Enhancing Behavioral Intentions and Cognitive Attitudes of Typical Children towards Children with Disabilities

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Abstract

A variety of national (Wall, Wheaton & Zuver, 2009) and international (Carter & Spencer, 2006) studies have reported that children with disabilities are at least two to three times more likely to be victims of bullying than their typical peers. Since half of all preschool children with identified disabilities are now educated alongside their typically developing peers (Diamond & Hong, 2010), it is imperative to reduce bullying behaviors and to enhance sensitivity to peers with disabilities in the classroom (Campbell et al., 2000). Based on Rosenthal's (1989) Affect/Effort Theory, children tend to place more effort in their interactions with others if they have higher expectations of their peer's capabilities. Siperstein et al. (2007) suggested that it's critical to showcase the competencies, capabilities and strengths of children with disabilities. The following research assesses the impact of *Realabilities*, an animated TV show and comic book series created by the first author, in enhancing the cognitive attitudes (as measured by a modified Adjective Checklist [ACL; Siperstein & Bak, 1977]) and behavioral intentions (as measured by a modified Shared Activities Questionnaire [SAQ; Morgan et al., 1996]) of typical children towards their peers with disabilities. *Realabilities* emphasizes the strengths of five characters with disabilities (Autism, ADHD, Visual Impairment, Hearing Impairment and Physical Impairment) who harness their special competencies to save their school from bullies. Significant findings from Paired and Independent Samples T-tests will be presented along with demographic and qualitative data to evaluate three storyboarded episodes, a fully animated episode, and the comic book series of *Realabilities* in enhancing the attitudes of typical elementary school children towards their peers with disabilities. Future directions, including a *Realabilities Puppet Musical* to sensitize preschool children and virtual reality simulations to sensitize teachers, special educators and typical middle school students to individuals with disabilities, will also be discussed.

Keywords

Autism, Disabilities, Attitudes, Intentions, Sensitivity.

1. Introduction

1.1 Increasing numbers of disabilities in the classroom

While students with disabilities were already educated in integrated classrooms in the 1970s, the passage of the Individual with Disabilities Education Act [IDEA] of 1990 (requiring instruction in the least restrictive environment), the American Disabilities Act [ADA] of 1990 and the heightened interest in teaching children with and without disabilities in the same classroom, has led over 75% of community preschool programs to accommodate students with disabilities in integrated classrooms (Diamond, Hestenes, Carpenter & Innes, 1997). Moreover, approximately half of all preschool children with identified disabilities are educated alongside their typically developing peers, and around 66% of all 3-year-olds with identified disabilities enroll in center-based preschool or child care programs (Diamond & Hong, 2010). Thus, the need to optimally accommodate children with disabilities in the most sensitive and effective fashion is and will continue to be increasingly integral to their academic and social success.

1.2 Timing of understanding disabilities

While preschool children already appear capable of comprehending visible disabilities (e.g. physical and sensory disabilities), they appear to be less discriminating of less visible disabilities, like mental retardation (Conant & Budoff, 1983) and psychological disturbances (Smith & Williams, 2001). Some research studies suggest that young children may not only possess inaccurate information about less visible disabilities but may even harbor more negative attitudes towards children with less obvious disabilities (Maras & Brown, 2000). It has been suggested that young children may experience a lack of clarity about their peers with cognitive disabilities (e.g. mental retardation, autism), since many of these peers with disabilities do not rely on overt, adaptive equipment, like a wheelchair, a hearing aid, glasses or walking stick. In contrast, Goodman (2001) discovered that third graders perceived retardation as a trait, interpreted abstractly to be both predetermined and incontrovertible, based on personal effort. Similarly, Goodman (1989) discovered that eight to nine-year-olds possessed an accurate conceptualization of learning disabilities, perceiving them as a trait that is abstract and irreversible. Interestingly, these distinctions in the conceptualization of disability may relate to the more negative perceptions of third and fourth-grade children towards children with disabilities compared to the

more positive perceptions of their younger preschool and kindergarten counterparts (Diamond et al., 1997; Goodman, 1989). A number of studies have shown that as typical children age, they rate their peers with both physical and intellectual disabilities less positively, suggesting that there is a negative relationship between age and attitudes (Campbell, Ferguson, Herzinger, Jackson, & Marino, 2004; Bell & Morgan, 2000; Morgan &Wisely, 1996). Unfortunately, this negative relationship between age and attitudes in elementary school children can result in painful bullying in and outside of the classroom.

1.3 Increased bullying rates against children with disabilities

According to the Centers for Disease Control (CDC) Youth Risk Behavior Surveillance of 2011, bullying was associated with one of the leading causes of death among persons aged 10–24 years of age in the United States. It was reported that 20.1% have been bullied on school property, and 7.8% of those who have been victimized by bullying have attempted suicide (Eaton et al., 2012). While any individual might be a target of bullying, the following student profiles are at a greater risk of becoming victims of bullying: students with disabilities and mental health problems, smaller students, and students who are lesbian, gay, bisexual, transgender and questioning (LGBTQ) (Lieberman & Cowan, 2011). In particular, children with disabilities are two to three times more likely to be victims of bullying compared to their typical peers (Holmquist, 2011) and bullying experienced by individuals with disabilities tends to be more chronic in nature and a direct result of their disability (Wall et al., 2009). Hoover and Stenhjem (2003) suggest that the lack of participation of children with disabilities in general education classes, mainstream educational clubs, and organizations, and athletic programs perpetuates a lack of under-standing and interaction among students with and without disabilities. Peer interactions and relationships are critical ingredients for developing social skills during childhood (Asher & Coie, 1990).

1.4 Effective manners of inducing attitude change towards children with disabilities

In conjunction with the afore-mentioned study, several studies have revealed that the most efficacious way to effect positive change in typical children's attitudes towards children with disabilities is to combine formal instruction with structured or direct contact with individuals with disabilities (Campbell & Gillmore,

2003) or to introduce simulation or role-playing activities that offer more experiential learning (Campbell & Gilmore, 2003). Unfortunately, research also indicates that without intervention, typically developing peers prefer to interact with one another rather than with children with disabilities (Myles, Simpson, Ormsbee, & Erikson, 1993 & Goldstein, Kaczmarek, & Pennington, 1992). Aligned with this notion, the research largely supports the assertion that contact with individuals with disabilities can affect positive change in attitudes towards children with disabilities (Smith & Williams, 2001; Maras & Brown, 1996).

1.5 Considerations of inclusion for typical children and children with disabilities

Since contact and exposure to children with disabilities are paramount for enhancing attitudes towards individuals with disabilities, it is important to review the literature on inclusion. Research on inclusion suggests benefits of exposure for both children with disabilities and their typically developing peers. Still some instructors are apprehensive about inclusion, since they fear that too much time may need to be dedicated to special needs students (which may be detrimental to the other students). Additionally, they are fearful about receiving lower quality work from students with disabilities and are concerned about their own inadequate training and preparation for accommodating the needs of students with disabilities in their classrooms (Campbell & Gillmore, 2003). Furthermore, like teachers, not all typical peers are as eager to accommodate individuals with disabilities in the classroom.

Unfortunately, while the earlier articles suggested the positive benefit of inclusion on typical students' attitudes towards peers with disabilities, some more recent studies suggest that inclusion alone does not ensure more favorable attitudes (Siperstein et al., 2007). Siperstein et al. (2007) attributed this inconsistent research finding to Allport's (1954) theoretical notion that stereotypes can be altered through contact, but only if that contact is frequent and of high quality. To be clear, the contact needs to remove existing stereotypes rather than reinforce stereotypes. Thus, if programs are unstructured and hierarchical and focus on dissimilarities rather than on commonalities, inclusion may fail to positively enhance attitudes. In contrast, presenting strengths information or information pertaining to the abilities of individuals with disabilities may encourage

typical children to interact and form positive intentions and attitudes towards children with disabilities (Silton, 2009; Owen-Deschryver, 2004).

1.6 An additional consideration: extended contact

While frequent and high-quality inclusion that involves typical children, parents and teachers may be an ideal way to enhance attitudes towards individuals with disabilities, extended contact may be an alternative way to enhance typical children's attitudes when they are not learning directly in inclusive environments with individuals with disabilities. The extended contact hypothesis posits that knowledge that an in-group member has a close relationship with an out-group member may foster more positive intergroup attitudes (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). Typical children can benefit strongly from extended contact since it affords them knowledge of individuals with disabilities (the outgroup) without the negative side effect of anxiety that initial, direct contact may introduce (Pettigrew & Tropp, 2000; Stephan & Stephan, 1985, as cited by Cameron & Rutland, 2006).

Cameron and Rutland (2006) examined the efficacy of an extended contact prejudice-reduction intervention in enhancing typical children's attitudes towards children with disabilities in England. The researchers discovered that when group boundaries are maintained, and typicality is emphasized, the extended contact model was more efficacious and led to the greatest change in typical participants' attitudes towards children with disabilities (Cameron & Rutland, 2006). Thus it appears that an Intergroup Extended Contact Model, wherein typical children learn about the realities of hypothetical peers with disabilities through story-telling, role-playing or drama (Campbell & Gilmore, 2003) that focus on the commonalities and strengths of their peers with disabilities (Cameron & Rutland, 2006), may be a useful antidote to the negative relationship between age and negative attitudes towards children with disabilities (Campbell, Ferguson, Herzinger, Jackson, & Marino, 2004; Bell & Morgan, 2000; Morgan & Wisely, 1996).

2. Study Interventions

Realabilities, a television show and comic book series targeted to 6-11-year-old children, has been created by the author and her research colleagues to showcase the lives of five characters with diverse

disabilities: Autism, Attention Deficit Hyperactivity Disorder [ADHD], Physical Impairment, Hearing Impairment and Visual Impairment. These characters harness the special strengths associated with their disabilities to quell bullying and to solve exciting mysteries in their school. The *Realabilities* show and comic book series highlight the characters' strengths and commonalities with their typical peers, while also alluding to how the characters with disabilities help each other overcome the challenges associated with their disabilities. A number of studies were conducted between 2013 and 2015 to assess whether or not various iterations of the *Realabilities* TV show and comic book series were efficacious in enhancing typical children's cognitive attitudes and behavioral intentions towards hypothetical peers presenting with disabilities.

2.1 Instruments

Modified versions of the following instruments were utilized to assess typical children's behavioral intentions and cognitive attitudes towards hypothetical peers with disabilities.

The Shared Activities Questionnaire (SAQ-Self; Morgan et al., 1996) is a 24-item experimental scale that evaluates the behavioral intentions and interest of a child in engaging in social, academic and recreational activities with a target child (Campbell et al., 2004; Morgan et al., 1996; Swaim & Morgan, 2001) with disabilities. An abridged eight-item version of the SAQ was used for the *Realabilities* testing to best cater to second through fourth-grade elementary school children. The SAQ-Self evaluates an individual's own preferences for engagement in activities with the target child. The three activity areas of the SAQ-Self-measure include: *General social* (e.g., preference to eat lunch with the target child), *Academic* (e.g., preference to work on math problems with the target child) and *Active recreational* (e.g. preference to attend a ball game with the child). The children rate their interest in engaging with the target child in these activities by circling a (1) smile (denoting yes), (2) a neutral face (denoting maybe), or (3) a frown (denoting no). The rater circles the item that best represents how he/she feels about engaging in an activity with the target child. The scores range from 3 (yes) to 2 (maybe) to 1 (no). A total score and a score for each of the three activity areas may be derived, with higher scores indicating a greater willingness to share in an activity with the target child.

The Adjective Checklist (ACL) (Siperstein & Bak, 1977) is a commonly used measure for examining elementary school children's cognitive attitudes towards individuals with disabilities. It is a checklist composed of 32 adjectives, half of which feature positive values (e.g., smart, neat) and half of which feature negative values (e.g., dumb, sloppy). After reviewing the list of adjectives, the child rater circles which adjectives best describe the target child. To derive a score for the Adjective Checklist, researchers subtract the total negative from the total positive adjectives used and add a constant of 20 (Campbell et al., 2004; Siperstein & Bak, 1977). Scores typically range from 4 to 36, with scores above 20 signifying more positive attitudes and scores below 20 signifying more negative attitudes. Construct validity for both positive and negative values of the adjectives have been confirmed through factor analysis.

2.2 Intervention One: Assessing the efficacy of three storyboarded episodes of *Realabilities*

2.2.1 Participants

One hundred and sixty-six typical second and third grade students (75 boys [45.7%] and 89 girls [54.3%]) participated in the three storyboarded episode *Realabilities* intervention. Seventy-nine of the children were from an elementary school in Manhattan, New York, and 87 were from an elementary school in Baltimore, Maryland. Three (1.8%) of the students were 6 years of age, 64 (38.6%) were 7 years of age, 66 (39.8%) were 8 years of age, and 31 (18.7%) were 9 years of age. All students identified themselves as "White," except one self-identified as Latino.

2.2.2 Procedure

Modified versions of the Shared Activities Questionnaire (SAQ), a behavioral intention measure, and the Adjective Checklist (ACL), a cognitive attitudinal measure, were administered to the elementary school children both prior to and following the viewing of three storyboarded episodes of *Realabilities*. The children were then debriefed and were encouraged to discuss recommendations they would make for future iterations of the show.

2.2.3 Results

Paired sample t-tests were performed to assess differences prior to and subsequent to the intervention. Results are shown in Table 1. Following the three-episode intervention, the 166 elementary school students from both schools showed significantly more

favorable cognitive attitudes and behavioral intentions towards hypothetical children presenting with all four forms of disabilities featured in the three storyboarded episodes: autism, visual impairment, hearing impairment and physical impairment. Children reported more positive cognitive attitudes on the ACL towards hypothetical children presenting with visual impairment, t (156) = -11.719, p < .001, hearing impairment, t (155) = -10.694, p <.001, physical disability, t (155) = -10.154, p < .001 and towards children with autism, t (151) = -2.101, p < .001. Similarly, they showed more positive behavioral intentions on the SAQ towards children with autism, t (141) = -5.326, p < .001, visual impairment, t (149) = -5.393, p < .001, hearing impairment, t (142) = -3.878, p < .001 and physical disability, t (147) = -4.541, p < .001.

Table 1: ***Intervention one SAQ and ACL results***

	Autism	**Blindness**	**Deafness**	**Paraplegia**
SAQ Total	t (141) = -5.326 **	t (149) = -5.393 **	t (142) = -3.878 **	t (147) = -4.541 **
SAQ Academic Subtest	t (142) = -5.327 **	t (154) = -6.245 **	t (149) = -4.131 **	t (152) = -3.395 **
SAQ Social Subtest	t (143) = -3.621 **	t (153) = -4.398 **	t (152) = -3.635 **	t (153) = -3.106 *
SAQ Recreational Subtest	t (143) = -4.385 **	t (153) = -2.343 *	t (151) = -1.913 p =.058	t (149) = -4.266 **
ACL	t (151) = -2.101 **	t (156) = -11.719 **	t (155) = -10.694 **	t (155) = -10.154 **

*** p < 0.01; ** p < 0.001**

2.3 Intervention Two: Evaluating the efficacy of comic books and an animated episode of *Realabilities*

2.3.1 Participants

One-hundred and fifty-two second (35.5%; n=54), third (38.2%; n=58) and fourth grade (25.7%; n=39) elementary school children from a public elementary school in Brooklyn, New York (79 boys [53.7%] and 66 girls [43.4%]) participated in the *Realabilities* comic book and animated episode intervention. Twenty-four of the students (15.8%) were in special needs classrooms, and 128 of the children (84.2%) were in typical classrooms. Half of the students (n=73) identified as African American, forty percent (n=58) identified as Latino, five percent (n=7) identified as white and four percent (n=6) identified as Asian American. All of the students attended a Public Elementary School in Brooklyn, New York.

2.3.2 Procedure

The researchers administered shortened versions of the Shared Activities Questionnaire (SAQ), a behavioral intention measure, and the Adjective Checklist (ACL), a cognitive attitudinal measure to the second, third and fourth grade elementary school students both before and after they read the first comic book of *Realabilities* and/or viewed the first fully animated episode of *Realabilities.* The children were then debriefed and were encouraged to discuss which aspects of the show and characters were most appealing to them and to formulate recommendations they would make for future episodes of the show.

2.3.3 Results

Paired sample t-tests were used for statistical analysis with the results depicted in Table 2 below. The data revealed significant positive changes in behavioral intentions and cognitive attitudes following the intervention. Children reported more positive cognitive attitudes on the ACL towards hypothetical children presenting with visual impairment, t (145) = -9.232, p < .001, hearing impairment, t (144) = -6.721, p <.001, physical disability, t (144) = -4.756, p < .001 and autism, t (144) = -5.192, p < .001. In addition, the participants reported more positive behavioral intentions on the SAQ towards hypothetical children with physical disability on the SAQ Academic subtest, t (143) = -2.235, p < .05 and on the SAQ Social Subtest, t (137) = -2.195, p < .05. Finally, children showed significantly more positive behavioral intentions towards hypothetical peers presenting with autism on the SAQ Total, t (125) = -4.033, p < .001, on the Academic subtest, t (134) = -3.941, p

<.001, on the Social subtest, t (135) = -3.656, p < .001 and on the Recreational subtest, t (135) = -14.175, p < .001. Thus, participants showed significantly more favorable cognitive attitudes towards hypothetical children presenting with all four forms of disabilities and more positive behavioral intentions towards children with deafness, physical disability and autism.

Table 2: ***Intervention two SAQ and ACL results***

	Autism	**Blindness**	**Deafness**	**Paraplegia**
SAQ Total	t (125) = -4.033 ***	t (132) = -.912 p = .364	t (128) = -3.146 **	t (130) = -1.962 p =.052
SAQ Academic Subtest	t (134) = -3.941 ***	t (139) = -1.301 p =.195	t (139) = -2.873 **	t (143) = -2.235 *
SAQ Social Subtest	t (135) = -3.656 ***	t (140) = -1.450 p =.149	t (139) = -2.158 *	t (137) = -2.195 *
SAQ Recreational Subtest	t (135) = -14.175 ***	t (140) =.415 p =.679	t (136) = -2.248 *	t (136) = -1.688 p =.094
ACL	t (144) = -5.192 ***	t (145) = -9.232 ***	t (144) = -6.721 ***	t (144) = -4.756 ***

*** p < 0.05; ** p < 0.01; *** p < 0.001**

2.3.4 Conclusions from Interventions One and Two

These findings on 318 elementary school students, which assessed the efficacy of the *Realabilities* TV show and/or comic book series are especially illuminating, since they are some of the first to show the success of a video intervention in improving typical children's cognitive attitudes and behavioral intentions towards children with disabilities. This demonstrates that the use of video and graphic novel media were indeed effective forms of dissemination tools for enhancing the attitudes and behavioral intentions of typical children towards children with disabilities.

2.4 Intervention Three: Measuring the efficacy of five *Realabilities* comic books

2.4.1 Participants

Sixty-two students (22 third graders [35.5%] and 40 fourth graders [64.5%]), 28 boys (46.7%) and 32 girls (53.3%), from an elementary school in Manhattan, NY participated in the *Realabilities* five comic book series intervention. The majority of students identified as white (57; 92%), one as Latin American (1; 1.6%), one as African American (1; 1.6%) and two students (2; 3.2%) self-identified as Asian American.

2.4.2 Procedure

On the first day of the intervention, students completed the pre-test questionnaire and read the first of five *Realabilities* comic books. Students then proceeded to read the second, third, fourth and fifth comic books on the second, third, fourth and fifth day of the research intervention, respectively. After reading the fifth comic book on the fifth day, students completed the post-test questionnaire measures. The children were then debriefed and were encouraged to discuss which aspects of the show and characters were most appealing to them and to craft recommendations they would make for future comic books and episodes of the show.

2.4.3 Results

Statistical analysis was conducted using paired sample t-tests. After reading five *Realabilities* comic books, third and fourth grade students reported significantly improved behavioral intentions on the Shared Activities Questionnaire (SAQ) toward children with autism, t (58) = -2514, $p < .05$, hearing impairment, t (58) = -2.958, $p < .01$, and physical impairment, t (55) = -2.804, $p < .01$. Similarly, children reported significantly more positive cognitive attitudes on the Adjective Checklist (ACL) towards hypothetical children presenting with all of the presented disabilities, including: autism, t (59) = -4.030, $p < .001$, visual impairment, t (59) = -5. 888, $p < .001$, hearing impairment, t (58) =-3.924, $p <.001$ and physical disability, t (58) = -5.502, $p < .001$. In addition, 60% of the third and fourth-grade students were interested in purchasing the *Realabilities* comic book series, and 72% were interested in viewing the *Realabilities* TV show following the *Realabilities* comic book series intervention. Finally, following the comic book intervention, the majority of participants (94.6%) reported that it was important to stop bullying. Participants reasoned that bullying was wrong, since: “It hurts people’s feelings,” “It is very rude,” “People get very

sad when they are bullied," "It would make people happier [to stop bullying]," "It hurts kids and they can do dangerous things," "It's MEAN," "It is important to treat people the way you want to be treated," "People feel terrible when you bully them," "It's not fun to ruin another kid's day," "The world would be a better place [if you stopped bullying]," "If you're bullied as a child, it could affect you for the rest of your life," and "If people stopped bullying, kids wouldn't get hurt anymore."

Table 3: *Intervention three SAQ and ACL results*

	Autism	**Blindness**	**Deafness**	**Paraplegia**
SAQ Total	*t* (58) = -2.514 *	*t* (56) = -1.689 *p* =.097	*t* (58) = -2.958 **	*t* (55) = -2.804 **
SAQ Academic Subtest	*t* (58) = -23.838 ***	*t* (58) = -1.378 *p* =.173	*t* (59) = -3.496 ***	*t* (56) = 1.172 *p* =.246
SAQ Social Subtest	*t* (58) = -2.914 **	*t* (57) = -1.059 *p* =.294	*t* (58) = -.668 *p* =.507	*t* (59) = -2.508 *
SAQ Recreational Subtest	*t* (59) = 1.200 *p* =.235	*t* (59) = -1.054 *p* =.296	*t* (59) = -2.943 **	*t* (59) = -2.982 **
ACL	*t* (59) = -4.030 ***	*t* (59) = -5.888 ***	*t* (58) =-3.924 ***	*t* (58) = -5.502 ***

*** *p* < 0.05; ** *p* < 0.01; *** *p* < 0.001**

2.5 Intervention Four: Measuring the efficacy of five *Realabilities* comic books and instructional materials

2.5.1 Participants

Thirty-seven (20 male [57.1%] and 15 female [42.9%]) fourth graders from an elementary school in Paramus, New Jersey participated in the *Realabilities* five comic book series and instructional materials intervention. All of the students self-identified as White and Jewish.

2.5.2 Procedure

*S*tudents completed the pre-test questionnaire and read the first of the five *Realabilities* comic books on the first day of the intervention and read one additional comic book on each of the subsequent days of the five-day intervention. In addition to

the comic book series, the researchers distributed *The Comic Book Companion* and the *Disabilities in Depth Manual* to the course instructors. *The Comic Book Companion* offers teachers a classroom activity and a list of discussion questions to accompany each individual comic book.

The Disabilities in Depth Manual provides information about ten different disabilities, five of which are presented in the *Realabilities* comic book series. The instructors were asked to use these materials in conjunction with the comic book series on each day of the intervention. After reading the fifth comic book and completing the class activity and discussion questions pertaining to the fifth comic book, the students completed the post-test questionnaire measures. The children were then debriefed and were asked to discuss which aspects of the show and characters were most appealing to them and to formulate recommendations they would make for future comic books and episodes of the show.

2.5.3 Results

The fourth grade students reported significantly more positive behavioral intentions on the SAQ towards children with Autism, t (36) = -3.111, p < .01, visual impairment, t (32) = -5.810, p < .001, hearing impairment, t (36) = -2.368, p < .05 and physical impairment, t (36) = -2.952, p < .01 following the *Realabilities* comic book series and instructional materials intervention. The students also reported more positive cognitive attitudes on the ACL towards hypothetical children presenting with autism, t (36) = -3. 269, p < .01, blindness, t (36) = -5.772, p < .001, and deafness, t (35) =-4.799, p <.001 following the intervention. Additionally, 92% of the students were interested in purchasing the *Realabilities* comic book series, and 97% were interested in viewing *the Realabilities* TV show following the *Realabilities* comic book and instructional materials intervention. Finally, following the intervention, thirty-six participants (91.9%) reported that it was important to stop bullying. Participants agreed that it was important to stop bullying because: “Kids feel bad about themselves after,” “Nobody likes to be bullied,” “It can be hurtful to others,” “It is dangerous,” “If kids stop bullying then other kids would feel more comfortable at school and have fun at school,” and “The world would be a more peaceful place.”

Table 4: *Intervention four SAQ and ACL results*

	Autism	**Blindness**	**Deafness**	**Paraplegia**
SAQ Total	*t* (36) = -3.111 **	*t* (32) = -5.810 ***	*t* (36) = -2.368 *	*t* (36) = -2.952 **
SAQ Academic Subtest	*t* (36) = -2.513 *	*t* (35) = -3.558 ***	*t* (36) = -1.654 *p* < .107	
SAQ Social Subtest	*t* (36) = -3.484 ***	*t* (33) = -8.426 ***	*t* (36) = -.1.577 *p* =.124	*t* (36) = -.674 *p* =.504
SAQ Recreational Subtest	*t* (36) = 1.970 *p* =.057	*t* (35) = -1.221 *p* =.230	*t* (36) = -2.827 **	*t* (36) = -2.594 *
ACL	*t* (31) = -3.269 **	*t* (36) = -5.772 ***	*t* (35) =-4.799 ***	*t* (36) = 1.087 *p* = .284

*** *p* < 0.05; ** *p* < 0.01; *** *p* < 0.001**

3. Conclusions

Thus, the researchers found that three storyboarded episodes, an animated episode, and the *Realabilities* comic book series significantly enhanced typical children's behavioral intentions and cognitive attitudes towards children with visual impairment, hearing impairment, physical impairment, and autism. As aforementioned, these findings are unique in that very few previous video-based interventions have been successful at enhancing the behavioral intentions and cognitive attitudes of typical children towards children with disabilities (Swaim & Morgan, 2001; Morgan & Devine, 1996; Siperstein & Bak, 1980). Additionally, these findings do support the efficacy of an Extended Contact Model, wherein typical children successfully learn about the realities of hypothetical peers with disabilities through story-telling, role-playing or drama (Campbell & Gilmore, 2003) that focus on the commonalities and strengths of their peers with disabilities (Cameron & Rosenthal, 2006). As noted earlier, this may be a useful antidote to help counter the negative attitudes that older children tend to foster towards children with disabilities (Campbell, Ferguson, Herzinger, Jackson, & Marino, 2004; Bell & Morgan,

2000; Morgan &Wisely, 1996). Hopefully, this will reduce or help eradicate the propensity for bullying and victimization among individuals with disabilities (Carter & Spencer, 2006).

4. Limitations

Despite the promising findings of *Realabilities*, the researchers hope to address the following two limitations in future iterations of research testing: 1) All of the interventions above measured the self-reported knowledge, attitudes and intentions of typical students towards peers with disabilities rather than assessing their actual behaviors and treatment of children with disabilities 2) There was only a small window of time (one to five days) between the pre and post-test administration of the Shared Activities Questionnaire (SAQ) and the Adjective Checklist (ACL) and 3) There was a singular post-test as opposed to offering additional delayed post-tests to assess if positive changes in attitudes and behaviors persisted over time.

To address the first limitation, future studies will aim to not only assess elementary school students' reported knowledge, behavioral intentions and cognitive attitudes towards their peers with disabilities, but to evaluate their change in behavior towards their peers with disabilities following the *Realabilities* intervention. In regard to the small window of time between pre- and post-testing, future studies will assess the benefit of spacing out the pre and post-tests to determine if a six week intervention will be more beneficial than a one week intervention. For instance, in the next iteration of the comic book intervention, researchers will administer the pre-test on the first day and will then assign one comic book per week for a six week period before distributing the post-test. Finally, in order to assess whether changes in attitudes and behavior persist over time, the researchers will add a three and sixth month post-test delay in order to determine if the *Realabilities* TV show and comic book series have lasting effects.

5. Future Directions

The researchers are currently working on developing a preschool version of *Realabilities* using interactive puppets and a musical format to appeal to primary school-aged children. The preschool *Realabilities* musical will make various allusions to the storylines of the comic book series and will highlight the importance of finding the wondrous abilities within the disability and of promoting a stop bullying platform. Instruments to measure the efficacy of the preschool musical in enhancing the

behavioral intentions and cognitive attitudes of typical preschool children towards their peers with disabilities will be developmentally tailored to the preschool audience.

Additionally, a *Realabilities* virtual reality environment is being developed for middle school students, high school students and their school instructors in order to simulate disability and to further expand their knowledge, positive behavioral intentions and cognitive attitudes towards their peers/pupils with disabilities. These virtual environments will afford users the opportunity to better comprehend and empathize with their peers/pupils with disabilities by briefly accessing their inner worlds through virtual reality equipment. In this manner, the researchers will develop a comprehensive, hands-on research intervention to enhance knowledge, sensitivity, intentions and attitudes towards children with disabilities at each key developmental time frame (Preschool, Elementary School, Middle and High school) as well as for school instructors to improve their ability to most effectively and sensitively educate their students with disabilities in the classroom.

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