comment about the assessment session to the employee you just worked with, but he walks away and doesn't answer.



## Appendix F

### Multidimensional Attitudes Scale Toward Persons with Disabilities

*Emotion Scale Directions:* People experience a variety of emotions when they have to work closely with other people. You will now see a list of such emotions. Please rate the likelihood that these emotions might have arisen in you during or after the coworker interaction we just described.

Degree of Likelihood (1= not at all – 5= very much)

1. Tension
2. Stress
3. Nervousness
4. Fear
5. Upset
6. Disgust

*Cognition Scale Directions.* People experience a variety of cognitions when they have to work closely with other people. You will now see a list of such thoughts. Please rate the likelihood that these cognitions might have arisen in you during or after the coworker interaction we just described.

Degree of Likelihood (1=not at all – 5= very much)

1. He seems to be an interesting guy.
2. He looks like an OK person.
3. We may get along really well.
4. He looks friendly.
5. Why not get to know him better?

*Behaviors Scale Directions.* People engage in a variety of *behaviors* when they have to work closely with other people. You will now see a list of such behaviors. Please rate the likelihood that you might have behaved in these ways during or after the coworker interaction we just described.

Degree of Likelihood (1= not at all – 5= very much)

1. Move away
2. Get up and leave
3. Move to another table
4. Find an excuse to leave

## Appendix G

### Own Judgment of Coworker Qualities Scales

Colella, DeNisi, and Varma, 1998 (5, 6, 7, 8)

Fiske, Cuddy, Glick, Xu, 2002 (1, 2, 3, 4)

Directions: Complete the items to describe your honest impressions of the coworker you just read about. Remember your answers are anonymous.

To what degree did the coworker appear to be:

Ratings: 1 (not at all) – 7 (extremely)

1. Capable
2. Someone with leadership potential
3. Warm
4. Able to work with others
5. Competent
6. Friendly
7. Skilled at tasks
8. Able to be a team player

## Appendix H

### Willingness Scales

#### **Version 1: Own Willingness to Work with Target** (to follow Vignette)

Directions: In comparison to how you typically react when working with others

1. How interested would you be in working alongside this coworker?
2. How enthusiastic would you be about working with this coworker?
3. How much would you want this coworker to be assigned to work with you?
4. In the space below, please write 2-3 sentences explaining your answers on this page

All items to be answered on a scale ranging from

0 = Much Less than Average to

50 = Average/Neutral

100 = Much More than Average

#### **Version 2: Own Willingness to Support Hiring Initiative**

Directions: Please, answer this set of items to indicate how *you* would react if an initiative to hire people with autism were implemented in your workplace.

(If not currently employed, think about your most recent place of employment.)

1. How interested would *you* be in an autism-hiring plan?
2. How enthusiastic would *you* be about an autism-hiring plan?
3. How much would *you* want an autism-hiring plan to be implemented?
4. In the space below, please write 2-3 sentences explaining your answers on this page.

All items to be answered on a scale ranging from

0 = Much Less than Average to

50 = Average/Neutral Reaction

100 = Much More than Average

## Appendix I

### Autism Information

You may have guessed that we are interested in coworker interactions when one of the employees has a disability. We are especially interested in work relationships when one of the people has *autism*.

The coworker that you read about was born with autism. His condition could be described as moderate and noticeable. For other people with autism, the condition could be more mild and not readily apparent.

The Autism Society of America is working to increase employment opportunities for people with autism and related conditions. We are interested in knowing how people in the workforce might respond to such initiatives.

## Appendix J

### Autism Coworker Self-Efficacy Scale

**Now, use this new scale to rate how certain you are that you would be able to do the following things with respect to coworkers that have autism or related conditions.**

Rate your degree of confidence by clicking on a number from:

0 = I cannot do this at all

to 100 = Highly certain I can do this

0      10      20      30      40      50      60      70      80      90      100

Cannot  
do at all

Can do  
somewhat

Highly certain  
can do

1. Interact with coworkers with autism.
2. Make changes in their own work behaviors to adjust for differences of coworkers with autism.
3. Be close friends with coworkers with autism
4. Put time and effort into understanding the needs and preferences of coworkers with autism
5. Accept coworkers with autism even if they do unusual things (e.g., flap hands, stand too close, verbal outbursts, unexplained agitation).
6. Be vocal advocates for coworkers with autism in the workplace.
7. Be effective mentors or "go to" persons for coworkers with autism.
8. Help coworkers with autism become fully integrated into the social life of the workplace.

## Appendix K

### Prior Experience

Directions: Please answer these questions to describe your prior experience with people who have autism and/or other conditions.

- a. To what degree have you been exposed to autism or related conditions? (Consider real-life experiences, learning, exposure through the media, etc.)  
1 (not at all) – 7 (very much)
- b. To what degree has that exposure been POSITIVE?  
1 (not at all) - 7 (very much)
- c. To what degree do you see yourself as part of the autism community?  
1 (not at all) – 7 (very much)
- d. To what degree have you been exposed to disabilities in general? (Consider physical, intellectual, sensory, or psychiatric conditions--but EXCLUDE autism)  
1 (not at all) – 7 (very much)
- e. To what degree has that exposure been POSITIVE?  
1 (not at all) – 7 (very much)
- f. To what degree do you see yourself as part of the broader disabilities community?  
1 (not at all) – 7 (very much)
- g. Please comment if there is anything you would like to explain or comment on in regards to the above questions

**Appendix L****Marlowe-Crowne Social Desirability Scale**

Directions: **We will now ask you to respond to 10 items about your personal attitudes and traits.** Read each item and decide whether the statement is true or false for you. Do not spend too much time on any one item, just go with your "gut response."

True  False

1. I never hesitate to go out of way to help someone in trouble.
2. I have never intensely disliked anyone.
3. There have been times when I was quite jealous of good fortune of others.
4. I would never think of letting someone else be punished for my wrong doings.
5. I sometimes feel resentful when I don't get my way.
6. There have been times when I felt like rebelling against people in authority even though I knew they were right.
7. I am always courteous, even to people who are disagreeable.
8. When I don't know something I don't at all mind admitting it.
9. I can remember "playing sick" to get out of something.
10. I am sometimes irritated by people who ask favors of me.

## Appendix M

### Demographic Items

*Directions:* In this last section, we will ask questions about yourself so that we can describe the group of people participating in the study. Remember: We want your answers to remain anonymous. Please do not provide any information that might allow us to identify you individually (e.g., I own Fred's Ice Cream Shoppe). You may also skip any item you don't feel comfortable answering.

1. What is your gender?

Male       Female

2. What is your age (in years)?

3. What is your racial/ethnic background?

White, Black, Latino/Hispanic, Asian/Pacific Islander, Native American, Multi-Racial/Ethnic, Prefer not to answer

4. Are you currently a college student?

No (Skip to question 7 )

Yes, occasional classes

Yes, part-time

Yes, full-time

5. What year are you in school?

6. What is your major?

7. What is the highest level of education you have completed?

Under 12th grade

High School Diploma/GED

Some college or education beyond high school (but no diploma or degree yet)

Completed Trade/Vocational School or 2-year college program

4 year college degree

Advanced college degree

Other (Please specify)

8. Have you employed outside the home within the last 12 months (students should count work study)?

Yes, full-time

Yes, part-time

No

If yes, what is your job title (e.g., waitress, systems analyst)?

9. Annual Household Income

Less than 25,000

25,000-49,999

50,000-74,999



75,000-99,999

Greater than 100,000

10. Do you personally know someone with an autism spectrum condition? If no, check no. If yes, check all that apply.

No

Myself

Immediate family member

Extended family member

Coworker

Someone else, and I know them well or fairly well (e.g., friend, close neighbor)

Someone else, but I don't know them well (e.g., acquaintance)

## Appendix N

### Integrity Items

**Directions: Now please answer this final question...**

Sometimes people's responses in a research study don't reflect their true thoughts or feelings. For example, they may be too rushed, be influenced by someone else, or simply not understand what is being asked.

1. First, how well were you able to imagine the interaction?

Probably better than most people

Probably about average

Probably worse than most people

2. To what degree do you think the answers you provided in this study accurately describe YOUR true thoughts and feelings?

Not well at all

Pretty well

Very well

Optional: Please add any comments you would like about your experiences completing this study.

## Appendix O

### Behavioral Measure Text

Directions: In the process of developing this research project, we have gathered some information about resources to support employment for people with autism and related disabilities. Would you like to receive some of this information?

- If no, just choose “no” and you will be done with your survey. Thank you!
- If yes, indicate the type of information you would like and you will be taken to a new screen for you to give contact information. Your contact information will be saved in a separate data file, so it will be impossible for us to connect it to your previous answers.

Would you like to receive any of this information (check one)?

No, thank you

Yes, a flyer with information on autism and employment.

Yes, a list of resources I can use to support people with ASD in the workplace

Yes, both the flyer and the list of resources

## Appendix P

### Debriefing

We appreciate your time and help with our research project. Please do *not* share information about the study with others that might participate until they have had a chance to participate. As you can imagine, advance information could influence participants' answers and, thus, jeopardize the integrity of the study.

As you know, we are interested in how coworker interactions influence attitudes, especially when one of the employees has a disability. Attitudes can be defined as evaluative responses, which involve emotions (e.g., feeling good/bad), thoughts (e.g., "He shouldn't do that"), and behaviors (e.g., actions that embody our evaluative response; e.g., Findler, Vilchinsky, & Werner, 2007). We asked you questions about all three components so that we can learn how coworker interactions differentially affect the emotional, cognitive, and behavioral aspects of attitudes.

As you also know, we are interested in the employability of persons with disabilities, especially those that have autism. We provided you with a lot of information about autism in the context of the study. The information we provided was based on current research about this condition (e.g., Volkmar, 2007). Some of the important information you may wish to remember about autism includes:

- Autism is part of a larger group of biologically-based conditions known as the "autism spectrum disorders" or "pervasive developmental disorders."
- People with autism exhibit difficulties with communication and social interaction as well as unique patterns of interests and behavior.
- People with autism are as different from one another as they are similar. There is wide variability in the severity and form of symptoms as well as in associated cognitive impairments. Some people with autism also have mental retardation, while others have average or above average intelligence.
- People with autism can be excellent employees, especially with respect to their abilities to focus and to do well on tasks that require attention to detail.
- Employees with autism may require accommodations in the work place. These are often simple and inexpensive. Effective accommodations emphasize the person's strengths and compensate for areas of weakness. For example, directions might be put in writing rather than given verbally to minimize the challenges social communication.

All of the work-related scenarios you read in this study were purely hypothetical. *Any resemblance between our fictional coworker and real people is purely coincidental.*

If you are interested in learning more about autism, there are number of excellent books. We recommend, for example, *Unwritten Rules of Social Relationships: Decoding Social Mysteries through the Unique Perspective of Autism* (Grandin & Barron, 2005).

If you are interested in being active in the autism community, we recommend that you visit the website of the Autism Society of America or the Autism Society of McLean County to learn

about opportunities (asmc.org). You can also volunteer with a wide variety of people who have disabilities through the local Parks and Recreation SOAR (Special Opportunities and Recreation) programs in your community (in Bloomington/Normal call 309-434-2260).

If you have any concerns or questions about any aspect of this study, please contact the Principal Investigator, Linda J. Kunce, 556-3663, lkunce@iwu.edu, or the Chair of the IWU Institutional Review Board, Jim Sikora, Ph.D., and (309) 556-3163. You are welcome to print a copy of this Debriefing Form for your records by using your browser's "print" command.