The present study investigated implicit and explicit attitudes toward people with disabilities and examined the effects of internal versus external source of motivation to respond without prejudice. The implicit and explicit attitudes of undergraduate students \((N = 109)\) toward people with disabilities were measured, and the effects of both kinds of motivation in regulating prejudice were investigated. The results were as follows: undergraduate students had positive explicit attitudes toward people with disabilities; however, they were also found to have negative implicit attitudes toward people with disabilities; and high internal motivation to regulate prejudice effectively moderated implicit attitudes toward people with disabilities. We discuss possible ways to effectively moderate prejudice in education.

**Key words:** prejudice, people with disabilities, implicit attitudes, internal motivation, social learning

People with disabilities are now accepted by society. In Japan, for example, an inclusive approach is taken to education such that students with and without disabilities study together in the same place, and those with disabilities receive many supports they need to enable them to access education. As a result, blatant prejudice toward people with disabilities can no longer be observed. However, people with disabilities still suffer from prejudice (Cabinet Office, Japan, 2009; Louvet, 2007). Why this is still occurring and at what level are matters for consideration.

By the age of six, children already have prejudices (Duham, Baron, & Banaji, 2008). Such prejudices are formed by a process of social learning (Rudman, 2004), and the attitudes develop gradually (Duham et al., 2008). As people acquire social skills they become able to regulate the expression of their prejudices, but they nevertheless still have prejudiced attitudes implicitly that have been learned thorough experience (Greenwald & Banaji, 1995). Such attitudes are termed “implicit attitudes”, and are distinguished from explicit attitudes, which people express externally. Implicit attitudes predict spontaneous and nonverbal behavior (see e.g., Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; McConnell & Leibold, 2001). Thus, implicit attitudes find expression in human behavior in more subtle ways. People with disabilities may suffer from such subtle implicit prejudiced attitudes (Dovidio & Gaertner, 2004; McConhay, 1986) and it is, therefore, worth considering how they can be regulated. Implicit attitudes cannot be...
measured in the same way that explicit ones can be, with self-report measures, for example. In order to gain a more comprehensive understanding of individuals’ prejudices, it is necessary to use not only measures of explicit attitudes but also measures of implicit attitudes toward people with disabilities.

In considering effective ways to regulate prejudice toward people with disabilities, previous studies have emphasized the effectiveness of face-to-face contact, also known as the contact hypothesis (Allport, 1954). However, the effect depends on the quality of the contact, and forced contact in education can encourage prejudice; hence, contact is not always effective in regulating prejudice. Therefore, it is valuable to note not only external factors such as contact but also internal factors such as individual beliefs.

It is known that motivations moderate prejudice (e.g., Dunton & Fazio, 1997). Plant and Devine (1998) argued that two main kinds of motivation regulate prejudice. The first is internal motivation, which is focused on the implications of appearing prejudiced to oneself. For example, “Because of my personal values, I believe that using stereotypes about black people is wrong.” The second one is external motivation, which is focused on the implications of appearing prejudiced to other people. For example, “I try to act nonprejudiced toward black people because of pressure from others.” Plant and Devine developed the “Internal & External Motivation to Respond without Prejudice scale” as a measure of individual differences. Researchers have tried to show the effects of the two kinds of motivations on attitudes toward black people (e.g., Devine, Plant, Amodio, Harmon-Johns, & Vance, 2002; Hausman, Lu, Ryan, Flatt, & Harris, 2004; Johns, Cullum, Smith, & Freng, 2008). However, the pattern of findings of the effect of motivations has not been consistent with studies (Hausman et al., 2004). Furthermore, no research has shown whether these sources of motivation affect attitudes toward people with disabilities yet. Do these two kinds of motivations effective on attitudes toward people with disabilities?

The present study had two main objectives. First, the study aimed to examine implicit and explicit attitudes of people without disabilities toward people with disabilities. Second, it aimed to examine the effects of internal versus external motivation to regulate such prejudice. The study focused on undergraduate students who were considered to have acquired learned prejudice, and it examined whether learned prejudice differed according to the students’ internal and external motivations.

**METHOD**

**Participants**

Participants were 140 Japanese undergraduate students (78 females and 51 males) who volunteered to take part in the experiment. Thirty-one participants were excluded from the analysis because of missing data on the scales. Thus, the final sample consisted of 109 participants (66 females and 42 males, $M = 18.31$ years, $SD = 0.66$). Seventy-seven participants had contact with people with disabilities and 32 did not.

**Measures**

**Implicit Measure of Attitudes**

The Filtering Unconsciousness Matching of Implicit Emotions (FUMIE) test was used as the measures of implicit attitudes (Mori, Uchida, & Imada, 2008). The main advantage of the FUMIE test is that it makes
it difficult to distort one’s real attitudes, therefore it can measure implicit attitudes which one has internally (Greenwald, McGhee, & Schwartz, 1998).

The “people with disabilities” version of the FUMIE test was used in this experiment. It measures the strength of association between concepts that are likely to be evaluated as either positive or negative and the idea of people with disabilities. In this version of the FUMIE test, three kinds of words are arranged at random on each line: 1) words with a positive meaning such as “happy” or “victory;” 2) words with a negative meaning, such as “disaster” or “failure;” and 3) the target word, which in this case was “people with disabilities.” In Japanese, the word for “people with disabilities” can be expressed using three Chinese characters. Similarly, all other words used in the experiment consisted of three Chinese characters. Participants completed 3 practice trials and 10 test trials in total, and the length of each trial was limited to 20 seconds. The task was to draw a circle (○) around the positive words and a cross (×) through the negative words as quickly as possible and with as few errors as possible. In half of the test trials (trial-A), participants were asked to draw a circle (○) around the word for “people with disabilities,” as they did with the positive words. This task measured the association between concepts with a positive evaluation and people with disabilities. In the other half of the test trials (trial-B), participants were asked to draw a cross (×) thorough “people with disabilities,” as they did the negative words. In participants with a negative implicit attitude toward people with disabilities, their association between concepts with negative connotations and people with disabilities would be stronger than would their association between concepts with positive connotations and people with disabilities. Therefore, their response time would be faster and the number of drawings greater in the “people with disabilities-cross (×)” trials than in the “people with disabilities-circle (○)” trials. In participants with a positive implicit attitude toward people with disabilities, the reverse would be true. In this way, the FUMIE test measures the strength of the automatic association between the targets and evaluations.

Participants started the task when the experimenter said “Start” and continued until the experimenter said “Stop” 20 seconds later.

Explicit Measure of Attitudes

Explicit attitudes toward people with disabilities were assessed using seven bipolar 7-point rating scales ranging from –3 (not very much) to +3 (very much) with regard to warm, comfortable, pleasant liking, cheerful, good, and friendly attitudes. The median score was zero (0) so that positive scores indicated positive explicit attitudes toward people with disabilities and negative scores indicated negative explicit attitudes toward people with disabilities. Internal consistency analysis for the entire instrument showed it was reliable (Chronbach’s α = .83).

Motivation to Regulate Prejudice

We used the Japanese version of the Internal & External Motivation to Respond without Prejudice scales (IMS and the EMS, respectively; Takabayashi, Murata, & Hanita, 2007). These scales assess motivation to regulate prejudice. The IMS is focused on the implications of appearing prejudiced to oneself. For example, “I get angry with myself, when I have a thought that might be considered prejudiced.” The EMS is focused on the implications of appearing prejudiced to other people. For example, “I try to hide negative thoughts about people with disabilities in order to avoid negative reaction from others.” All ratings were made on 9-point scales rating from 1 (strongly disagree) to 9 (strongly agree). Each scale consisted of 10 items and included reversed items. After appropriate coding of the reversed items, ratings on the IMS and EMS were averaged. Higher scores indicated higher levels of motivation.

Procedure

All participants provided their informed consent before starting the experiment. Participants who volunteered were first asked to complete the Motivation to Respond without Prejudice scale. Once they had completed it, they were presented with the FUMIE test. The FUMIE test was administered according to standard procedures (Mori et al., 2008). Each trial started with brief instructions for the following task, and participants were instructed to complete tasks with both speed and accuracy. Explicit attitudes were assessed at the end of the study in order to avoid sensitizing participants too much to the true nature of the FUMIE test.
RESULTS

Implicit Attitudes

The Implicit Association Score (IAS) of the FUMIE test was used as an indicator of implicit attitudes. The IAS score was obtained by subtracting the average number of the people with disabilities-cross (×) drawings (trial-B) from the average number of people with disabilities-circle (○) drawings (trial-A). A positive attitude toward people with disabilities resulted in a positive IAS, whereas a negative attitude resulted in a negative IAS. In the present study, prejudice was operationally defined as a strong association of concepts with negative evaluations and people with disabilities, expressed in a negative IAS.

The average of all participants’ IAS was \(-5.62 (SD = 3.85)\). The average of all participants’ scores was a statistically significant negative score \((t = 15.24, df = 108, p < .01)\). This showed that participants marked faster in trial-B (people with disabilities \(\times\)) than in trial-A (people with disabilities \(\cdot\)). In other words, these undergraduate students’ association between people with disabilities and negative evaluations was significantly stronger than their association between people with disabilities and positive evaluations. This result indicates that the undergraduate students harbored implicit prejudice towards people with disabilities. No significant effects of gender or of contact experience were observed, \(F(1, 107) = 2.23\) and \(F(1, 106) = 0.85\) respectively \((p > .10\) for both).

Explicit Attitudes

The average of all participants’ explicit attitudes scores was \(1.58 (SD = 1.02)\). The average of all undergraduate students’ scores was a statistically significant positive score \((t = 16.16, df = 108, p < .01)\). This result indicates that the undergraduate students had positive explicit attitudes toward people with disabilities. No significant effects of gender or of contact experience were observed, \(F(1, 107) = 2.71\) and \(F(1, 106) = 1.97\) respectively \((p > .10\) for both).

The Relationship Between Implicit and Explicit Attitudes

We investigated the relationship between implicit and explicit attitudes and found that the two attitudes were moderately correlated \(r(109) = .259, p < .01\). The more negative the participants’ implicit attitudes were, the more negative their explicit attitudes were. Conversely, the more positive the participants’ implicit attitudes were, the more positive their explicit attitudes were.

Motivation to Regulate Prejudice

The averages of all participants’ IMS and EMS were \(M = 5.90, SD = 1.08\), and \(M = 5.82, SD = 0.93\) respectively. In order to check the effects of internal and external motivations on implicit attitudes more clearly, participants who had scored \(\pm 1SD\) IMS and EMS from the average, were compared. Each group was comprised of 15 participants. The means of the high and the low IMS groups were \(M = 7.19, SD = 0.50\) and \(M = 4.57\),
The means of the high and the low EMS groups were $M = 6.71$, $SD = 0.67$ and $M = 4.99$, $SD = 0.65$ respectively. A $2 \times 2$ ANOVA revealed that high and low scores were statistically significant for both measures (IMS, $F(1, 58) = 370.12, p < .01$; EMS, $F(1, 58) = 99.25, p < .01$). Therefore, these groups showed different motivation levels.

A main effect of IMS was found ($F(1, 56) = 6.26, p < .02$) as was a marginally significant main effect of EMS ($F(1, 56) = 3.36, p < .08$). This indicates that participants with high internal motivation to moderate their prejudice had lower level of implicit prejudice toward people with disabilities than did participants with low internal motivation. Conversely, participants with high external motivation to moderate their prejudice had higher level of implicit prejudice toward people with disabilities than did participants with low external motivation. No interaction was found ($F(1, 56) = 0.01, n.s.$). These results approximately corresponded with Devine et al. (2002) concerning attitudes toward black people. The results of the effects of the two motivations on implicit prejudice showed a different pattern. Greater implicit prejudice was found in the low internal motivation group than in the high internal motivation group. On the other hand, greater implicit prejudice was found in the high external motivation group than in the low external group.

To examine the effect of these two motivations on explicit attitudes, we conducted the same analysis (ANOVA). No main effect of either IMS or EMS or any interaction was found (IMS, $F(1, 56) = 0.27, n.s.$; EMS, $F(1, 56) = 0.06, n.s.$; interaction, $F(1, 56) = 0.22, n.s.$). This suggests that explicit attitudes are not affected by whether the motivation to change them is internal or external. Explicit attitudes’ score were positive, indicating that participants did not think it was necessary to regulate prejudice.

### Table 1. Implicit and Explicit Attitude Scores of High and Low Motivation Groups

<table>
<thead>
<tr>
<th>Scale</th>
<th>High IMS</th>
<th>Low IMS</th>
<th>High IMS</th>
<th>Low IMS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High EMS</td>
<td>Low EMS</td>
<td>High EMS</td>
<td>Low EMS</td>
</tr>
<tr>
<td>Implicit Attitudes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>1.72</td>
<td>1.41</td>
<td>1.18</td>
<td>1.65</td>
</tr>
<tr>
<td>($SD$)</td>
<td>1.33</td>
<td>0.52</td>
<td>1.08</td>
<td>0.57</td>
</tr>
<tr>
<td>Explicit Attitudes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>5.43</td>
<td>3.84</td>
<td>7.81</td>
<td>6.04</td>
</tr>
<tr>
<td>($SD$)</td>
<td>3.64</td>
<td>2.97</td>
<td>3.65</td>
<td>3.88</td>
</tr>
</tbody>
</table>

Note: IMS = Internal Motivation to Respond without Prejudice Scale, EMS = External Motivation to Respond without Prejudice Scale
The goals of the present study were to measure implicit and explicit attitudes toward people with disabilities and to examine the effects on these attitudes of internal and external motivations to respond without prejudice.

It was found that although students’ implicit attitudes toward people with disabilities were negative, their explicit attitudes toward people with disabilities were positive. In other words, a gap between implicit and explicit attitudes was observed. Thus, the undergraduate students who participated in this study had ambivalent attitudes toward people with disabilities.

This finding seems to mirror more widely held social attitudes toward people with disabilities. Although society in general has been changing to become more positive toward people with disabilities, many individuals still harbor implicit prejudices toward them (see Pruett & Chan, 2006). These results reflect the situation in which people with disabilities currently live. This phenomenon cannot be detected by more commonly used explicit measures of attitudes; however, as demonstrated in the present study, by using implicit measures of attitudes, such details can be observed. Measuring implicit attitudes is a worthwhile endeavor as it potentially can help towards formulating solutions to social problems concerning people with disabilities who suffer from prejudice. Paying more attention to implicit attitudes toward people with disabilities may help with the identification of problems that arises from such attitudes. However, behavioral aspects of prejudice cannot be identified solely through the presently available knowledge about implicit attitudes. Future studies are needed to determine what concrete behaviors may derive from implicit prejudices.

Participants who had high internal motivation showed low implicit prejudice. The finding that high internal motivation is important to control prejudice corresponded with previous studies (e.g., Devine et al., 2002). No effect of contact experience on implicit and explicit attitudes was found. To regulate implicit prejudice, internal motivation appears important. However, the contact experiences, which has been indicated as a significant factor in previous research, seems to be ineffective or irrelevant where implicit prejudice is concerned. In fact, some prejudices may implicitly be developed during contact with people with disabilities. Thus, not only contact experience is effective in regulating the manifestation of prejudice. Focusing on internal motivation through education may be important. Johns et al. (2008) showed that internal motivation was based on egalitarianism, whereas external motivation was based on hiding prejudice. Regulations by external motivation may only hide prejudices, not overcome it, that is the prejudice may still remain. On the other hand, internal motivation to overcome prejudice may result in responding without prejudice. Therefore, internal motivation is effective whereas external motivation is not effective. Considering this, teaching egalitarianism and internalizing it could be effective in regulating implicit prejudice. More studies in this area are warranted, and educational approaches to enhance individuals’ internal motivation to regulate prejudice toward people with disabilities should be encouraged. Furthermore, it is necessary to consider when internal motivation is effective. Internal
motivation may work effectively when people who posses it learn prejudice, or people with high internal motivation may simply have less prejudice. Future studies need to clarify this process.

No formal manual exists that explains how to regulate prejudice through education. Therefore, efforts to regulate prejudice in education happen at teachers’ discretion. Although several methodologies are available for teachers’ use, which are the most effective remains unclear. Given this situation, educational guidelines on effective ways to regulate prejudice would be useful, and this study provides some insight.

To conclude, the present study found that undergraduate students without disabilities harbor implicit prejudice towards people with disabilities. It was also found that regulation of implicit prejudice is dependent on internal motivations to behave without prejudice. In other words, motivation focused on the self is the most effective in regulating implicit prejudice.

Support for people with disabilities has improved in recent years. In education, the field of learning science supports the cause of people with disabilities. Learning science looks at cultural aspects of learning from a liberal arts perspective (e.g., Mastropieri & Scruggs, 1992) and also considers cognitive aspects and social learning perspectives. The present study focused on the problem of prejudice toward people with disabilities, and it thus concerns social learning. Thus, leaning science contributes not only to the liberal arts but also to the resolution of social problems. Previous studies of learning science have not addressed issues of social learning, yet social learning can provide effective interventions for moderating prejudice, and it could usefully be incorporated into future educational programs. Our study showed the importance of an internal motivation to respond without prejudice, an attitude based on notions of egalitarianism. Our results make the case for further research into modern-day subtle prejudice toward people with disabilities.

REFERENCES


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