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Does the Presence of a Learning Disability Elicit a Stigmatization?

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Authors' contributions

*This work was carried out in collaboration between all authors. Both authors contributed
equally to this manuscript, and both authors read and approved the final manuscript.*

ABSTRACT

Aims: To determine whether or not a Learning Disability(LD) label leads to stigmatization.
Study Design: This research used a 2(sex of participant) x 2(LD label)x 2 (Sex of stimulus person) factorial design.
Place and Duration of Study: Bucknell University, between October 2010 and April 2011.
Methodology: Sample: We included 200 participants (137 women and 63 men, ranging in age from 18 – 75 years, M = 26.41. Participants rated the stimulus individual on 27 personality traits, 8 Life success measures, and the Big-5 personality dimensions. Also, participants completed a Social Desirability measure.
Results: A MANOVA revealed a main effect for the Learning Disability description, $F(6, 185) = 6.41$ $p< .0001$, $eta^2 = .17$,for the Big-5 personality dimensions, Emotional Stability, $F(1, 185) = 13.39$, $p < .001$, $eta^2 = .066$, and Openness to Experiences $F(1,185) = 7.12$, $p< .008$, $eta^2 = .036$.Stimulus individuals described as having a learning disability were perceived as being less emotionally stable and more open to experiences than those described as not having a learning disability. Another MANOVA revealed a main effect for having a disability or not, $F(8, 183) = 4.29$, $p< .0001$, $eta^2 = .158$, for the Life Success items, Attractiveness, $F(1, 198) = 16.63$, $p< .0001$, $eta^2 = .080$, and Future Success,$F(1, 198) = 4.57$, $p< .034$, $eta^2 = .023$. Stimulus individuals described as having a learning disability were perceived as being less attractive and with less potential for success than those described as not having a learning disability.
Conclusion: The results of this research provide evidence that a bias exists toward those who have learning disabilities. The mere presence of an LD label had the ability to cause a

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differential perception of those with LDs and those without LDs.

1. INTRODUCTION

1.1 Bias

Bias is a popular topic in psychological research. It can encompass behavior (discrimination), attitude (prejudice), and cognition (stereotyping) [1,2,3]. Bias shown through behavior (discrimination) is arguably the most detrimental of these three components. The Dictionary [4] defines discrimination as the act, practice, or instance of discerning categorically rather than individually. It defines racial discrimination as prejudiced or prejudicial outlook, action, or treatment of another individual or group.

Many groups of people are affected by bias. Society most commonly identifies race, gender, and religious affiliation as factors that cause groups to receive considerable bias. In order to understand the prevalence and significance of a bias towards a particular group, it is essential to examine the root of the problem, which is determined by attitude (prejudice) and cognition (stereotyping). Through many avenues, including lack of contact, negative experiences and lack of education, attitudes develop into the stigmatization of particular groups [5].Stigmatization occurs when a negative attitude is adopted with regard to a group in general as opposed to basing one's judgments on the specific characteristics of individuals [6]. Understanding the extent of these beliefs in our society could help determine how often these beliefs develop into discriminatory behaviors. In particular, this research examines the group identified as learning disabled (LD) and how they are affected by bias.

1.2 Learning Disability Defined

The United States Office of Education (1977) defined LD as a permanent-information processing deficit (disorder) that affects the manner in which individuals with average to above average intelligence learn. LDs affect "one or more of the basic psychological processes involved in understanding or using language, spoken or written, which may manifest itself in an imperfect ability to listen, speak, read, write, spell, or to do mathematical calculations" [7]. Similarly, according to international definitions, a Learning Disability includes the presence of: a significantly reduced ability to understand new or complex information, a significantly diminished ability to learn new skills, with compromised social functioning that started during childhood [8,9].Learning disabilities occur regardless of gender, race, or ethnic origin, and they are not the result of a poor academic background, mental retardation, or emotional disorders [10]. People with disabilities can be defined as a subset of the population. And like many subsets, they are treated differently than the norm.

Historically, people with disabilities were isolated and segregated from society. Like other minorities, most people with disabilities desire to achieve acceptance and integration in society. The 1990 Americans with Disabilities Act defined the nature of the disabled individual's environment as an essential predictor of one's acceptance and integration into society [11,12]. However, in the pursuit of societal approval, the disabled continuously fall victim to the stigma and prejudice of others [12].

1.3 How Do We Know That a Stigma Exists

While there is no empirical evidence that shows how and to what degree stigma affects the perceptions of personality in conjunction with perceived life success for those with LDs, there is a significant amount of evidence that suggests that a stigma exists.

1.4 Qualitative and Autobiographical Evidence

For example, qualitative research has provided countless personal accounts of people who struggle due to the stigmatization caused by having an LD. Commonly found in autobiographical literature (as well as in quantitative studies), those with LDs speak of being mistaken as intellectually inferior, thus providing evidence to support the existence of a stigma [13,14,15,16,17]. Similarly, another study [18] revealed through the examination of disability types that those with non-physically visible disabilities reported more negative experiences than those with physical disabilities. LDs are categorized as a non-visible disability, which provides further support for the notion that people with LDs face stigma.

1.5 Teachers' Ratings and Attitudes

Further evidence, which supports the presence of a societal bias, is found when examining and measuring teachers and professors' attitudes towards LD students. The negative attitudes of educators are reflected in research [19,20,21] that revealed that when teachers were made aware of the presence of an LD those teachers differentiated almost 80% of students with LD from their peers without LD as having problems with distractibility, hyperactivity, and adjustment. Throughout the literature, there is a common negative attitudinal theme that arises in response to those with LDs. For example, one study found that instructors frequently reported feeling sorry for those students with disabilities [7,22] and perceive them as not only more difficult to teach, but also less intelligent [23,7,24].

Some of these negative attitudes may be due to the negotiation process required between students and teachers when they are determining how accommodations will be met. This is understandably a difficult and stressful process for the student as well as the teacher, and often educators appear to be reluctant to provide accommodations to students or seem suspicious of their non-visible disability [7].

Another common negative attitude that is reported by teachers and professors is the judgment that those with LDs are lazy or not trying hard enough. This finding was supported in research showing that some professors held the belief that students use learning disabilities as an excuse to get out of work [25]. This negative perception is unfortunate because abundant in the literature are reports of students labeled with LDs working themselves into a state of exhaustion [17,26,27,28] and even developing headaches and physical illness from the workload required to compensate for the difficulties that their LD causes them [29].

1.6 Essay Grading Differences

Essay grading differences provide further evidence of the existence of a stigma for those with LDs. In past research, it has been proven that group stereotyping has the ability to influence the grading of students' essays and other school related tasks [5,30,31]. In relation to LDs, there have also been studies that demonstrate discriminatory grading of those

students who are dyslexic. When teachers held a more negative implicit attitude toward dyslexia, they gave lower ratings on writing achievement to those who were dyslexic [5]. This is a clear indication of stigmatization and may provide some explanation as to why students with LDs who have high levels of intelligence often receive below average grades.

The evidence provided from personal accounts, teacher and professor attitude measurements/self-reports, and discrepancies in grading differences related to implicit negative attitudes, suggests that there is a stigmatization for those who carry the LD label. What remains undetermined is the prevalence of this negative bias in the general population and the amount it affects the perception of others. These questions have remained unanswered due to a lack of research. Misperceptions of those with disabilities have persisted more than a decade after the passage of the Americans with Disabilities Act, and three decades after the beginning of the Disability Rights Movement [32]. As time has passed, disability identification has increased and this issue has only become more relevant. Since the passing of the No Child Left Behind Act, the United States government has been pushing for the use of inclusive classrooms, where both LDs and non-LDs can be taught in unison. With this push, there is a great need to examine negative attitudes and perceptions of teachers and students in order to avoid the risk of unequal treatment [5]. It is evident that ignoring the underlying stigma that these individuals face, as done in the past, will no longer be acceptable. There is clear evidence that supports the existence of stigma against those with LDs, but the degree to which it is present is not yet known [32,33]. Denhart identified this void in 2008 [17] when he pointed out that larger scale quantitative studies need to be conducted to confirm if the discrimination is real and to what degree it might be experienced. Accordingly, the goal of this study is to uncover whether or not it is stigmatizing, with respect to personality and perceived life success, to have a learning disability.

1.7 LD Population

There is a large population of people who suffer the effects of learning disabilities. According to the U.S. Department of Education, learning disabilities affect approximately 5% of public school children [34].There is also an incredibly large number of people who have LDs that are undiagnosed. The National Institute for Literacy reported that 30 - 50% of the population has an undiagnosed learning disability [34].As of 1998, for every seven people in the United States, one has a disabling condition that interferes with life activities [10]. Not only is the LD population large, it is also growing. The National Institute of Health in 2003 found that learning disabilities have increased 22% over the past 25 years. These numbers are on the rise even in the realm of academia. For example, in the past year alone, the number of students who have submitted testing documentation for disabilities at Bucknell University has increased by 40% (personal communication from Robert Midkiff, *Invisible Disability Panel Discussion*, March 25, 2011).

1.8 Lack of Research

It is apparent that the population of people with learning disabilities is large, yet social psychological research is underdeveloped in exploring how this group of individuals is perceived by others with respect to major and minor aspects of personality and expected life success [32]. It is known that the perception of societal stigma and discrimination against deformity and disability create barriers to full participation in life for people with disabilities. For some individuals, these social barriers also impede personal adjustment to their disability, making it all the more important to study this issue [12].

Research must focus on identifying the underlying causes and effects of discrimination against LDs because answers in this field could eventually lead to successful social integration and acceptance. Minimizing perceptions of unfairness expressed by students without disabilities in response to LD accommodations could lead to more positive peer relations [35]. It has also been found that negative attitudes may prevent students with disabilities from using self-advocacy skills and requesting appropriate accommodations, particularly in college and work, where students must advocate for themselves. For these reasons, it is easy to understand why only 6 percent of all undergraduate students report having a disability [36]. It seems that disconnecting their ties to having a LD becomes a coping mechanism to avoid negative social perceptions. Even though attitudinal barriers are recognized widely as an impediment to the success of persons with disabilities, there is a dearth of experimental research on the topic [36]. The fact that discrimination and stereotyping in relation to those with learning disabilities are largely under researched supports the point that this minority group is often overlooked.

Taking into account all of the aforementioned information, this research aims to identify whether an LD stigma exists and the extent of the stigmatization in the areas of personality and perceived life success. This research utilizes a 2(sex of participant) x 2(LD label)x 2 (Sex of stimulus person) factorial design to address these aims.

1.9 Hypothesis

It is hypothesized that regardless of both participants and LD individuals' gender, participants will rate an LD individual less favorably in terms of personality and life success than an individual who is not described as having an LD.

2. MATERIALS AND METHODS

2.1 Participants

Data was collected from 200 participants, of which 137 were women and 63 were men. Participants ranged in age from 18 – 75 years, M = 26.41. Participants were from a private university in the northeastern US. Their participation was voluntary and via invitation(see below under Procedure for additional information regarding this).Participants did not receive any compensation for their participation in this research.

2.2 Procedure

Participants completed the research online. A link was posted to the University's online Message Center inviting participants to take part in the research. After clicking on the link participants were introduced to the experiment as a study of accuracy in person perception [37,38,39]. They were told that the purpose of the study was to compare the person perception accuracy of untrained college students with two other groups who had been trained in various interpersonal perception techniques, specifically graduate students in clinical psychology and clinical psychologists. They were also told that person perception accuracy is believed to be a general ability varying among people and that it is possible they could be as accurate as trained professionals. The information they read stated that psychological studies have confirmed that many people do make detailed impressions of others after a short encounter, or on the basis of few cues, but that the extent to which these judgments have been found accurate is unknown. Participants were told they would receive

a description of a person and would be asked to give an evaluation of the person. They were told that the description of the person they were to make judgments about was a randomly chosen college student who agreed to participate in a longitudinal study of personal development, and that the accuracy of their judgments would be compared to information that is currently available on the participant along with information that will be forthcoming. Participants were randomly assigned into one of four conditions. Each contained a description of an individual, which varied in terms of gender, and presence of a LD. The conditions were: male with anLD, male without anLD, female with anLD, female without anLD.

2.3 Measures

2.3.1 Manipulation check

A categorical question was included which asked the participants whether or not the hypothetical individual had an LD.

2.3.2 Twenty-seven personality traits

The 27 personality traits from prior research [37] were included. Participants were prompted to rate the stimulus individual on 27 different personality traits using a 7-point Likert scale with bipolar opposites. Participants were asked how: altruistic, conventional, self-assertive, exciting, stable, emotional, dependent, safe, interesting, genuine, sensitive, outgoing, sexually permissive, sincere, warm, sociable, competitive, obvious, kind, modest, strong, serious, sexually warm, simple, poised, bold, and sophisticated each stimulus person was. A traits average score was created by summing the trait ratings and computing an average for each participant. Prior to summing the items, items were reversed scored, consistent with prior research [37], so that higher numbers reflected a positive evaluation. Cronbach's alpha [40] for the traits average was .78.

2.3.3 Life success measures

The 8 life success measures from prior research [37] were also included. Participants answered eight questions with 7-point scales (1 = lowest and 7 = highest), which assessed the stimulus individual's perceived future success in life. The 8 items were: attractiveness, intelligence, friendliness, enthusiasm, trustworthiness, occupational success (i.e., lucrative career) and whether the person will be a good parent, and a good mate.

2.3.4 Ten item personality inventory(TIPI)

Participants were asked to rate the stimulus individual on a series of 10 traits that comprise the Big-5 personality dimensions of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism [41].

2.3.5 Short form of the marlowe-crowne social desirability scale

Participants were also prompted to answer a 10-item form of the Marlowe-Crowne Social Desirability scale [42,43].

2.3.6 Demographic questions

Participants were asked to answer four basic demographic questions: age, sex, race and presence of personal experiences with learning disabilities.

The final page of the online instrument included a debriefing and consent to include one's data in the study form.

3. RESULTS

A 2 (Learning Disability Description: disabled or not) x 2 (Sex of Stimulus Person) x 2 (Sex of Participant) (MANOVA) was computed for the life success measures and TIPI, and a 2 (Learning Disability Description) x 2 (Sex of Stimulus Person) x 2 (Sex of Participant) ANOVA was computed for a sum-score created from the 27 personality traits measure. Additionally, the social desirability scale sum-score was included as a covariate in the MANOVA and ANOVA analyses. Also, a Chi-Square was computed for the manipulation check question.

3.1 Manipulation Check

A Chi-square was computed to determine whether or not the disability manipulation was effective. The LD manipulation was effective, $X^2(200) = 187.88$, $p= .0001$. The stimulus descriptions were perceived correctly by the participants.

3.2 Tests of Hypothesis

3.2.1 Ten item personality inventory (TIPI)

A 2(learning disability description: disabled or not) x 2(sex of stimulus person) x 2(sex of participant) MANOVA with the social desirability score included as a covariate revealed a main effect for having a disability or not, $F(6, 185) = 6.41$ $p< .0001$, $eta^2 = .17$. This effect occurred for the following Big-5 personality dimensions, Emotional Stability, $F(1, 185) = 13.39$, $p = .001$, $eta^2 = .066$, and Openness to Experiences $F(1,185) = 7.12$, $p= .008$, $eta^2 = .036$, see Table 1. Those described as having a learning disability were perceived as being less emotionally stable and more open to experiences than those described as not having a learning disability. No other significant effects occurred for the other personality items included in the TIPI. Also, the Social Desirability scale sum-score covariate did not reach statistical significance.

Table 1. Mean perceived personality as a function of LD description

Big-5 Item	LD Description	Mean(SD)
Emotional stability	Learning disabled	8.57(1.88)
	Not learning disabled	9.66(1.82)
Openness to experience	Learning disabled	8.92(1.93)
	Not learning disabled	8.10(1.84)

Note: higher numbers mean more emotionally stable and more open to experiences, standard deviations are in parentheses.

3.2.2 Life success measures

A 2(disabled or not) x 2(sex of stimulus person) x 2(sex of participant) MANOVA with the social desirability score included as a covariate revealed a significant main effect for having a disability or not, $F(8, 183) = 4.29$, $p= .0001$, $eta^2 = .158$. This effect occurred for the items, Attractiveness $F(1, 198) = 16.63$, $p= .0001$, $eta^2 = .080$, and future Success $F(1, 198) = 4.57$, $p= .034$, $eta^2 = .023$, see Table 2. Individuals with a disability were perceived as being less attractive and with less potential for success when compared to their non-learning disabled counterparts. No other significant effects were found for other life success questions. Also, once again, the Social Desirability scale sum-score covariate did not reach statistical significance.

Table 2. Mean perceived life success as a function of LD description

Life Success Item	LD Description	Mean(SD)
Attractiveness	Learning Disabled	4.27(0.75)
	Not Learning Disabled	4.77(0.77)
Successfulness	Learning Disabled	4.43(1.03)
	Not Learning Disabled	4.75(0.76)

Note: higher numbers mean more attractive and more successful, standard deviations are in parentheses.

4. DISCUSSION

It was hypothesized that regardless of a participant's or LD individual's gender, when participants were given a description of a person that included information indicating that the individual has a learning disability, the participants would rate that individual less favorably.

The results obtained were consistent with the hypothesis. A main effect was obtained for the presence of a learning disability in the stimulus description. Those given the stimulus description, which included the presence of a learning disability, rated that person less favorably, in terms of personality and life success, than did participants who received a description of a person that did not include a learning disability. No interactions were obtained. These findings provide support for previous research that suggests that there is a level of negative bias in our population towards those with LDs.

4.1 Life Success Findings

A statistically significant difference was shown for the perception of those with learning disabilities in regards to two items among the Life Success measures. These results revealed that those participants who received the LD stimulus description were perceived as being less attractive and had less potential for success when compared to the control group who received a description without an LD. The variation of gender within the context of the stimuli descriptions did not make a statistically significant impact on the results. This finding was consistent across all participants. These results indicate a clear bias towards those who have learning disabilities and help explain in what way this group is being stigmatized.

4.2 Attractiveness

It is not surprising that those with LDs are perceived as being less attractive. Past research has shown that once an LD is identified, people may experience the "spread effect", which explains that when one negative characteristic is identified, it often causes people to ascribe deficits to other areas, rendering an inaccurate perception that the person with an LD is multiply impaired [44,45]. It is true that there is a cultural narrative that exists which suggests that people with learning disabilities are less than fully human and regarded as less worthy of attention, respect and inclusion in community life [32]. This perception has the ability to detract from a person's perceived attractiveness.

Although a lower rating of attractiveness was seen for both genders for those with LDs, further exploring gender stereotypes may explain how the LD stigma effects perceived attractiveness. In terms of gender identification, men with disabilities may be viewed as less masculine, capable, and strong [46]. Women with LDs may also face a similar perception. Studies show that women are viewed as weaker and less intelligent than males, and that these pejorative cultural views are exacerbated with the presence of a disability [30]. Clearly, these gender expectations may be misinterpreted when an LD is present, thus providing us with an understanding of why a diminished level of attractiveness for LD individuals exists.

The effects of this diminution of perceived attractiveness can also be viewed through its effects on individuals' willingness to engage in conversation and relationships with those with LDs. Prior research reports that students expressed more willingness to have relationships with people with sensory, health, and physical impairments and were substantially less willing to pursue relationships with those who have cognitive impairments [44]. As a result of these negative perceptions, it is easy to understand why people with LDs may experience difficulty making friends, finding partners, and forming romantic relationships [32, 47,48,49,50].

4.3 Future Success

There is a great deal of research which explains that the perception of attraction and success are closely intertwined**.** Perceived attractiveness leads to a halo effectwhere attractive individuals are judged as having more socially desirable personality traits [37]. In accordance with the "what is beautiful is good" stereotype, those who are perceived as being more attractive may also be viewed as being more successful in life [51]. This theory can explain the negative perception of life success for those with LDs. Since those who have LDs are perceived as less attractive, they may also be viewed as possessing less potential for success in life. In turn, the self-fulfilling prophecy can explain how these perceptions influence the actual life success of those with LDs.

In accordance with this theory, people will act in accordance with the way they are treated or expected to behave [52]. Therefore, if those with LDs are expected to have less success than their counterparts without LDs, then those with LDs will be treated with behaviors and attitudes that are congruent with these expectations. This targeted treatment towards those with LDs will result in those with LDs altering their behaviors to fit and meet these expectations. Through the self-fulfilling prophecy it becomes evident that these negative perceptions have the ability to greatly influence the future life success of those with LDs.

4.4 Ten Item Personality Inventory (TIPI)

In terms of the Big 5 personality dimensions, participants given the LD stimulus description perceived that person differently on two items when compared to those given the non-LD description. These results revealed that those participants who received the LD stimulus description gave lower ratings in terms of emotional stability and higher ratings in terms of openness to new experiences when compared to those participants who were given the control stimuli. Similar to the results obtained for the life success measures, gender of the participant did not significantly influence the results. These findings indicate a clear bias towards those who have learning disabilities.

4.5 Emotional Stability

There are many reasons that can explain why those with LDs are perceived as less emotionally stable. People who have LDs are characterized as experiencing a great deal of struggle throughout their lives in both social and educational settings. These perceived struggles may influence the perception of emotional stability.

As mentioned in the introduction, studies have shown that LD students are misperceived as being unintelligent. Those who are mistaken as intellectually inferior often have more negative early school experiences. Accordingly, students with LDs are particularly vulnerable to experiencing a wide range of psychosocial difficulties [19,21,53,54,55]. Children with LDs have notably higher accounts of being bullied, teased, ridiculed and hounded, which has been shown to be the cause of high rates of loneliness, despair, depression, anxiety, and low self-esteem [17,56]. Sadly, results have shown that those with LDs have fewer friends and experience more rejection as children than their peers without LDs [57]. An influential component of one's emotional stability is his or her support system. Therefore, it is understandable why those who are characterized as having more life struggles and more negative peer relationships (LDs) as well as weak emotional support systems are also perceived as less emotionally stable. Research that tested the personality characteristics of those with and without LDs found that children with LDs were significantly more likely to have problems with emotional adjustment than their peers without LDs [58]. This finding may give further explanation as to why the label of LD can lead to perceptions of decreased emotional stability.

Unfortunately, there may be people with LDs who are also emotionally unstable, but this does not make it appropriate to extrapolate this individual characteristic and apply it to all people with LDs. This all-encompassing negative perception only strengthens the common pejorative misconceptions, which stigmatize those who have LDs.

4.6 Openness to Experience

The LD stimulus person was perceived as being more open than the non-LD stimulus person. Those who are more open to new experiences may be characterized as being more creative, imaginative, and curious. They are also noted to be more likely to hold unconventional beliefs and be more aware of their feelings [59]. It seems plausible that since those with LDs are expected to struggle in an educational setting that involves reading and writing, people may assume that individuals with LDs may hold interests in more creative areas, including art, dance, and theater. In addition, those who are rated higher on the openness measurement are characterized as being more open to diversity [60]. Since those

with LDs are a type of diverse population, it makes logical sense that those with LDs are perceived as being accepting towards other types of diversity.

To date there has been no other social psychological research that has examined whether those who have LDs are perceived as, or actually are, more open to new experiences. What is apparent is that being open to new experiences is not necessarily a negative perception, yet this finding shows that the mere label of LD will cause a differential perception to develop and surface.

5. CONCLUSION

The results of this research provide clear evidence that a bias exists toward those who have learning disabilities. The mere presence of the LD label had the ability to cause a differential perception between those with LDs and those without. In this study it was discovered that, regardless of gender, participants were more likely to stereotype those with LDs as having less future life success, as being less attractive, as having less emotional stability, and as being more open to new experiences when compared to their counterparts without LDs. Since the label of being learning disabled says nothing about the individual in terms of these personality characteristics these perceptions are stereotypes that have no valid evidence.

It can be inferred that these negative stereotypes cause and strengthen a perpetual cycle of bias towards those with LDs, thus providing an explanation for the frequent struggles that this group of people face. The findings also suggest that perceivers in the age group where openness to new experience is at its peak may not be very open to new experiences themselves since they judge LD individuals negatively. However, further research is needed to validate this.

This research may help address the goal of inclusion and equality for those with LDs and aid in discovering ways to identify, address, and attenuate these stigmatizations within all aspects of our society. Additionally, these findings may be very useful to those with LDs. Knowing how others perceive them may better equip those with LDs to successfully buffer and cope with negativity they may experience from others.

6. LIMITATIONS

6.1 Contact

Although participants' level of contact with the LD population was not examined as a possible moderating variable, a number of studies suggest that an individual's exposure to and contact with the disabled directly influences their level and direction of bias towards those with disabilities [61,62,63,64,65,66,67]. Some studies have reported a negative correlation between the increase in contact and the decrease in negative perceptions [61,36,62]. Unfortunately, due to participant characteristics, the influence of exposure to LDs on participants' direction and level of bias could not be determined. Of the 200 participants tested in the current research, too few people reported having an LD and too many people reported knowing an individual with an LD, which thwarted the ability to include this in the statistical analyses. Additionally, these findings may be most applicable to young perceivers since the average age of the participants was 26.41 years. Thus, additional research with older individuals is needed. Also, these findings may not apply to individuals from other cultural backgrounds. Thus, additional research with culturally diverse populations is

needed. Lastly, the findings from the present research are perceptions and individuals' perceptions of others are not always consistent with how they would behave towards other people. Therefore, additional research examining actual behavior towards LD individuals is needed. Similarly, it is currently not known how individuals with LD score on the Big-5 personality dimensions. So, it would be useful to conduct further research to ascertain if indeed LD individuals' personalities match the Big- 5 personality dimensions being attributed to them by perceivers.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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