KIDSBRIDGE DIFFERING ABILITIES ROOM: THE EFFECTIVENESS OF AN INTERVENTION ON ATTITUDES TOWARD DIFFERENT DISABILITY TYPES

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ABSTRACT

This study examined children's attitudes towards peers with learning disabilities and physical disabilities in order to determine the influence of disability type on students' attitudes. In addition, the study evaluated the effectiveness of an intervention in the Kidsbridge Tolerance Museum on attitudes towards persons with disabilities. Participants were 145 fourth and fifth grade students. Participants completed pre- and post-test surveys measuring their attitudes towards peers with physical and learning disabilities. In between the two, participants completed activities in Kidsbridge, one of which was designed to improve their attitudes towards peers with disabilities. Students did not appear to have more positive attitudes towards either disability type following the intervention; however, physical disabilities were regarded more positively than learning disabilities on both the pre- and post-test measures. Implications for future interventions are discussed and changes to the Kidsbridge exhibit are suggested.

INTRODUCTION

With over 12% of people in the United States diagnosed with some type of disability (Erickson, Lee, & von Schrader, 2014), acceptance towards these individuals is becoming increasingly important. Until society's attitudes regarding disability are changed, full acceptance and inclusion of people with disabilities cannot occur. For this reason, it is necessary to understand the nature of the relationships between people with and without disabilities and to identify the factors that moderate these relationships. Only then can changes be made, in the form of recommendations to policymakers and the development of effective interventions (Antonak & Livneh, 2000).

ATTITUDES TOWARD PEOPLE WITH DISABILITIES

In general, research has shown that people without disabilities have more negative attitudes towards people who have disabilities than people who do not (Vilcinshky, Findler, & Werner, 2010). This finding has held true for college students (Fichten & Amsel, 1988) and middle school students (McGregor & Forlin, 2005). In fact, interactions with people with disabilities have been characterized by increased anxiety, unease, and rejecting feelings compared to interactions with non-disabled individuals (Vilchinsky et al., 2010).

Livneh (1982) suggests that some of the norms and standards that are widely accepted in Western culture may lead to the development of negative attitudes towards individuals with disabilities. Some of these norms that he identifies are emphasis on physical appearance, emphasis on personal achievement, the current unemployment rate and feelings about welfare, and the stigma associated with disabilities, as Western culture is one in which deviance leads to a marginal status. Livneh (1982) also suggests that socially accepted rules for interactions with people that have disabilities are not well-defined, and that this leads to anxiety about these interactions. However, it is important to note that these explanations may only be relevant to Western society, as research has shown that other cultures have different views on disability (Rao, 2006).

To date, a number of studies have looked into factors associated with attitudes towards disabilities, and many scales have been created to measure these attitudes. Some of the factors that have been investigated include gender of participants, gender of referents, age of participants, cultural groups of participants, and level of prior contact with individuals with disabilities (Findler, Vilchinsky, & Werner, 2007). A number of studies have shown that females have more positive attitudes towards

people with disabilities than males (Findler et al., 2007; McGregor & Forlin, 2005; Morin, Rivard, Crocker, Boursier, & Caron, 2013; Weisel & Florian, 1990). However, the gender of the person with a disability is also important, as it seems that attitudes are more positive towards males with disabilities than females (Weisel & Florian, 1990). Additionally, the age of the participants seems to be an important factor, as studies consistently show that as participants' age increases, their attitudes towards disabilities become more positive (Findler et al., 2007; de Laat et al., 2012; Morin et al., 2013). Morin et al. (2013), however, found that positive attitudes related to age do not hold true for elderly populations, whose attitudes were more similar to those of children.

There are a few other factors that have been identified with positive attitudes towards individuals with disabilities. Findler et al. (2007) found that participants with higher levels of self-esteem held more positive attitudes, and Morin et al. (2013) found that higher levels of education were associated with more positive attitudes. Furthermore, levels of familiarity with and exposure to individuals with disabilities seem to be an important mediating variable (de Laat et al., 2012; McGregor & Forlin, 2005), which over time can alleviate some of the anxiety associated with these interactions (Vilchinsky et al., 2010).

To date, relatively little research has been done on children regarding their attitudes towards peers with disabilities. In fact, in their literature review, Vignes, Coley, Grandjean, Godeau, and Arnaud (2008) identified only two comprehensive and well-validated measures of attitudes towards disabilities designed for use with children. Studies that have been done with children show similar patterns to those that have used adult participants. For example, in their study of students in eight different grades, Weisel and Florian (1990) found that girls had more positive attitudes than boys, and that all participants had more positive attitudes towards males with disabilities than females. McGregor and Forlin (2005) evaluated attitudes of middle school students with disabilities before students with disabilities were included in their classroom and at a six-month follow-up. They found the same pattern for gender, in that females had more positive attitudes than males. They also found that there were slight improvements in attitudes after six months of inclusion, which is in line with research on adults about familiarity and exposure (de Laat et al., 2012).

Aside from research on children, another gap in the existing literature seems to be research on how attitudes towards disabilities vary based on disability type. It seems logical that people would not have the same attitudes towards all disabilities, and yet the vast majority of research has been done specifically on physical disabilities (e.g. Findler et al., 2007; Vilchinsky et al., 2010). This is problematic because individuals with physical disabilities represent only about 1% of children in the United States (Erickson et al., 2014).

There have been a few studies that have looked at other types of disabilities. For instance, McGregor and Forlin (2005) measured attitudes towards multiple disability types before and after students with disabilities were included in a middle school. On the pre-test, students showed more positive attitudes towards physical disabilities than any other disability type. In a study of high school and college students, de Laat et al. (2012) found more positive attitudes towards individuals who were deaf, blind, or paralyzed than individuals with intellectual disabilities. Conversely, Morin et al. (2012) found that people generally had positive attitudes towards individuals with intellectual disabilities, although they did not compare this to any other disability type.

We could only find one study that measured attitudes towards learning disabilities, which is again problematic as these students make up between 6-8% of all children in the United States and 41% of all students receiving special education services (Erickson et al., 2014). Antonak (1980) surveyed adults about their attitudes towards eleven different disability categories and their integration into both school and community settings. Results showed that within the community, individuals with "severe and profound" impairments were the least accepted, while people with communication disorders and learning disorders were the most accepted. However, in school settings, while "severe and profound" impairments were still associated with the most negative attitudes, physical disabilities were associated with the most positive attitudes, and learning disabilities fell somewhere in the middle. This shows that attitudes toward disabilities operate differently across settings and across disability types (Antonak, 1980).

KIDSBRIDGE TOLERANCE MUSEUM

The Kidsbridge Tolerance Museum, housed on the campus of The College of New Jersey (TCNJ), is the only youth tolerance museum in the country. Kidsbridge provides programming that aims to decrease bullying and empower victims, teach conflict resolution skills and empathy, and promote diversity appreciation and respect for all persons. Classes of students in elementary through high school visit the museum, and the curriculum is adjusted based on the age and needs of the students. In a typical day, students will be broken up into groups of 5-6 students each, and will rotate around to 6-7 different exhibits for 15-20 minutes per exhibit. Exhibits are led by trained docents, who are either TCNJ college students or volunteers from the community. These exhibits, which are interactive and discussion-based, focus on topics such as cyberbullying, victim empowerment, discrimination and stereotypes, LGBT issues, and attitudes towards persons with disabilities.

THE DIFFERING ABILITIES ROOM

One of the exhibits that students visit in their rotation is the Differing Abilities Room. This room focuses on teaching students about disabilities and promoting more positive attitudes towards them. The exhibit starts with a discussion that previews what the students will be doing in the exhibit and provides a definition of a disability.

Students are then read a children's book entitled "Susan Laughs," which is about a girl named Susan who does many things that all children do. On the last page, readers discover that Susan is in a wheelchair, which sparks a discussion about all of the activities in which people with disabilities can participate. Students then move over to the "Wall of Differing Abilities", which is a wall filled with pictures of people with disabilities doing things independently and successfully, but differently than how a person without a disability would do it. The docent leads a discussion about some of the people on the wall, highlighting the fact that they are capable of doing everyday activities independently.

Students then move to the "Wall of Famous People," which is a wall with pictures of famous people with disabilities. Here, the docent leads a conversation about some of these famous people and what they have accomplished. This wall helps demonstrate to students that people with disabilities have achieved great things and in fact, their disability has made them who they are. Finally, students are introduced to a puppet named Wanda, who they are told is a new girl at their school. Wanda has leg braces, but she also wears a cheerleader uniform and has cool blue hair. The docent uses Wanda to discuss the fact that a disability does not define a person and to get students thinking about appropriate ways in which they could interact with Wanda.

THE PRESENT STUDY

The present study aims to address some of the gaps in the existing literature on attitudes towards disabilities. We will be measuring children's attitudes towards peers with disabilities, as well as evaluating a potential intervention to promote more positive attitudes. This is an important study, first, because it will add to the literature on children's attitudes, which have not been as well-researched as the attitudes of adults. Second, this study is important because it will be looking specifically at attitudes towards physical disabilities, the most well-researched disability category, and learning disabilities, a category which has relatively little research but is by far the most prevalent disability category in schools. As much of the research on attitudes towards disabilities is somewhat old, it is possible that much has changed since the passage of the new Individuals with Disabilities Education Act in 2004. Therefore, new research will be a valuable addition to the existing literature. Finally, this research will evaluate an intervention program for attitudes towards disabilities, which will help us to develop effective ways to change negative attitudes.

The Differing Abilities Room in the Kidsbridge Tolerance Museum currently addresses almost exclusively physical disabilities. Therefore, we hypothesize that attitudes towards physical disabilities will be significantly more positive from pre- to post-test, following participation in the exhibit, but that there will be no effect on attitudes towards learning disabilities. Second, based on findings from Antonak (1980), we hypothesize that students will have significantly more positive attitudes towards physical disabilities than learning disabilities in both the pre- and post-test, as their interactions with students with disabilities will mainly take place in school settings.

METHOD

Participants: Participants in this study were 145 elementary school students who participated in Kidsbridge. Fifty-one participants were fourth graders from a public elementary school in an urban area, 60 participants were in fifth grade and were from a public, suburban school district, and 34 participants were fifth graders from an urban charter school. Prior to students' visits to Kidsbridge, parents signed an informed consent form allowing their children to participate in the study. Data was collected on five separate days over a two-month period. Additional demographic information was only available for 118 participants, as 27 participants either declined to report demographic information or had missing data. Of these 118 participants, 54.2% were male and 45.8% were female. Participants ranged in age from 9-13, with a mean age of 10.48 (*SD* = .80). The racial composition of the sample was as follows: 50.8% Black or African American, 20.3% Multiracial, 17.8% Hispanic, 7.6% White, and 3.4% other races.

Measures: In order to measure attitudes towards individuals with disabilities, we used a measure adapted from The Multidimensional Attitudes Scales Towards Persons with Disabilities (MAS; Findler et al., 2007). We chose 5 items from the questionnaire that we felt best applied to the Kidsbridge exhibit, and eliminated the rest of the items. This was done to prevent fatigue and make sure that we had the continued attention of the elementary schoolers to whom the survey was being administered. These items asked participants to rate what they might think about or how they might act towards someone with a disability.

The MAS starts with a vignette about being approached by an individual in a wheelchair, and has a version where the person with a disability is male and one in which the person is female. We modified the vignettes so that they were more appropriate for elementary-aged students (e.g., being approached on a playground as opposed to in a coffee shop). In addition, we wrote a new vignette that portrayed an interaction with a student that had a learning disability. We referred to the person with a disability as "the student" or "the child" in order to keep the vignette gender-neutral.

In the pretest, students were presented with a vignette about a student with a physical disability and needed to respond to the 5 items that would measure their attitudes towards this person. They did the same for a vignette about a student with a learning disability, although the wording of some of the items was modified to match the scenario. In the post-test, students again responded to 5 items for a vignette about a student with a physical disability and one about a student with a learning disability. Items were reworded for the post-test to prevent students from simply choosing the same answer as they had in the pre-test. Participants responded to the items by rating each item on a 4-point scale ranging from *definitely* to *definitely not*. Responses were scored by reversing negatively-worded items and obtaining the mean across items. Possible scores ranged from 4, which indicates positive attitudes towards people with disabilities, to 1, which indicates negative attitudes. Sample items include, "I would ask the student to play with me," "I would think the student might be smart," and, "I would leave and read with another student instead".

Procedure: Students were selected for participation in the study because of their school's participation in the Kidsbridge Tolerance Museum. The surveys were administered in a classroom in the same building as the museum and included the measures described above. Paper-and-pencil questionnaires were administered to groups ranging in size from 23-34 students. The administrator read each vignette and item aloud to ensure students' comprehension and circulated the classroom to answer students' questions and check that they were responding in an appropriate manner. Demographic information was also collected from students following the completion of the post-test survey. Each session took about 20 minutes to complete. Pre-tests were administered at the start of the day upon students' arrival at the Kidsbridge museum. Post-tests were administered approximately four hours later, at the conclusion of the day. Over the course of those four hours, students rotated around to different exhibits and spent approximately 15-20 minutes in the Differing Abilities room.

RESULTS

Hypothesis 1: We hypothesized that, after their time in the Kidsbridge exhibit, students would have significantly more positive attitudes towards individuals with physical disabilities on the post-test

measure than on the pre-test. We hypothesized that there would be no change in their attitudes towards individuals with learning disabilities. After calculating the reliability of the scales, we decided to eliminate one item ("I would feel bad/sorry for this student") because of its low reliability. Therefore, each variable was calculated using the four remaining items, and paired samples t-tests were used to compare variables. Our hypotheses were not supported, as attitudes towards peers with physical disabilities decreased significantly from pre- to post-test, $t(144) = 5.03$, $p = .00$, $d = -.42$. Attitudes towards peers with learning disabilities also decreased significantly from pre- to post-test, $t(143) = 2.70$, $p = .01$, $d = -.25$.

Since our reliabilities were somewhat low even after eliminating an item, we realized that our results could have been due in part to the fact that each item may actually be measuring a separate component of disability. Therefore, we decided to run paired samples t-tests on each item individually so that we could isolate these components. The five components that were being measured were described as follows: willingness to invite a person with a disability to engage in an activity, perceived intelligence of a person with a disability, pity towards a person with a disability, likelihood of leaving a situation involving a person with a disability, and perceived friendliness of a person with a disability.

For the physical disabilities condition, students were significantly more likely to ask the individual to engage in an activity with them from pre- to post-test, $t(143) = -3.78$, $p = .00$, $d = .34$. However, they were also significantly more likely to leave the situation, $t(142) = 4.88$, $p = .00$, $d = -.46$, and perceived students with disabilities to be significantly less friendly, $t(144) = 8.19$, $p = .00$, $d = -.92$. The two other items, perceived intelligence and pity, did not change significantly from pre- to post-test for students with physical disabilities. Descriptive statistics for all variables can be found in Table 1.

Table 1

Means and Standard Deviations for Attitudes towards Physical Disabilities

	Pre-test			Post-test		
Variable	*M*	*SD*	N	*M*	*SD*	N
Combined variable	3.31	.60	145	3.07	.55	145
Engaging in an activity	3.10	.96	144	3.41	.88	144
Perceived intelligence	3.08	.86	144	3.01	.85	144
Pity	1.49	.91	143	1.59	.97	143
Leaving when approached	3.69	.70	143	3.29	.99	143
Perceived friendliness	3.38	.81	145	2.59	.91	145

For the learning disabilities condition, students' perceived friendliness of the individual with a disability decreased significantly from pre- to post-test, $t(143) = 2.81$, $p = .01$, $d = -.84$. No other items were significant for students with learning disabilities, which supports the hypothesis that learning disabilities are not being addressed in Kidsbridge. Descriptive statistics for all variables can be found in Table 2.

Table 2

Means and Standard Deviations for Attitudes towards Learning Disabilities

	Pre-test			Post-test		
Variable	*M*	*SD*	N	*M*	*SD*	N
Combined variable	3.07	.58	144	2.91	.65	144
Engaging in an activity	3.08	.92	143	3.17	.90	143
Perceived intelligence	2.66	.87	142	2.59	.99	142
Pity	1.69	1.02	144	1.67	.99	144
Leaving when approached	3.38	.97	144	3.44	.90	144
Perceived friendliness	3.17	.82	144	1.67	.99	144

Hypothesis 2: Our second hypothesis was that in both the pre- and the post-test, students would have significantly more positive attitudes towards individuals with physical disabilities than learning disabilities. As mentioned above, we again eliminated the item regarding pity, calculated the variables

using the remaining four items, and used paired samples t-tests to compare the variables. In the pre-test, as predicted, students' attitudes were significantly more positive towards individuals with physical disabilities than learning disabilities, $t(143) = 5.38$, $p = .00$, $d = .40$. The same was true in the post-test, $t(144) = 2.94$, $p = .00$, $d = .24$.

As we did for our first hypothesis, we again looked at each item individually to distinguish between items. In the pre-test, students had more positive attitudes towards people with learning disabilities for almost every item: they were significantly more likely to engage in an activity with the person with a physical disability, $t(141) = 2.37$, $p = .02$, $d = .22$, significantly more likely to perceive the student with a physical disability as intelligent, $t(142) = 5.15$, $p = .00$, $d = .48$, significantly less likely to leave when approached by a student with a physical disability, $t(141) = 3.60$, $p = .00$, $d = .37$, and significantly more likely to perceive the student with a physical disability as friendly, $t(143) = 2.73$, $p = .01$, $d = .26$. However, they were significantly less likely to feel pity towards a person with a physical disability than a learning disability, $t(141) = -2.88$, $p = .01$, $d = -.22$.

In the post-test, students had more positive attitudes towards physical disabilities than learning disabilities on some of the items, while the others were insignificant. Students were significantly more likely to engage in an activity with the student with a physical disability, $t(144) = 2.66$, $p = .01$, $d = .26$, and significantly more likely to perceive the student with a physical disability as smart, $t(142) = 4.72$, $p = .00$, $d = .42$. The items about pity and perceived friendliness were insignificant, while the item about leaving when approached by a person with a disability was marginally significant in the direction opposite our hypothesis, meaning that participants were slightly more likely to leave when approached by a student with a physical disability, $t(144) = -1.80$, $p = .07$, $d = -.18$.

DISCUSSION

We hypothesized that students' attitudes towards peers with physical disabilities would increase significantly from pre- to post-test following participation in the Kidsbridge Differing Abilities Room, but that there would be no change in students' attitudes towards peers with learning disabilities. These hypotheses were not supported, as attitudes for both physical and learning disabilities decreased significantly from pre- to post-test. However, after running analyses on each item individually, we were able better to understand where these results came from.

For both physical and learning disabilities, the item regarding perceived friendliness decreased significantly, and we think that this may have been a result of the rewording of the question from pre- to post-test. In the pre-test we asked, "I would think the student might be friendly," and in the post-test we asked, "I would think this student might have lots of friends." Upon closer examination, we do not think that these two questions were measuring the same thing, as it could be possible to think someone is friendly but to also think that they do not have a lot of friends. Therefore, this was probably a bad question and seems to have had an effect on the negative results. For learning disabilities, this was the only item that was significant, suggesting that in general, the Differing Abilities Room does not seem to be affecting attitudes towards learning disabilities, which is in line with our hypothesis.

Additionally, we believe that some of the items that were nonsignificant are important as well. For both physical and learning disabilities, the item about perceived intelligence and the pity item were nonsignificant. It makes sense that the perceived intelligence item would be nonsignificant, because schoolwork and academic intelligence are not discussed in the Differing Abilities Room. Pity, however, is addressed, and the exhibit spends a large amount of time talking about not feeling bad for students with disabilities because they are fine the way they are. We feel that even though this is being addressed in the museum, the children may be too young to truly grasp the difference between pity and empathy, and it makes sense that their natural inclination would be to feel bad for someone who, say, cannot walk or hold their head straight.

Our second hypothesis was that in both the pre- and post-test, students would have significantly more positive attitudes towards peers with physical disabilities than those with learning disabilities. This hypothesis was supported and was in line with previous research (Antonak, 1980; McGregor & Forlin, 2005). However, we again evaluated each question individually to get more details about these results. In the pre-test, we found that all items were significant in the hypothesized direction except the item about pity, which was significant in the opposite direction. The vignette for learning disabilities portrays a

student struggling with schoolwork, so it could be that children are more likely to feel pity for someone who appears to be struggling. In the post-test, all items were either significant in the hypothesized direction or nonsignificant.

The vignettes should be rewritten in such a way that the physical disability vignettes more closely match up with the vignettes for learning disabilities. However, this will be challenging as it will be difficult to describe a student with a learning disability without mentioning their academic struggles. In the future, it would also be helpful to consider using the same items on both the pre- and post-tests and only changing the vignettes, so that we can be confident that any differences found would not be a result of the wording of the questions.

Future research should also be broadened to include more disability types than just physical and learning disabilities, and should look at many different interventions to see which ones are the most effective. This research does provide information about modifications that can be made to the Differing Abilities Room, so these modifications should also be measured once they are implemented. Additionally, very little research has been done regarding the attitudes of elementary-aged students towards people with disabilities, so future research should attempt to determine more appropriate measures to be used with this age group (Vignes et al., 2008).

Based on our results, we feel that the Kidsbridge Differing Abilities Room needs to be modified so that it focuses less on physical disabilities and more on learning disabilities. There are ways to make small modifications to the existing exhibit in order to shift this focus. For example, more time can be spent at the wall of famous people, which already has a large variety of disability types featured on the wall. This wall would provide a great opportunity to not only talk about many disabilities, but to highlight very successful people who have these disabilities and discuss how their disabilities have actually enabled them to achieve what they have.

Another modification that could be made to the Differing Abilities Room is to add other disability types into the Wall of Differing Abilities. The original intent of this wall was to show people with disabilities successfully and happily doing things that everyone else can do, even if they need to do them a bit differently. The wall could include people who are nonverbal but use augmentative communication devices, people using sign language, people who are receiving modifications on assignments, etc. Finally, because research suggests that exposure to individuals with disabilities is associated with positive attitudes (McGregor & Forlin, 2005; Vilchinsky et al., 2010), we think a powerful modification that could be made to the Differing Abilities Room would be to bring in a person with a disability to speak to the students.

There are some limitations of this study that are important to acknowledge. The racial composition of this sample was not necessarily representative of the school-aged population in the United States at large, or even in New Jersey at large, and since different cultures view disability differently (Rao, 2006), this is an important limitation. Future studies should be conducted on different demographic groups in order to increase generalizability. Second, there were only five items, which may not have been enough to get a complete picture of the desired information. The number of items was chosen because our measures were administered in conjunction with other measures that assessed other exhibits in the museum, and we wanted to prevent fatigue among participants. Future research should focus solely on this exhibit and should include more items.

Yet even with these precautions, fatigue is still possible and is another limitation of the study that should be identified. Participants took a pre-test in the morning, and then spent four hours going through the museum at a quick pace and being presented with large quantities of information on multiple topics. At the end of the day, when it was time for the post-test, they were likely very tired and may have answered less carefully simply because they wanted to finish the survey. They may also have remembered their answers from the morning and simply chose those answers again. Additionally, social desirability may be a factor as students are choosing their answers, in particular because they were likely primed by their classroom teachers before coming to the museum about what they would be doing there. For these reasons, we recommend that a pre-test be administered in the students' schools at least a week prior to their visit at the museum. This would not only eliminate the effects of priming, but would put more space in between the pre- and post-tests and would cut down on the amount of survey questions students would need to answer in one day while they are at the museum.

Finally, the intervention in the differing abilities room only lasts about 15-20 minutes, and occurs along with a variety of other exhibits on different topics. It is possible that this is not a long enough period of time to have a significant impact on the students, or that they are being presented with so much information that they are not able to retain all of it. These are all factors that future research should address.

In the end, however, this research provided valuable information about how students view peers with disabilities. As this is a growing group, and as they are likely to encounter a classmate with a disability, this is incredibly important information to have. Based on this research, we were able to recognize that Kidsbridge needs to spend more time focusing on students with learning disabilities and were able to identify some ways to do this that will hopefully be effective based on our results. This research was an important first step in looking at how we can change students' perceptions of peers with disabilities, but future research should be able to build off of this so that we can develop powerful ways to create more positive attitudes towards students with disabilities.

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