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Does Volunteering With Children Affect Attitudes Toward Adults With Disabilities? A Prospective Study of Unequal Contact

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Objectives: Determine effects of volunteering with children with disabilities on attitudes toward adults with disabilities; examine predictors of social distance. ***Setting:*** Pediatric educational–rehabilitation center. ***Method:*** Seventy-one adult volunteers completed measures before and after volunteering for 4 to 10 months with children with physical or hearing impairments. ***Main outcome variables:*** Questionnaire measures of social distance, self- and other-focused attitudes, thoughts, and affect toward adults with disabilities. ***Results:*** Volunteering decreased social distance and had the greatest impact on comfort and ease, regardless of the group with which participants volunteered. There was little change in thoughts and beliefs about people with disabilities. Social distance was best predicted by an other-focused variable: thoughts about the person with a disability. ***Conclusions:*** Working with children with disabilities diminished social distance and improved self-focused aspects of attitudes, thoughts, and feelings. This experience generally did not affect other-focused views, which are important for interaction with peers with disabilities.

The social and economic inclusion of people with physical and sensory disabilities involves more than architectural or policy considerations. It requires comfortable, effective interaction between individuals with and without disabilities, as equals, in occupational, educational, and recreational contexts. This often fails to take place.

Casual interaction between individuals who do not know each other well is often problematic when one of them has a disability, and many nondisabled people are uncomfortable with those who have disabilities, regardless of the nature or severity of the impairments (e.g., Bruce, Harman, & Baker, 2000; Fichten, Amsel, Robillard, Sabourin, & Wright, 1997; Gordon, Minnes, & Holden, 1990). The data indicate that this is due to nondisabled individuals' discomfort and lack of ease with peers who have disabilities, their stereotyped characterizations of people with disabilities, and their negative attitudes and faulty assumptions about what people with disabilities are like (e.g., Fichten, Goodrick, Amsel, & McKenzie, 1991; Fichten, Robillard, Tagalakis, & Amsel, 1991; Gouvier & Coon, 2002; Gouvier, Coon, Todd, & Fuller, 1994; Thomas, 2000; Yuker, 1992).

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Attitude change efforts of all types, overall, have had only modest positive impact (see Yuker, 1988, for a synthesis of older studies), and recent investigations suggest that there has been relatively little improvement in the effectiveness of attitude change efforts during the past 30 years (e.g., Thomas, 2000). One heavily researched approach is to examine the role of contact between people with and without disabilities. Social distance measures based on Bogardus's (1938) pioneering work are often used to measure the likelihood of interaction with a person with a disability (e.g., Bowman, 1987; Feldman, Gordon, White, & Weber, 2002; Gething, 1994; Sigelman, 1991).

There is a large variety of contexts in which contact can occur between people with and without disabilities (e.g., infrequent vs. frequent; over a short or long period; as equals or in a helper context; as acquaintances, friends, or family). Studies exploring the effects of contact on attitudes and behavior between nondisabled people and those who have a disability have generally shown either no effect or a slightly positive one (e.g., Anderson & Antonak, 1992; Gregory, 1997; Hantzi, 1995; Hernandez, Keys, Balcazar, & Drum, 1998; Makas, 1993; Sampson, 1991; Yuker, 1994).

Although there are few direct tests of this notion, in general it is assumed that extended equal status contact, with a common superordinate goal and with the anticipation of future encounters with people with disabilities, is likely to be beneficial (e.g., Pollard, 1998; Roper, 1990). Nevertheless, equal status contact does not mean equal status interaction, nor does it guarantee favorable results, as a study by Emerton and Rothman (1978) showed. In this study, the authors observed a deterioration in attitudes toward deafness in hearing students who lived in an integrated dormitory. As the authors explained, hearing students, who were not versed in

sign language, tended to congregate with other hearing students, which resulted in little interaction with Deaf peers in the dormitory. Presumably, were it not for the language barrier, the consequences of such integrated housing with individuals with a different impairment would have been more favorable.

Doing volunteer work over several months fulfills two of the criteria for positive attitude change: extended period of contact and anticipation of future encounters. However, volunteering, especially volunteering with children with disabilities, who frequently also have intellectual impairments, does not constitute equal status contact. In fact, the contact in this context is distinctly unequal: (a) There is no reciprocity; (b) the encounters involve child–adult interactions, an inherently unequal relationship; and (c) the children also often have intellectual impairments, whereas the volunteers do not. Although it is usually expected that volunteers will acquire more favorable attitudes toward people with disabilities (cf. Gaje, Saylor, & DeRoma, 2002; Roper, 1990), the results of empirical studies involving volunteering have been inconclusive (e.g., Carter, Hughes, Copeland, & Breen, 2001; Fox & Rotatori, 1986; Miller et al., 2002; Omoto & Snyder, 2002; Rimmerman, Hozmi, & Duvdevany, 2000; Roper, 1990).

A possible reason for the mixed results in contact and volunteering studies relates to the types of attitudes evaluated. Many studies have shown that attitudes toward people with disabilities are multidimensional. Two major approaches to the evaluation of attitudes toward people with disabilities are Harold Yuker's (1986, 1994) societal, other-focused egalitarian approach (e.g., "Disabled people are as happy as nondisabled ones") and Lindsay Gething's (1994) person-based, self-focused approach (e.g., "I am afraid to look at the person straight in the face"). Other-focused attitudes concentrate on characteristics of the other person. These are most clearly measured by the Attitudes Toward Disabled Persons Scale (ATDP; Yuker, Block, & Younng, 1970). Self-focused attitudes, which refer to self-related aspects of thoughts and feelings, are most clearly measured by the Interaction With Disabled Persons Scale (IDPS; Gething, 1994).

The literature shows that there are also other impediments to interaction. Our research program has explored three aspects of these: affect (ease–discomfort), thoughts and the internal dialogue concerning interaction with someone who has a disability (positive and negative self-focused thoughts, e.g., "If I goof, I'm sure he will understand" and "I'd better be careful how I say things," and other-focused thoughts, e.g., "He's probably pretty capable" and "I'm glad I'm not in her shoes"), and positive and negative stereotyped beliefs about people with disabilities (e.g., Fichten et al., 1997). Other researchers have investigated differences in behavior, such as differences in verbal interactions and eye contact (e.g., Coon, Gouvier, Caldwell, & Hulse, 1991; Gouvier et al., 1994; Kleck & Strenta, 1980), as well as social distance and the likelihood of interacting with people who have a disability (e.g., Bowman, 1987; Carter et al., 2001; Gething, 1994). Although there is some evidence for situational specificity, the hierarchy of preference toward disability groups, whether these are adults or children, has been remarkably consistent over the years (e.g., Antonak & Livneh, 1991; Olkin & Howson, 1994; Schmelkin, 1984; Tringo, 1970).

Different kinds of contact experiences are likely to have different consequences for self- and other-focused thinking and attitudes. We hypothesize that extended contact of all types reduces discomfort, negative self-focused thoughts, and negative self-related attitudes. Because the situation is no longer novel, people have satisfied their curiosity and become more knowledgeable about how to behave (i.e., what are appropriate things to say and do) and about what to expect both from themselves and from the person with a disability. However, we predict that contact in an unequal status context, in which the nondisabled individual gives and the person with a disability receives, is likely to improve only self-focused evaluations (Fichten, Amsel, Robillard, & Tagalakis, 1991; Fichten, Robillard, et al., 1991). When it comes to other-focused thoughts, feelings, and attitudes, we believe that only extended equal status contact with a common superordinate goal is likely to be of benefit. Because social encounters with individuals with disabilities are likely to be linked to both self-focused and other-focused components of attitudes, thoughts, and feelings, we expect that, overall, close social distance ratings will be most closely predicted by a combination of favorable self- and other-focused views.

Assisting children is a reasonably common form of volunteer contact with individuals with disabilities, and organizations that provide services to children with impairments are often looking for volunteers to help out. However, what is the impact of volunteering with children on the volunteers' attitudes toward their peers, that is, adults with disabilities? Also, how does volunteering with those who have one type of disability affect the volunteers' attitudes toward individuals with a different impairment? To explore these questions, in the present investigation we examine the effects of unequal contact: volunteering with two different populations of children with impairments (physical disabilities, hearing impairment) in a quasi-experimental study (i.e., volunteer work at the Mackay Center, an educational–rehabilitation center that provides services to children with physical disabilities and children with hearing impairments, most of whom have learning and mild intellectual impairments). The way the school is structured mitigates close contact between children who have a hearing impairment and those with physical disabilities. This separation is further buttressed by language because of difficulty communicating among children who do not speak the same language. In fact, within the Mackay Center, the two sectors of the school are referred to with separate names: the Deaf side and the disabled side. This allowed us to study possible generalization effects by evaluating whether changes brought about by volunteering with children in one disability group transfer to a different disability group. We evaluated both self-focused (concerns about oneself and one's own reactions) and other-focused (concerns about the person with a disability) views among individuals who volunteered in the context of the center's normal activities. We also evaluated the effects of doing volunteer work with children who have one kind of disability (either a hearing impairment or a physical disability, which resulted in most children using a wheelchair much of the day) on attitudes toward adults with the same or with another disability. In addition, we examined the self-focused and other-focused correlates and predictors of social distance toward individuals with disabilities.

We tested the following hypotheses: Volunteering (a) will have beneficial effects on adults' self-focused views (i.e., self-focused thoughts about interaction, e.g., "How can I say things so he won't take it the wrong way?"; self-focused attitudes, e.g., "I am grateful that I do not have such a burden"; and discomfort), (b) but not on other-focused views (i.e., other-focused thoughts about interaction, e.g., "I don't think she can have many friends"; stereotyped be-

liefs, e.g., "Disabled people are dependent and soft hearted"; or egalitarian attitudes, e.g., "Disabled persons are just as intelligent as nondisabled ones"). (c) Because relating effectively with children who are Deaf involves very different behaviors and actions than does behaving effectively with children with physical disabilities (e.g., facing the child and pointing or using sign language vs. assisting in picking up an object or in positioning the child), we predict that volunteering with one group will have no discernible impact on views related to the other group.

Method

Overview

Volunteers were tested up to three times: once immediately after being accepted into the Mackay Center's volunteer program and once at the end of the school term. In an attempt to use participants as their own controls, we also tested some volunteers approximately 2 weeks after their acceptance into the program, before they volunteered with children who had a hearing impairment or a physical disability. The measures include "person who is Deaf" and "person with a physical disability" versions of the test battery (order of presentation was counterbalanced).

Measures

Measures were grouped according to whether they were self-focused or other focused. Self-focused measures included the IDPS (Gething, 1994), the Ease Measure (Fichten, 1986), and the Modified College Interaction Self-Statement Test (CISST; Fichten & Amsel, 1988) self-focused states of mind ratio (SOM). Other-focused measures included the ATDP (Yuker et al., 1970), the CISST other-focused SOM, and positive and negative stereotyping (Fichten & Amsel, 1986).

General Information Form. This measure includes questions about sex, age, absence or presence of a physical disability, and nature of previous contact with persons with disabilities. It has been used in most of our past work on attitudes (e.g., Fichten et al., 1997).

Ease Measure. This series of single items evaluates affect in the form of general level of ease–discomfort with individuals who do and those who do not have disabilities (Fichten, 1986; Fichten, Tagalakis, & Amsel, 1998). A 10-point scale is used (1 = *very uncomfortable*, 10 = *very comfortable*). Data on 4-week test–retest reliability show correlation coefficients ranging from .58 to .92. Ease scores have been found to be significantly related to relevant criterion variables, such as scores on self-statement inventories and measures of social anxiety, fear of negative evaluation, self-efficacy expectations, and attitudes toward persons with disabilities (Amsel & Fichten, 1988; Fichten & Amsel, 1988; Fichten et al., 1996, 1997). In the present investigation, we evaluated participants' ease with same-sex individuals who have a physical disability and with individuals who are Deaf. Because some participants were college aged, we felt that not mixing dating issues into the overall design was advisable.

ATDP—Form O. This widely used standardized attitude measure consists of 20 Likert scale items and assesses the degree to which people see the adjustment and needs of people with a physical disability as different from those of nondisabled individuals. Data provided by the developers (Yuker et al., 1970) indicate good psychometric properties. The single score is usually interpreted as a measure of acceptance–rejection of people with a disability (the higher the score is, the more accepting the person is). This is one of the most popular measures evaluating attitudes toward people with disabilities (cf. Antonak & Livneh, 1988, 2000).

IDPS. The IDPS measures attitudes in terms of perceived discomfort in social interaction. This 20-item questionnaire is based on the theoretical position that negative attitudes reflect strangeness or lack of familiarity, which create uncertainty or anxiety within a person. The IDPS was standardized in accordance with Antonak and Livneh's (1988) recommendations and has undergone rigorous psychometric evaluation (Gething, 1992a, 1992b, 1992c, 1994). Recent research suggests that it measures social discomfort, empathy, and fear of having a disability (Thomas, Palmer, Coker-Juneau, & Williams, 2003). Lower scores indicate more favorable attitudes.

CISST. This inventory (Fichten & Amsel, 1988) evaluates college students' thoughts about interaction with peers who have a disability. We modified it for the present investigation by omitting references to college and indicating that the hypothetical interaction concerned a person who has a physical disability (or a person who is Deaf) "who is the same age and gender as you and who may work in the same environment as you." It evaluates the frequency (on a 5-point scale ranging from 0 = *hardly ever* to 4 = *very often*) of positive and negative self-focused (e.g., "I'd better be careful how I say things," "Why worry? What's the worst that can happen?") and other-focused thinking (e.g., "He is probably no different from anyone else," "Poor guy"). Scores are reported as valenced frequencies as well as in the form of Schwartz and Garamoni's (1986) SOM ratio, which ranges from 0 to 1 [positive/(positive + negative)]. Psychometric data indicate internal consistency coefficients for subscales that range from .54 to .87 and test–retest correlation coefficients between .28 and .89. Validity data show that subscale scores are meaningfully related to pertinent criterion variables, and the scale distinguishes between interaction with individuals who do and who do not have a disability (Amsel & Fichten, 1998; Bruce et al., 2000).

Because of the number of measures used and the complexity of the experimental design, as recommended elsewhere (Amsel & Fichten, 1988), in the present investigation we report only the summary self-focused SOM and other-focused SOM scores. The higher the score is, the larger is the proportion of positive thoughts about interacting with the stimulus person.

Stereotypes. The College Student Trait Checklists measure consists of two lists, each containing 10 traits found to be descriptive of young adults with and without disabilities in our research with 340 traits (Fichten & Amsel, 1986). The Positive Stereotypes list includes 5 socially desirable traits commonly attributed to college students with disabilities (but not to nondisabled students) and 5 socially desirable traits commonly attributed to nondisabled students (but not to students with disabilities). The Negative Stereotypes list was compiled in the same manner. Scores derived from this measure are Positive and Negative Stereotyping; these scores are positively related to each other. Data show acceptable psychometric properties for this measure for research use (Fichten & Amsel, 1986). In the present study, the measure was modified in that it specified either a person who is Deaf or a person with a physical disability.

Social Relations Index. The Social Relations Index (SRI), a measure of social distance, was compiled by Gething (1994). It lists 11 relationships between people with and without a disability that vary in closeness and intimacy. The respondent indicates how willing he or she would be to have each relationship (1 = *very willing*, 4 = *very unwilling*). The instrument is analyzed to produce an overall measure of willingness to associate. There are also two subscales: SRI Close Contact and SRI Distant Contact. Of interest to the present investigation is the SRI Close Contact subscale. The five items classified as referring to close contact are as follows: "employ a person with a disability," "have a person with a disability as a close friend," "date a person with a disability," "agree to a person with a disability marrying your son or daughter," "marrying a person with a disability and having them as a spouse." Lower scores indicate more favorable views. Although Gething's (1994) data show that the measure is logically related to attitudes toward persons with disabilities, no additional psychometric data were provided.

Participants

Seventy-one individuals participated in the study (55 women and 16 men); this excludes individuals who had previously done volunteer work at the Mackay Center. All were new to volunteering with children with impairments, and most were White and English speaking. A total of 11 participants had a child enrolled at the Mackay Center school (3 had a child

with a physical disability, 3 had a child with a hearing impairment, and 5 had a nondisabled child). Their mean age was 49 years (range = 16 to 65 years).

Given the lengthy and demanding nature of volunteering for a full semester, as is common for the Mackay Center, a large number of the 71 participants who completed the pretest withdrew before completing all tasks. The diminution in sample sizes is due primarily to participant unavailability and to participants dropping out of the volunteer program. Most participants (n = 45) completed the Time 1 pretest and the Time 3 posttest; 35 of them volunteered primarily with children with physical disabilities, and 10 volunteered primarily with children with hearing impairments. Only 29 participants completed both Testing Times 1 and 2, and only 23 participants completed all three testing times. A large number of participants could not complete the Time 2 pretesting because they started volunteering before they could be tested for the second time.

Setting

The Mackay Center, in Montreal, Quebec, Canada, is a comprehensive, nonresidential educational and rehabilitation center for two groups of English-speaking children: those who have physical disabilities, and those who have a hearing impairment. The population in the school sector is made up of children (aged 3 to 16 years) who are Deaf or hard of hearing and children (aged 4 to 21 years) with a variety of physical disabilities, many of whom use a wheelchair. Education is provided to children with physical disabilities and with hearing impairments in totally separate programs and classes. Children who are Deaf or hard of hearing receive a total communication approach. This is a multimodal intervention emphasizing speech, sign language, and residual hearing simultaneously. All children are taught to use American Sign Language (ASL). Generally, teachers sign and speak at the same time. One teacher has a hearing impairment. None of the other teachers have a disability.

Both groups of children generally also have mild learning and intellectual impairments. It is the practice in Canada to educate children with disabilities in integrated settings and to offer specialized education only when children cannot function in a regular community school. Therefore, children with disabilities educated at the Mackay Center are not typical of the majority of children with disabilities, who are integrated in the regular schools. Nevertheless, the Mackay Center school also enrolls a number of nondisabled children in a reverse integration program. Many of these children are the siblings of the students with disabilities. For a period of 1 or 2 years, these children attend the same classes as the two populations of children with disabilities. They then return to a community school.

The volunteers coordinator, the only employee at the Mackay Center to have a physical disability, has a mobility and a speech impairment. In working with volunteers, the coordinator follows a set routine for each academic year. She recruits volunteers from numerous sectors of Montreal. The minimum duration for volunteering at the Mackay Center is one academic semester (4 months), although many individuals volunteer for the whole academic year (10 months). Generally, about two thirds of volunteers work one semester, and one third work for the whole academic year. There is no set expectation of number of hours, although the average for an individual in a typical year is approximately 50 hr, with a range of less than 10 hr to more than 100 hr. Some individuals are regular volunteers and return for several years. Most, however, are recruited for one or two academic semesters. Typically, volunteers are screened during an interview with the coordinator. At this time, they indicate whether they wish to volunteer with children with physical disabilities or with children who are Deaf or hard of hearing. Once the volunteers coordinator makes a match between the volunteer and the needs of the teachers and rehabilitation therapists, she contacts the volunteer, who is assigned a classroom and starts working at the first opportunity. Only the volunteers coordinator knew whether an individual had agreed to participate in the present study.

Volunteers who work with children with hearing impairments have to have some familiarity with ASL. In general, they are placed in the younger classes (ages 3–7 years), where the children's vocabulary is somewhat limited. This allows the volunteer to communicate with a Deaf child by signing. There are no interpreters, and the teacher does not interpret for volunteers. Volunteers with children who have a physical disability work with all age groups. Regardless of whether volunteers work in a classroom with children with hearing or physical disabilities, their role is that of a tutor. Volunteers can work on a one-to-one basis or in small groups assisting a child with an art project, with a math or writing assignment, or with work on a computer. The same activities that occur in a regular classroom also transpire in a Mackay Center classroom.

Procedure

Pretest 1 (Time 1). After their evaluation interview (i.e., prior to doing any volunteer work), all potential participants were informed about the nature and requirements of the research and asked to volunteer. They were told that participation was voluntary and that confidentiality would be maintained (e.g., participants were identified by a code number; responses of individuals were not made known to anyone who evaluated them). At this time, they were also told about the purpose of the project, benefits envisaged, task requirements, the right to withdraw at any time without penalty, and the measures taken to ensure confidentiality. Participants signed a written consent form to signify that they were interested in participating. At this time they were administered the General Information Form and the Ease Measure. They were also administered a questionnaire battery containing the "person with a physical disability" and the "person who is Deaf" versions of the ATDP, IDPS, CISST, Student Trait Checklists, and SRI measures. Two packets of questionnaires were prepared. Half of the participants completed the measures in the following sequence: ATDP and IDPS (person with a physical disability), ATDP and IDPS (person who is Deaf), followed by the CISST, Student Trait Checklist, and SRI measures, in which the "person with a disability" version always preceded the "person who is Deaf" version. The other half of the participants completed the measures in the following sequence: IDPS and ATDP (person who is Deaf), IDPS and ATDP (person with a physical disability), followed by the CISST, Student Trait Checklist, and SRI measures, for which the "person who is Deaf" version always preceded the "person with a disability" version.

Pretest 2 (Time 2). When possible, participants waited approximately 2 weeks before being assigned their volunteer task and completing the Time 2 testing. Although we had planned to have all participants complete the Time 2 battery, the needs of the Mackay Center for volunteers prevented this 2-week waiting period in many cases.

Posttest (Time 3). When participants had completed their time as volunteers, they again completed the Ease Measure and the test battery. Approximately half of the 45 participants completed their time as volunteers at the Christmas break, whereas the other half completed it at the end of the school term in June. The mean number of hours doing volunteer work was 37.62 hr (SD = 22.44, range = 6.00 to 109.00).

Results

Measures were grouped according to whether they were self-focused or other focused. Self-focused measures included the IDPS, the Ease Measure, and the CISST self-focused SOM. Other-focused measures included the ATDP, the CISST other-focused SOM, Positive Stereotyping, and Negative Stereotyping. None of the correlations between hours spent volunteering and scores on the various measures at pretest or at posttest were significant. Similarly, correlations between hours and change scores from pretest to posttest were not significant. Therefore, we do not examine hours spent volunteering in any of the remaining analyses.

Predictors of Social Distance

To evaluate the importance of the various components of attitudes in determining social distance in close relationships, we carried out two stepwise multiple regression analyses (social distance with people who have a physical disability, and social distance with those who have a hearing impairment) on Time 1 scores. In both, the predicted variable was close social distance (SRI Close Contact). Predictor variables were all three self-focused (i.e., IDPS, CISST self-focused SOM, Ease Measure) and all four other-focused variables (i.e., ATDP, CISST other-focused SOM, and Positive and Negative Stereotyping).

As can be seen in Table 1, the predictors differed somewhat depending on whether we examined social distance with people who have a physical disability or with those who have a hearing impairment. Social distance from people who have physical disability was predicted significantly only by CISST other-focused SOM. Social distance from people with a hearing impairment was predicted by both IDPS and CISST other-focused SOM scores. Although most other variables were also closely related to social distance for both stimulus persons (see Table 2), none of these contributed significantly to the regressions.

Attitudes, Thoughts, Feelings, and Beliefs About People With Physical Disabilities and Hearing Impairments

To explore similarities and differences about views concerning people who have a physical disability and those who have a hearing impairment, we carried out multivariate analyses of variance (MANOVAs) on self-focused and on other-focused variables. The two-way MANOVA (stimulus person: person with a physical disability vs. person who is Deaf) on self-focused variables was not significant, $F(3, 63) = 2.07$, $p = .113$. On other-focused variables, the MANOVA was significant, $F(4, 56) = 16.63$, $p < .001$. It can be seen from the means and analyses of variance (ANOVAs) in Table 3 that, generally, individuals were more favorable toward adults with a hearing impairment than toward adults with a physical disability. The *t* test on close social distance also shows this to be the case ($M = 7.39$, $SD = 2.59$, and $M = 8.32$, $SD = 2.44$, respectively), $t(67) = 4.48$, $p < .001$.

It can also be seen in Table 3 that most components of attitudes toward people who have a hearing impairment and those who have a physical disability were highly correlated. This was also the case for close social distance, $r(66) = .74$, $p < .001$.

Effects of Volunteering

The ideal experimental design would have been to conduct 3 × 2 (within-group) × 2 (between-groups) MANOVAs on self-focused measures and on other-focused measures, to be followed by ANOVAs if significant: 3 (time: Pretest 1 vs. Pretest 2 vs. Posttest 3) × 2 (stimulus person: person with a physical disability vs. person who is Deaf) × 2 (group helped: children with a physical disability vs. children with a hearing impairment) × 2 (sex: male vs. female). Because of sample size considerations, this could not be done.

Instead, we first conducted a series of preliminary analyses. To explore the effects of sex, we conducted two-way MANOVAs—2 (sex) × 2 (stimulus person: person with a physical disability vs. person who is Deaf)—on self-focused and other-focused variables at Time 1. These showed no significant sex main effects. Therefore, we ignore sex in all subsequent analyses.

To evaluate whether the group helped variable had an impact on scores, we conducted 1 (within-group) × 1 (between-groups) MANOVAs on self and other-focused dependent variables: 2

Table 1
Predicting Components of Close Social Distance With People Who Have a Physical Disability or a Hearing Impairment: Pretest Data

Predicted variable	Predictor variables	β	*t*	$p <$
Social distance	CISST other-focused SOM	−.56	−5.06	.000
People with a physical disability ($n = 59$)	IDPS[a]	.06	0.45	*ns*
	Ease	−.10	−0.83	*ns*
	CISST self-focused SOM	.07	0.35	*ns*
	ATDP	−.17	−1.21	*ns*
	Positive stereotyping[a]	.06	0.51	*ns*
	Negative stereotyping[a]	.06	0.55	*ns*
	$R^2 = .31$; *Adj.* $R^2 = .30$; $F(1, 57) = 25.60$, $p < .000$			
People who have a hearing impairment ($n = 62$)	IDPS[a]	.36	2.93	.01
	CISST other-focused SOM	−.27	−2.17	.05
	Ease	−.01	−0.07	*ns*
	CISST self-focused SOM	.11	0.67	*ns*
	ATDP	.04	0.30	*ns*
	Positive stereotyping[a]	−.01	−0.07	*ns*
	Negative stereotyping[a]	−.06	−0.49	*ns*
	$R^2 = .29$; *Adj.* $R^2 = .27$; $F(2, 59) = 11.99$, $p < .000$			

Note. CISST = Modified College Interaction Self-Statement Test; SOM = states of mind ratio; IDPS = Interaction With Disabled Persons Scale; ATDP = Attitude Toward Disabled Persons Scale.
[a] Lower scores indicate more favorable views. In all other cases, higher scores are better.

Table 2
Correlations Among Variables at Pretesting

Variable	1	Self-focused 2[a]	3	4	Other focused 5	6	7[a]	8[a]
1. Close social distance	—	.38**	−.33**	−.44***	−.45***	−.56***	.20†	.20†
Self-focused								
2. IDPS[a]	.48***	—	−.38***	−.54***	−.59***	−.61***	.29*	.37**
3. Ease	−.25*	−.50***	—	.32**	.29*	.44***	−.12	−.16
4. CISST self-focused SOM	−.28*	−.39***	.33**	—	.53***	.84***	−.21†	−.19†
Other focused								
5. ATDP	−.26*	−.44***	.30**	.35**	—	.62***	−.33**	−.31**
6. CISST other-focused SOM	−.43***	−.45***	.23*	.71***	.50***	—	−.27*	−.26*
7. Positive stereotyping[a]	−.01	.02	.08	−.11	−.11	.01	—	.35**
8. Negative stereotyping[a]	.02	.15	−.13	−.05	−.24*	−.09	.26*	—

Note. Scores above the diagonal refer to attitudes, thoughts, and feelings concerning individuals who have a physical disability, and those below the diagonal refer to people who have a hearing impairment. IDPS = Interaction With Disabled Persons Scale; CISST = Modified College Interaction Self-Statement Test; SOM = states of mind ratio; ATDP = Attitude Toward Disabled Persons Scale.
[a] Lower scores indicate more favorable views. In all other cases, higher scores are better.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

(time: Pretest 1 vs. Posttest 3) × 2 (group helped: children with a physical disability vs. children with a hearing impairment). The results showed no significant Time × Group Helped interactions on either self-focused, $F(6, 34) = 0.30$, $p = .93$, or other-focused measures, $F(8, 28) = 1.13$, $p = .37$. To ensure that there was no reason to retain the group helped variable in subsequent analyses, we also conducted three-way ANOVAs on each self-focused and other-focused dependent variable separately: 2 (time) × 2 (group helped) × 2 (stimulus person: person with a physical disability vs. person who is Deaf). None of the comparisons resulted in significant Time × Group Helped interactions. Therefore, we dropped the group helped variable from subsequent analyses. The means for this analysis can be seen in Table 4.

As a control to ensure that significant testing time effects were not due to test–retest effects, we also conducted two within-group MANOVAs separately on self-focused and on other-focused scores of the 23 participants for whom Pretest 1 and Pretest 2 scores were available. There were no significant time main effects or Time × Stimulus Person interactions on either the self-focused or the other-focused variables. Therefore, we dropped the Time 2 variable from subsequent analyses.

In subsequent analyses we also ignored the group helped variable and conducted two within-group MANOVAs separately on self-focused and on other-focused variables: 2 (testing time: Pretest 1 vs. Posttest 3) × 2 (stimulus person: person with a physical disability vs. person who is Deaf). On self-focused variables, both the testing time, $F(3, 38) = 3.02$, $p < .05$, and the stimulus person main effects, $F(3, 38) = 3.21$, $p < .05$, were significant, indicating that people's self-focused thoughts, feelings, and attitudes became more favorable. The interaction was nonsignificant. On other-focused variables, only the stimulus person main effect reached significance, $F(4, 33) = 13.44$, $p < .001$. The significant

Table 3
Attitudes, Thoughts, Beliefs, and Feelings Concerning Individuals Who Have Physical Disabilities or a Hearing Impairment at Pretesting

Variable	Stimulus person: Person with a physical disability *M*	*SD*	Person with a hearing impairment *M*	*SD*	ANOVA *df*	*F*	Correlations between scores of the 2 stimulus persons	*p*
Close social distance[a]	8.32	2.44	7.39	2.29	1, 67	20.07***	.74***	
Self-focused								
IDPS[a]	61.69	11.16	60.24	10.99	1, 65	2.75†	.79***	.102
Ease	8.48	1.52	8.15	1.95	1, 65	3.08†	.61***	.084
CISST self-focused SOM	0.65	0.10	0.65	0.11	1, 65	0.04	.62***	.841
Other focused								
ATDP	83.45	11.66	94.66	9.95	1, 59	64.25***	.57***	.000
CISST other-focused SOM	0.70	0.13	0.73	0.15	1, 59	7.43**	.82***	.008
Positive stereotyping[a]	2.17	0.97	2.16	1.06	1, 59	0.01	.40***	.970
Negative stereotyping[a]	2.98	1.44	2.86	1.58	1, 59	0.56	.69***	.458

Note. ANOVA = analysis of variance; IDPS = Interaction With Disabled Persons Scale; CISST = Modified College Interaction Self-Statement Test; SOM = states of mind ratio; ATDP = Attitude Toward Disabled Persons Scale.
[a] Lower scores indicate more favorable views. In all other cases, higher scores are better.
† $p < .10$. ** $p < .01$. *** $p < .001$.

Table 4
Mean Scores of Volunteers Who Helped Children Who Have a Physical Disability or a Hearing Impairment at Pre- and Posttest

	Group helped: children with a physical disability (n = 31)				Group helped: children with a hearing impairment (n = 10)			
	Stimulus: person with a physical disability		Stimulus: person with a hearing impairment		Stimulus: person with a physical disability		Stimulus: person with a hearing impairment	
Variable	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Close social distance[a]	8.34	7.31	7.39	7.28	9.70	8.20	8.20	6.80
Self-focused								
IDPS[a]	62.82	58.24	61.63	58.52	62.50	59.70	57.20	53.00
Ease	7.77	8.48	7.81	8.06	8.30	8.60	8.60	8.80
CISST self-focused SOM	0.64	0.66	0.62	0.65	0.64	0.68	0.65	0.68
Other focused								
ATDP	83.45	85.30	93.28	95.87	84.76	86.74	94.63	94.95
CISST other-focused SOM	0.71	0.73	0.73	0.74	0.68	0.77	0.74	0.79
Positive stereotyping[a]	2.17	1.84	2.28	1.97	2.40	2.30	2.10	2.00
Negative stereotyping[a]	3.25	2.91	3.13	2.52	3.00	2.70	2.60	2.80

Note. IDPS = Interaction With Disabled Persons Scale; CISST = Modified College Interaction Self-Statement Test; SOM = states of mind ratio; ATDP = Attitude Toward Disabled Persons Scale.
[a] Lower scores indicate more favorable views. In all other cases, higher scores are better.

MANOVAs were followed by univariate ANOVAs. Sample sizes vary slightly for these because of missing data.

ANOVA test results and means in Table 5 on self-focused and other-focused variables indicate significant testing time main effects on all three self-focused variables, which indicates that those who volunteered became more favorable on self-focused thoughts, feelings, and attitudes. There were no significant interaction effects, which indicates that people became more favorable toward both groups: people who have a physical disability, and people who are Deaf.

Of the four other-focused variables, the ANOVAS in Table 5 show a significant testing time main effect on only one: There was a significant decrease in positive stereotyping. Again, there were no significant Time × Stimulus Person interactions.

With regard to close social distance, means and test results in Table 5 show significant testing time and stimulus person main effects. The Testing Time × Stimulus Person interaction was also significant, indicating more favorable consequences of volunteering for people with a physical disability than for people who are Deaf.

We also wanted to examine the predictors of change in close social distance. Therefore, we entered change scores on all variables into stepwise multiple regression analyses, with change in close social distance as the predicted variable. None of the change scores could predict change in close social distance for either people with a physical disability or people who have a hearing impairment.

Discussion

Before drawing firm conclusions from the data, we note that this investigation has a number of limitations. Although the volunteer experience of participants had ecological validity, as is common in studies of applied social psychology (Ross, 2004), there were several threats to internal validity. First, there was no control group. Although we anticipated using participants as their own controls, the vagaries of the volunteer setting prevented us from accomplishing this in a systematic manner. Second, there were difficulties with sample size. In particular, there were only 10 volunteers who completed pre- and postvolunteering measures who helped children with hearing impairments. This prevented an elegant statistical design. In addition, approximately 10% of the volunteers had a child enrolled at the Mackay Center. Also, there was no random assignment of participants. Instead, individuals self-selected which group of children—those with hearing or physical impairments—they wished to work with. Because working with children with hearing impairments required some prior knowledge of sign language, the sample of volunteers who worked with children who had hearing impairments is probably not typical of volunteers in general.

In many cases, the scores of participants in this study were more favorable than scores typically reported in the literature. That volunteers with individuals with disabilities have more favorable scores than those who do not volunteer has been shown in other studies as well (e.g., Carter et al., 2001). In addition, Meyer, Gouvier, Duke, and Advokat (2001) showed that the presence of a person with a disability improved the reported attitudes of individuals without disabilities. Thus, the present results could have been influenced by ceiling effects, because the volunteers coordinator, who supervised all testing sessions, had both a mobility and a speech impairment. Nevertheless, the reasons for the major weaknesses of this investigation are also the study's major strengths. We did not create an artificial setting to study—we studied the impact of volunteering in the context of an active, ongoing volunteer program in a well-established rehabilitation and educational facility serving children from different disability groups.

Consistent with our first and second hypotheses, the results indicate that volunteer contact in this context had the greatest impact on improving self-focused views. For example, there were significant improvements from pre- to postvolunteering on all three self-focused variables: more favorable self-focused attitudes, less discomfort, and a better balance between positive and negative self-focused thinking. Of the four other-focused variables, only one showed significant improvement: There was less positive stereotyping after volunteering than before. It should be noted that

Table 5
Effects of Volunteering on Self- and Other-Focused Measures at Pre- and Posttesting

		Stimulus person										
		Person with a physical disability				Person with a hearing impairment				ANOVA results		
		Pretest		Posttest		Pretest		Posttest				
Variable	*n*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	Effect	*df*	*F*
Close social distance[a]	42	8.67	2.44	7.58	2.24	7.52	2.43	7.17	2.67	Time	1, 41	8.25*
										Stimulus	1, 41	8.26**
										Time × Stimulus	1, 41	7.96**
Self-focused												
IDPS[a]	44	62.48	10.74	58.41	11.51	60.31	11.31	57.16	12.17	Time	1, 43	5.31*
										Stimulus	1, 43	4.19*
										Time × Stimulus	1, 43	0.77
Ease	44	7.98	1.78	8.55	1.21	7.98	1.97	8.25	1.46	Time	1, 43	4.49*
										Stimulus	1, 43	0.86
										Time × Stimulus	1, 43	1.00
CISST self-focused SOM	43	0.64	0.09	0.67	0.10	0.62	0.10	0.66	0.11	Time	1, 43	5.50*
										Stimulus	1, 43	1.46
										Time × Stimulus	1, 43	0.01
Other focused												
ATDP	42	84.63	10.78	86.49	9.62	94.65	9.62	96.17	10.89	Time	1, 41	1.95
										Stimulus	1, 41	67.67***
										Time × Stimulus	1, 41	0.10
CISST other-focused SOM	42	0.69	0.11	0.72	0.13	0.71	0.15	0.73	0.15	Time	1, 41	3.54†
										Stimulus	1, 41	4.46*
										Time × Stimulus	1, 41	1.69
Positive stereotyping[a]	38	2.25	1.03	1.96	1.08	2.28	1.19	2.01	1.03	Time	1, 37	4.57*
										Stimulus	1, 37	0.08
										Time × Stimulus	1, 37	0.01
Negative stereotyping[a]	38	3.17	1.28	2.86	1.46	3.02	1.55	2.63	1.36	Time	1, 37	1.67
										Stimulus	1, 37	1.25
										Time × Stimulus	1, 37	0.04

Note. ANOVA = analysis of variance; IDPS = Interaction With Disabled Persons Scale; CISST = Modified College Interaction Self-Statement Test; SOM = states of mind ratio; ATDP = Attitude Toward Disabled Persons Scale.
[a] Lower scores indicate more favorable views. In all other cases, higher scores are better.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

positive stereotyping, as is the case for negative stereotyping, has been shown to be a negative response to people with disabilities in a variety of studies (e.g., Fichten & Amsel, 1986; Fichten, Robillard, Judd, & Amsel, 1989; Tagalakis, Amsel, & Fichten, 1988).

Contrary to our third hypothesis, self-focused views about both groups improved regardless of which group of children volunteers assisted. This may be due to generalization effects. It is also possible that this improvement is due to interaction among all members of the Mackay community in common areas of the center, such as the corridors and the cafeteria, or to the fact that the volunteers coordinator, with whom all volunteers met several times during their stint at the Mackay Center, had both a mobility and a speech impairment.

No predictions were made about views concerning people who have a physical disability or a hearing impairment. Nevertheless, the results consistently indicate more favorable views about people who have a hearing impairment. This was true both before and after the volunteering experience and held true regardless of which group of children volunteers chose to work with. Nevertheless, scores on parallel measures (i.e., those that evaluated views about people with a physical disability and people who were Deaf) were highly and significantly correlated. This suggests that individual differences are important in determining attitudes toward people with disabilities, regardless of the nature of the impairment.

With regard to predictors of close social distance, the results indicate that other-focused thinking (e.g., "He is probably having a rough time," "He is probably no different from anyone else," "Poor girl," and "She looks like an OK person") predicted close social distance from both people who have a physical disability and those who have a hearing impairment. For people with a physical disability, self-focused attitudes (as measured by the IDPS) were also related. Other-focused thoughts were significantly related to scores on all measures for people with physical disabilities and for all but two measures for persons who have a hearing impairment. Studies have shown that other-focused thoughts are especially important in interactions with peers with disabilities (e.g., Amsel & Fichten, 1988; Fichten, Amsel, et al., 1991; Fichten et al., 1996; Fichten, Robillard, et al., 1991). This underscores the need for ensuring that other-focused views are changed in volunteer contexts.

Nevertheless, it should be noted that close social distance scores also significantly improved after volunteering. We tried to ascertain how this change was mediated by examining change scores on all variables tested. We expected that changes on other-focused variables would predict change in social distance. However, other-focused variables changed either not at all or only minimally from pre- to postvolunteering. Therefore, it is not surprising that we failed to find changes that could predict change in close social

distance. As noted earlier, attitudes toward people with disabilities are multidimensional, and it is possible that close social distance is also mediated by some other variable that was not studied in the present investigation. Factors that influence changes in close social distance certainly deserve attention in future studies.

In summary, our results show that adults who work as volunteers in an unequal context (e.g., with children who have intellectual as well as physical or hearing impairments in a rehabilitation and educational setting) can change important self-focused components of attitudes and social distance. It is not surprising that we obtained only minimal changes on other-focused aspects, such as egalitarian attitudes, a more favorable balance between other-focused positive and negative thoughts, and stereotyping. After all, volunteers were not provided with experiences that would lead to such changes. We believe that changes in these domains come only from sustained equal status contact in which both those with and those without disabilities give and receive and in which they collaborate on the accomplishment of goals that are meaningful to them. Research on this type of collaborative environment, from a social model (e.g., Pledger, 2003) rather than from a medical model perspective, needs to be carried out. Fruitful areas for such investigation involve inclusive workplace settings and community and recreation groups in which there are similar proportions of people with and without disabilities working toward the same ends.

The findings suggest that volunteering with children alters self-focused views related to people with disabilities. This means that people are more comfortable around individuals with disabilities; they know what to say and do and the nature of appropriate behaviors. This decreases social distance and probably makes people more likely to interact with individuals with disabilities in the future.

But does volunteering with children teach the participants that individuals with disabilities are, in most ways, similar to nondisabled individuals? Do the volunteers learn that most people who have an impairment do not fit a stereotype, that they have interests and beliefs that are similar to those of nondisabled peers, and that they have the same range of feelings and emotions—both good and bad—as does the rest of the population? In other words, does volunteering with children teach people that those who have disabilities are, by and large, like other, nondisabled people? The answer, on the basis of our findings, is no.

Many rehabilitation researchers have argued that the best method to increase understanding, reduce discrimination and prejudice, and facilitate interaction between people who are nondisabled and those who have a disability is to have them experience extended, close contact on an equal status basis. This can be achieved in volunteer settings when there is interaction between the volunteers and people with disabilities who work in the volunteer setting in positions of responsibility. Ensuring that volunteers get ample exposure to teachers, child care workers, office staff, and others with disabilities, in addition to the children, can go a long way in promoting egalitarian views in volunteer settings. Such contact not only can promote comfort during interaction but can also provide opportunities to alter the ratio of positive to negative thoughts about interacting as well as to challenge stereotypes, shed misconceptions, and enhance self-efficacy expectations about one's ability to interact effectively with peers with disabilities.

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