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Abstract

College instructors with highly functional autism, also known as Asperger's, can have difficulty interacting with students. To mitigate the potentially reduced teaching ratings, college instructors must decide whether to reveal their condition to the students. Using a survey of 393 university business students, we address if college instructors who reveal that they have Asperger's at the beginning of instruction influence students' ratings. We find that students' ratings were higher when college instructors reveal that they have Asperger's. However, this effect only pertains to male students. Our findings suggest that instructors with Asperger's should reveal their condition to students.

Keywords: high-functioning Autism, Asperger's, college instructors, ratings, students, reveal, gender

Introduction

Asperger's Syndrome is a functional level of Autism Spectrum Disorder in which individuals often display impaired social interaction, unusual special interests, and ritualized behavior. Some other indicators of the disorder include few friends, lack of eye contact, monotone voice, appearing lost, flapping hands, and motor skills problems (Kim, 2015; Woodbury-Smith, et al., 2005; McPartland, Klin, & Volkmar, 2014). The inability to correctly identify other people's feelings and understand the reasons behind them can lead to perceptions that individuals with Asperger's are less empathetic towards others (Montgomery, et al., 2016). The main differences between Asperger's and classical autism are that those with Asperger's do not experience speech development delay (Autism Society, n. d.) and most seek relationships though they are often rejected (Attwood, 2015).

Asperger's affects .5 to .8 percent of the population with more males affected than females (Gillberg, et al., 2016; Stoddard, Burke, and King, 2012). Typical jobs for individuals with Asperger's include computer programmer, carpenter, web page designer, drafter, accountant, copy editor, mathematician, and researcher. These jobs tend to focus

on specialized fields, have reduced contact with people, and encourage attention to detail (Kawaii, 2015; Wylie, 2014; Muir, 2003; Grandin 1999; Trade-schools.net, n.d.). However, the lists of ideal jobs for people on the autism spectrum do not include instructor.

Though there are no statistics on what percentage of college instructors have Asperger's, it is suspected that they represent a percentage that is greater than the general population due to work activities that are more compatible to such individuals. For example, college instructors such as Einstein and Newton are suspected as having Asperger's due to the tendency to repeat sentences, difficulty with small-talk, bad temper, and a strong focus in one area (Muir, 2003).

Nevertheless, teaching can be particularly challenging for college instructors with Asperger's because of the necessary social contact with students and colleagues. For example, Wright and Kaupins (2018) and Brotzman (2005) shared instructors' personal experiences with teaching at a university. They had long monologues, obsession with small matters, lack of eye contact, difficulty socializing with students, and the appearance of low empathy with students. The latter can be a significant problem for college instructors, as Raufelder, et al. (2016) indicates that students pay particularly close attention to their teachers' level of empathy during evaluation.

One possible strategy to deal with the above challenges is self-disclosure. However, self-disclosure in the workplace can be very difficult for individuals with disabilities. Madaus et al. (2002) found that only about 30 percent of individuals with disabilities self-disclosed their condition to their employer. Some reasons that might affect disclosure include the need or interest to disclose (Madaus, 2008) and potential employment consequences, such as supervisor expectations, amount of work isolation, and chances of being terminated (Schrader, Malzer, & Bruyere, 2014).

Given these self-disclosure concerns, there is mixed evidence about the impact of disclosing disabilities for individuals. For example, some argue disclosing leads to lower expectations and therefore more acceptance of problems (Raufelder, et al., 2016; Byrd, et al., 2017), whereas others argue that revealing might label and stigmatize individuals, leading to isolation and stratification (Damico, Muller, & Ball, 2010) as well as whispering about, tormenting, and despising (Willey, 2006).

In this study, we seek to understand the impact of college professors revealing they have Asperger's in the classroom. We will argue that revealing will lead students to a greater understanding of instructors' limitations, and ultimately higher teacher higher ratings.

Literature Review

There are several reasons to believe that disclosing one's Asperger's condition in the classroom will be beneficial to student evaluations. Expectancy disconfirmation theory, otherwise known as expectation theory, suggests that students are likely to have a greater understanding of instructors' weaknesses who reveal their condition. Specifically, expectation theory focuses on customers or, in our case, student satisfaction. The theory suggests that satisfaction and dissatisfaction result from comparisons of predetermined performance standards to actual performance. The predetermined standards allow individuals to set expectations. If predetermined standards are low and expectations are exceeded, then individuals are happy (Swamidass, 2000; Rutledge, et al., 2014; Raufelder, et al., 2016).

This theory also relates to disclosing one's disability. This is because a positive consequence of revealing one's condition is a greater understanding by others. Once an unorganized set of complaints is framed, the disorder is better conceptualized by others, possibly leading to more positive perceptions and greater opportunities to help the person with their disability (Damico, Muller, & Ball, 2010). For example, Clemens (2016) reported that he had an unexpected reaction to his Asperger's revelation among friends and family: "They began to listen. People understood my struggles, such as my hypersensitivities and my literal thinking. Instead of being upset when I misunderstood something, they stopped to help explain it to me in a different way. When I was overwhelmed with a task, they would help me break it down into smaller steps rather than assuming I was being lazy" (p. 1). Further, additional evidence supports the benefits of self-disclosing. Specifically, Byrd et al. (2017) showed study participants videos where the speaker had a stuttering problem and either revealed that at the start or did not. Controlling for the observer and speaker gender, participants tended to view speakers more confident, friendly, and outgoing if they self-disclosed. Finally, Mallinckrodt and Helps (1986) found that male counselors who disclosed they had a disability had higher client evaluations than those that did not.

In addition, revealing one's disability can be beneficial because it can draw attention to one's weaknesses, allowing those that are most sensitive to those weaknesses to opt out of the instructor's class. For those who stay, there is likely to be lower turnover. This is based on the substantial research on realistic job previews, where firms provide candidates with both the positive and negative qualities of a job, which has been shown to increase job satisfaction (Phillips, 1998; Bilal & Bashir, 2016; Breugh, 1983; Meglino & DeNisi, 1987; Premack & Wanous, 1985). About 50 years of research have shown that realistic job previews can help reduce turnover (Earnest, Allen, & Landis, 2011).

Based on the discussion above, we hypothesize the following. College instructors with Asperger's who reveal their condition to students will have higher evaluations than those that do not.

Materials and Methods

We tested our hypotheses using an experimental study. Student participants read information about their college instructor and then rated the instructor. The study manipulated whether the college instructor told students that he/she had Asperger's.

Initially, participants were assigned to three different conditions. Students assigned to the "general information" condition received the following description: "At the beginning of the semester, one of your college instructors reveal that they have high-functioning Autism, previously known as Asperger's. He/she mentions that it makes communication with students more difficult." Students assigned to the "detailed information" condition received the following instructions: "At the beginning of the semester, your college instructor reveals that he/she has high-functioning Autism previously known as Asperger's. He/she mentions that he/she has difficulty with back and forth conversations, showing eye contact, and interest in students. He/she also confesses that he/she will frequently use the same phrase such as 'you know what I mean,' has a specific order in how things are done in the class, discusses his/her favorite football team a lot, and gets distracted by students walking past the doorway." Finally, the last group was the control group and received this description: "During the semester, your instructor had difficulty with back and forth conversations, showing eye contact, and showing interest in students. He/she used some of the same phrases a lot such as 'you know what I mean,' had a specific order in how things were done in the class, discussed his/her favorite football team a lot, and got distracted by students walking past the doorway." The analysis indicated no statistical difference between the "Specific Group" and the "General Group" ($p=0.414$); therefore, these two groups were combined into a single group labeled "Asperger's" group.

Participants

Participants were undergraduate College of Business and Economics students at a western university, enrolled in at least one of the following introductory courses: Microsoft Word, Excel, Access, or a required introductory statistics course. Students who responded received a small amount of extra credit for the corresponding course. Students appeared in the sample pool only once. Age was measured but not included in the analysis as the bulk of the students were roughly the same age in the introductory classes. Race was not measured as the bulk of the students were Caucasian. Table 1 shows demographic data associated with gender and age.

Design

A total of 538 students received surveys and 393 students responded for a response rate of 73%. Analysis of the marginal means plot indicated the possible existence of an interaction term comprised of gender and Asperger's group (see Figure 1). Therefore, a 2x2 between-subject ANOVA design was used with gender and Asperger's group as factors. The sample of 393 students was randomly assigned to each of the three Asperger's groups discussed above. The mean, standard deviation, and sample size for each of the four cells are displayed in Table 2. As can be seen, the ANOVA design has unequal sample sizes and unequal variances (Levene's test $p < .0005$) across the cells. For this reason, weighted least squares (WLS) regression was used to test the significance of the interaction term (Schmidt & Finan, 2018). Once the interaction term was determined to be significant, two one-way ANOVAs using Asperger's group as the factor (one for males and one for females) were analyzed. While this reduced the power of the test, it did allow for the use of Welch's statistic for unequal variances and unequal sample sizes. The details of the analysis are discussed in the Results section.

Survey Development. We developed our experimental materials based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-V). This was the basis for the description in the instructor's introduction and the information that the students received about the instructor's behavior during the semester. DSM-V is based on the American Psychiatric Association's analysis of Autism Spectrum Disorders (American Psychiatric Association, 2013). The description of the DSM-V Autism Spectrum Disorder is shown in the Appendix.

With every assessment such as DSM-V, the concept of Autism Spectrum Disorder is still evolving. There are issues of comorbidity, understanding what aspects are relevant for diagnosis, screening, and eligibility for formal psychiatric help (Volkmar & McPartland, 2014).

The general statement about Asperger's in the General Group comes from the titles of sections A and B in the DSM-V. The detailed statement about Asperger's in the Specific Group comes from the seven subheadings (A1 to A3 and B1 to B4) within the DSM-V.

Dependent Variable. The following survey statement measured perceptions of an instructor with Asperger's: "Consider that the instructor has displayed these characteristics during the semester, how would you rate the instructor?" The rating scale ranged from 1 to 7, where 1 = extremely below average, 7 = extremely above average.

Moderator. Our moderator was gender (0 = male, 1 = female). Table 2 shows the descriptive statistics associated with the 393 students who completed the online survey about Asperger's. The 2 X 2 grid compares respondent gender with the two possible treatments (Asperger's is not revealed or Asperger's is revealed).¹

Results

As discussed in the Design section, WLS regression was used to determine the significance of the interaction term. The weights were computed to adjust for heteroscedasticity of the error terms (Schmidt & Finan, 2018). The WLS linear regression was calculated to predict student ratings based on students' Gender, Asperger's Group (AspGroup) and the interaction term (Gender*AspGroup). A significant regression equation was found ($F(3, 389) = 12.966, p < .0005$), with an adjusted R^2 of .084. The independent variables Gender, AspGroup, and the Female*Asperger's interaction term were removed from the regression model due to low collinearity tolerance values (all $< .0005$) leaving the interaction terms Female*Asperger's, Male*Asperger's, and Male*Asperger's in the model. The regression showed that Male*NoAsperger's ($p < .0005$) and Male*Asperger's ($p = .032$) were significant, while Female*Asperger's ($p = .453$) was not, which is consistent with Figure 1 and show that the interaction term is significant. The regression coefficients and standard errors can be found in Table 3.

Once the interaction term was found to be significant, two 1x2 ANOVAs were performed, one for males and one for females. For females, a one-way Welch ANOVA was conducted to determine if an instructor revealing that he/she has Asperger's influenced female student instructor ratings. The female participants were randomly assigned to two groups as described in the Methods section. Data are presented as mean \pm standard deviation. For females, there is an increase in instructor rating from the No Asperger's group ($n = 75; 4.09 \pm 1.686$) to the Asperger's group ($n = 188; 4.19 \pm 1.076$). However, the differences between the Asperger's groups for females was not statistically significant, Welch's $F(1, 98.982) = .384, p = .537$.

For males, a one-way Welch ANOVA was conducted to determine if an instructor revealing that he/she has Asperger's influenced male student instructor ratings. The male participants were randomly assigned to two groups as described in the methods section. The instructor rating score was significantly different between the two groups, Welch's $F(1, 97.147) = 20.021, p < .0005$. The instructor rating score increased from the Asperger's group ($n = 54, 2.89 \pm 1.410$) to the No Asperger's group ($n = 76, 3.92 \pm 1.117$).

Discussion

In sum, our results confirm that a college instructor who reveals that he/she has Asperger's has a positive effect on student ratings, providing support for the hypothesis. In accordance with expectation theory, students may have reacted positively to the Asperger's revelation because their expectations about the instructor were set lower. Poor instructor behavior might be more tolerated. There would be an explanation for any unusual behavior such as the lack of eye

¹ Ethnicity was not included in the survey due to the lack of ethnic minorities in the western university. Education level was not included as almost all students were freshmen or sophomores.

contact, low empathy for students with low grades or other problems, excessive talk about a favorite subject, the use of only one marker color, anger over minor class events, no chatting after class, and repetitive sentences such as “this is the most important topic.” This transparency of the college instructor’s disability might have the added benefits of the instructor being seen as having foibles just like everyone else. Even though individuals with Asperger’s might have reduced sense of caring due to their condition, some students might sense some caring because the instructor did not hide his/her limitations. These findings suggest that instructors may benefit from disclosing their condition at the beginning of the semester.

However, a potential confounding factor in interpreting the data is the gender of the students. Our results show that female students rated a college instructor who exhibited Asperger’s-related traits higher than male students. Several studies have pointed out a “female positivity effect” toward others. Women often provide higher perceptions of others in general than men (Kajonius & Johnson, 2018; Srivastava, Guglielmo, & Beer, 2010; Winquist, Mohr, & Kenny, 1998). Several reasons might help explain women’s higher perceptions. According to Cross and Madson (1997), women’s greater focus on social experiences tends to instill greater connection and relatedness with individuals. Further, Winquist, Mohr, & Kenny, (1998) argued that women tend to be more nurturing and other-oriented given differences in social role stereotypes and beliefs. Relatedness is further exemplified by females being more likely to acknowledge non-verbal cues (Farris, et al., 2008), recognize different facial emotions (Montagne, et al., 1998, Connellan, et al., 2000; Wingenbach, Ashwin, & Brosnan, 2018), process and be open to multiple emotional traits (Wright, et al., 2018; Nevill & White, 2011), and be more empathetic (Greenberg, et al., 2018). The female higher perceptions of people are further supported with autism and disability-related research (Schnittker, 2000; Popovich, et al., 2003; Miller, 2010; Greenberg, et al., 2018; Kidron, Kaganovskiy, & Baron-Cohen, 2018).

Nevertheless, the higher female perceptions of individuals with autism did not apply for all conditions in this study. Though women provided higher teaching ratings than men did when the instructor did not reveal his or her Asperger’s (control group), the difference became insignificant when the instructor revealed his or her condition (experimental group). Women continued to empathize with the instructor at roughly the same level. When men received more information about the instructor, they significantly increased their ratings.

While women tend to have more empathy toward others, men tend to systemize more. According to Baron-Cohen (2009), men tend to have more autism-related traits than women. With this difference, it is possible that by learning that the instructor has a form of autism, men will systemize the class more by labeling the instructor. This enhanced order in how the class will be run might allow men to see the instructor in a more positive light. There is insufficient research to confirm this hypothesis because this study did not purposely address the question in its research design and there is potential that the instructor might be stigmatized (Damico, Muller, and Ball, 2010).

It is possible, but unproven, that males might have relatively more empathy with the autistic instructor because the instructor shares more of their problems. As men tend to be more task-oriented (Shambaugh, 2017), the task of learning becomes more understood given clearer limitations.

Limitations and Future Research

This study used a survey in which the students received concurrent information about the college instructor’s Asperger’s revelations and poor class behaviors. However, it is unknown if the beginning-of-class revelations and instructor behavior would affect actual student ratings at the end of the course. Additional research should explore if that has a different effect on evaluations.

In addition, we examine how gender moderates the relationship between revealing and teacher evaluations. Other confounding factors could occur. For example, if an instructor is aware of his/her condition and shares it with students, he/she might also change his/her class behavior for better or for worse. In addition, students might change their class behavior to assist the instructor more after revelation.

Another confounding factor in both this study’s survey and experiment with actual instructor behavior is that the symptoms of Asperger’s tend to be inconsistent across those with the condition. It is not known what aspects of Asperger’s students would perceive more negatively with or without a revelation. There can be variances with the ability to have back and forth conversations, amount of eye contact, level of interest in students, amount of phrase redundancy, sensitivity to distractions, emphasis on favorite topics, and amount of ritualized behavior. This list corresponds to the seven major DSM-V Asperger’s characteristics but might not be reflective of all Asperger’s

characteristics. There also could be variances with unusual special interests and appearing lost (McKim, et al., 2013; Woodbury-Smith, et al., 2005; McPartland, Klin, & Volkmar, 2014). Failing to use voice inflection to enhance the meaning of the topic (Segar, 2017; Leather & Leardi, 2012; Soraya, 2008), using poor handwriting (Attwood, 2015), and walk with an unusual gait (Brain Balance Achievement Centers, 2018). Thus, additional work is needed to understand which of the typical behaviors instructors should reveal.

Moreover, additional research is necessary to understand how instructors should reveal their condition. For example, this study focused on college instructors giving only negative information about their condition. However, there are many positive traits of individuals with Asperger's that could be shared during revelation. Shore (2019) states that he sees autism as "abilities-based, not deficit-based." He advertises that individuals with autism can assimilate large amounts of data, show a considerable amount of visual thinking, and understand complex systems. Instructors with Asperger's also can share unique teaching skills such as the tendency to be unconventional problem solvers and not afraid to generate original approaches to problems or teaching methods (Wylie, 2014). They can have significant knowledge of the classes they teach beyond what typical instructors in the areas would know (Muir, 2003). When evaluating students, they might be able to more easily recognize patterns of problems through statistical methods based on student surveys, tests, and measures of behavioral changes (Attwood, 2015). There is a strong attachment to truth not shaped by social or political influences. Relationships could be free from bias based on race, gender, age, socioeconomic status, or other differences (Attwood, 2015). Revealing positive as well as negative traits associated with Asperger's should be studied in future research.

Related to showing their positive characteristics, the instructors can share how they have been trying to improve their teaching. They might learn new teaching methods such as reducing lectures and adding games and case studies, becoming aware of problems with their condition, and getting treatment (Wright and Kaupins, 2018). This might further enhance teacher evaluations as the students might see the instructor caring about his teaching.

Additional research can also look at how subject area affects the positive impact of revealing on teacher evaluations. Specifically, it is not known what impact subject matter has on instructor ratings. Intuitively, college instructors of mathematics and engineering might be more likely to have students who have autistic tendencies than instructors of counseling, negotiations, beauty consultants, and social sciences (Nevill & White, 2011). As students in math and science classes might be more task-oriented and introverted (Brody, 1985; Shields, 1995), they might relate to college instructors with Asperger's more. Further, because jobs such as computer programmers, dentists, proofreaders, librarian, market research, and engineer are more potentially suitable for college instructors with Asperger's (Wylie, 2014), instructors who teach people how to do those jobs might have higher teaching ratings than instructors for classes on human resource managers, beauty consultants, counselors, and project managers.

Finally, it is possible that other contextual factors, such as the college administration, instructor, and student characteristics also could influence disclosure effects and its effect on teacher evaluations. For example, the college or university leaders might openly support incorporation of individuals with disabilities, and students and instructors could vary with their familiarity with autism. We encourage additional research to explore other contextual moderators.

Conclusion

Based on a survey of 393 students from a university in the western United States, we found evidence suggesting that instructors with Asperger's will benefit from revealing their condition to students. Further, we found the impact of revealing primarily occurred with male students. We believe our findings offer practical implications for college instructors with Asperger's and hope our findings provide a stronger foundation for scholars to build on the benefits of revealing one's disability in the classroom.

Table 1. Demographic Data

Age	Frequency
< 20	134 (34%)
20-25	212 (54%)
25 >	47 (12%)
Gender	
Male	Female
130	263

Table 2. Descriptive Statistics

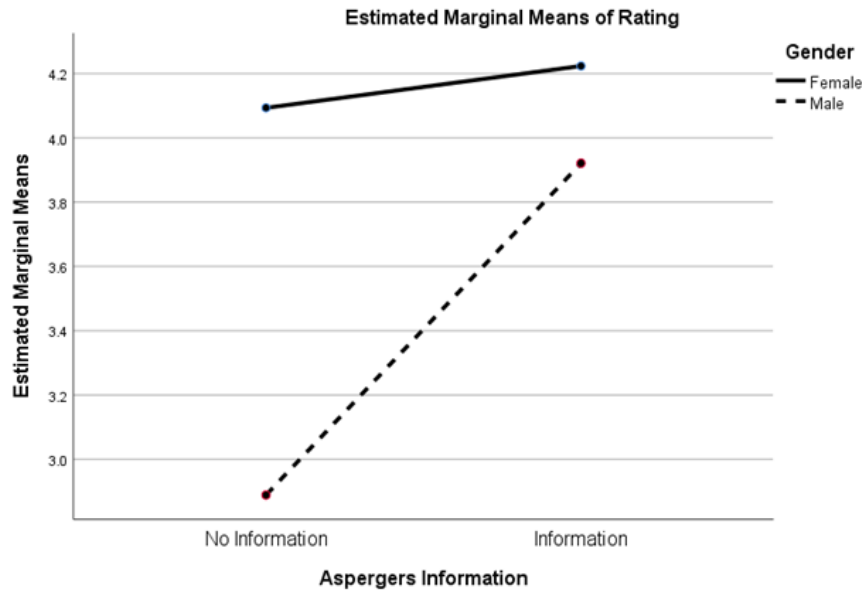
		No Info	Information
Female	n	75	188
	Mean	4.09	4.22
	Std Dev	1.686	1.076
Male	n	54	76
	Mean	2.89	3.92
	Std Dev	1.410	1.117

Table 3. Summary of WLS Regression Analysis

Variable	B	SE_B	β	t	Sig.
Intercept	4.223	0.077		54.865	< 0.0005
Female*Asperger's	-0.130	0.233	-0.028	-0.559	0.577
Male*NoAsperger's	-1.335	0.217	-0.304	-6.152	< 0.0005
Male*Asperger's	-0.302	0.141	-0.107	-2.151	0.032

B = unstandardized regression coefficient; SE_B = standard error of the coefficient;
 β = standardized coefficient

Figure 1. Marginal Means Plot



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Appendix A

DSM-V Autism Spectrum Disorder Description

Section A Continuing Deficits in Social Communication and Interaction

A1 “Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversations...”

A2 “Deficits in nonverbal communicative behaviors used for social interaction...ranging from abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.”

A3 “Deficits in developing, maintaining, and understanding relationships...”

Section B Repetitive Behavior, Restricted Interests, or Limited Activities

B1 “Stereotyped or repetitive motor movements, use of objects or speech...”

B2 “Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior...”

B3 “Highly restricted, fixated interests that are abnormal in intensity or focus...”

B4 “Hyper- or hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment...”

(American Psychiatric Association, 2013).