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Effects of Cognitive Modeling, Affect, and Contact on Attitudes, Thoughts, and Feelings Toward College Students with Physical Disabilities

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One goal of the present study was to evaluate cognitive and affective factors which facilitate problem-free interaction between nondisabled and physically disabled college students by (1) exploring variables related to ease with people who have disabilities, and (2) evaluating the consequences of previous contact with disabled persons. A second goal was to explore the effects of four cognitive modeling interventions on thoughts, attitudes, affect, and self-efficacy expectations in relation to interaction with disabled peers. Results for 126 nondisabled college students indicate that lack of ease with persons who have disabilities is an important contributor to interaction difficulties; individuals who felt ill at ease with disabled college students (1) were more likely to anticipate being uncomfortable when interacting with a peer who has a disability, (2) had lower self-efficacy expectations about interacting in various social situations, (3) had more negative attitudes toward disabled persons, (4) expected to have more difficulty working with a disabled peer, and (5) had more negative thoughts about interacting with a disabled classmate. Previous contact with people who have disabilities was related to the frequency of positive thoughts about interaction but had minimal effects on attitudes or affect. Cognitive modeling was found to be ineffective in changing any aspect of these affective, attitudinal, and cognitive factors. The implications of the results for cognitive assessment and for resolving interaction problems between nondisabled and disabled individuals are discussed.

KEY WORDS: attitudes; contact; thoughts; comfort; college students.

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INTRODUCTION

The literature shows that interaction between disabled and nondisabled individuals is often problematic (e.g., Snyder *et al.,* 1979; Stovall and Sedlacek, 1983) and that many nondisabled individuals are uncomfortable with people who have disabilities (e.g., Fichten and Bourdon, 1986; Marinelli and Kelz, 1973). It has also been demonstrated that able-bodied people have negative attitudes toward those with disabilities (cf. Yuker, 1988a) and that previous contact with people who have disabilities can favorably influence relations between these two groups (cf. Amsel and Fichten, 1988; Anthony, 1969; Yuker, 1988b; Yuker and Hurley, 1987).

Ease, previous contact, and attitudes toward those with disabilities are not the only variables believed to influence interaction between nondisabled and disabled individuals. Cognitive factors such as self-efficacy expectations and self-statements may play an important role as well (Amsel and Fichten, 1988; Fichten *et al.,* 1987). For example, data indicate that nondisabled college students have more negative and fewer positive thoughts concerning socializing with disabled than with nondisabled peers (Amsel and Fichten, 1988; Fichten, 1986; Fichten and Amsel, 1988) and that this pattern of thoughts is related to discomfort during interaction (Fichten *et al.,* 1988). Indeed, thoughts related to task performance have been shown to constitute an important aspect of anxiety and behavioral difficulties in a variety of areas (e.g., Bandura, 1982; Heimberg *et al.,* 1987; Ingram and Kendall, 1987; Myszka *et al.,* 1986). In light of the diverse factors which can influence interaction between these two groups, the present study investigated the relationship between feelings of ease in the presence of people who have disabilities, attitudes, cognitions, and affective variables in nondisabled college students.

One of the more actively researched areas in cognitive assessment concerns the relative importance of positive and negative thoughts in influencing anxiety, self-efficacy expectations, and behavior (e.g., Ingram and Kendall, 1987). The majority of studies have shown that it is the presence or absence of negative thoughts which is particularly important, thereby supporting Kendall's (1984) hypotheses about the "power of non-negative thinking." Nevertheless, positive thoughts also have been shown to make an important contribution (e.g., Fichten, 1986; Heimberg *et al.,* 1985; Hollandsworth *et al.,* 1979), leading some investigators to use ratio scores which reflect the relative frequencies of positive and negative thoughts (e.g., Acton and Cameron, 1985; Amsel and Fichten, 1988; Hope *et al.,* 1986; Marchione *et al.,* 1987; Schwartz, 1986; Schwartz and Garamoni, 1986a, b). In keeping with this recent development in cognitive assessment, the present study examined the relative importance of positive and negative thoughts in influencing attitudes and affect toward individuals with disabilities.

The attentional focus of thoughts is of increasing interest in the literature (Amsel and Fichten, 1988; Fichten, 1986; Fichten and Amsel, 1988; Hope *et al.,* 1986). For example, our own investigations have suggested that other-focused thoughts, especially other-focused negative thoughts, may be particularly important in influencing affect and future interaction between nondisabled and disabled individuals. In addition, while it is a widely shared assumption that curiosity about persons with disabilities is common, there has been no empirical evaluation of the contribution of curiosity to feelings of ease in the presence of individuals with disabilities or to other affective responses, attitudes, or interpersonal behavior. Given the paucity of data, the present study explored the relationship between curiosity, self-focused and other-focused positive and negative thoughts, affect, attitudes, and self-efficacy expectations concerning problem-free interaction in nondisabled college students.

Data from the cognitive-behavioral counseling and therapy literatures show that cognitive factors such as the frequency of positive and negative thoughts (cf. Schwartz and Garamoni, 1986a, b) and the nature of self-efficacy expectations (cf. Bandura, 1982) have powerful effects on cognition, affect, and behavior in a variety of contexts. Indeed, cognitive restructuring techniques (cf. Mahoney and Arnkoff, 1978) which focus on the direct alteration of maladaptive thinking have recently been added to conventional behavior therapy packages (cf. Gormally *et al.,* 1981; Last, 1987). It has also been amply demonstrated that both overt and covert modeling of appropriate behaviors alter maladaptive cognitions and affect and facilitate successful performance (Bandura, 1971; Kazdin, 1984). However, modeling of adaptive thoughts—cognitive modeling—with some exceptions (e.g., Glass *et al.,* 1976; Glass and Arnkoff, 1983; Goodhart, 1986; Mandel and Schrauger, 1980) has not been extensively used except in the mood induction literature. Because of the potential of cognitive modeling to bring about important changes, in the present investigation, a series of cognitive modeling interventions were designed and their effects on attitudes, thoughts, and affect related to interacting with disabled peers were evaluated.

Much of the work on cognitive factors in interpersonal relations with individuals who have disabilities is recent and comes from our own laboratory. Because newly developed measures have been used in these investigations, an additional goal was to explore further the relationship between scores on these measures and scores on commonly used scales of attitudes toward people with disabilities.

METHOD

Subjects

Subjects were 53 male and 73 female volunteer college students enrolled in four sections of General Psychology; none had a physical disability. Mean

age was 18. Six percent of subjects had a disabled family member, 13% had a disabled friend, and 63% had had some form of contact with individuals with disabilities (family, friend, acquaintance, colleague, schoolmate, volunteer experience).

Measures

General Information Form

This measure includes questions about sex, age, absence or presence of a physical disability, and previous contact with individuals with disabilities. Ease with able-bodied students, students who use a wheelchair, and with students who have a hearing or a visual impairment is assessed using 6-point scales. Results reported previously show that Ease scores are logically related to relevant criterion variables (Amsel and Fichten, 1988; Fichten and Amsel, 1988).

Attitudes Toward Disabled Persons Scale (ATDP)—Form 0

This widely used standardized measure consists of 20 Likert-type items and assesses the degree to which people see the adjustment and needs of people with a physical disability as different from those of able-bodied individuals. Data provided by Yuker *et al.* (1970) indicate good psychometric properties for the test. The single summary score is usually interpreted as a measure of acceptance-rejection of people with a physical disability (the higher, the more accepting).

Cognitive Role-Taking Tasks

This measure, fully described by Fichten (1986) and Fichten and Martos (1986), is used to collect data regarding thoughts and feelings. In the present investigation, brief descriptions of four hypothetical interaction situations between able-bodied and wheelchair user college students were provided. Subjects were asked to imagine being involved in each interaction and to list, in written form, the thoughts and feelings they experienced while imagining themselves in the situation. After listing their thoughts concerning each interaction situation, subjects indicated (on 10-point scales) how comfortable they would feel in the situation (Comfort During Interaction Scale).

College Interaction Self-Efficacy Questionnaire (CISEQ-W)

This 40-item measure evaluates anticipated comfort and strength of self-efficacy expectations concerning social interaction between same-sex able-bodied and wheelchair user college students. Respondents indicate (on 6-point scales) how comfortable they would be performing a variety of interaction behaviors (e.g., asking for a favor, initiating a conversation). The mean of comfort ratings constitutes the CISEQ-W Anticipated Comfort score. For each behavior subjects feel they can carry out (i.e., score equal to or greater than 4 on the comfort question), they indicate their degree of confidence (10 = very uncertain; 100 = certain). Confidence scores are summed and divided by 40 to yield the self-efficacy strength score. Data provided by Fichten *et al.* (1987) indicate internal consistency coefficients which range from 0.94 to 0.99 and show that scores on the measure are significantly related to knowledge of appropriate behavior and to attitudes toward disabled persons.

Disability Social Relationship Scale (DSR)

This true/false multidimensional measure of attitudes evaluates disability-specific and social situation specific factors. It incorporates three social relationship subscales (Work, Dating, Marriage), each consisting of 6 items. Two items from the Work subscale were used in the present investigation. The higher the score, the more accepting the attitude. Strohmer *et al.*, (1984) report on the construct validation of the scale. Their results show that scores on the measure are logically related to relevant criterion variables and that it is a viable multidimensional measure of attitudes toward persons with disabilities.

Procedure

After subjects completed the General Information form they were presented with two 5-minute audiotaped cognitive modeling interventions. Each of these described a hypothetical interaction situation with a wheelchair-user-peer and listed 26 thoughts. Subjects were instructed to imagine that they were involved in the interaction and to imagine that it was they who were having the thoughts modeled on the tape. All subjects were exposed to two audiotaped interventions where they heard modeled either exclusively positive thoughts ("mastery" sequence), exclusively negative thoughts, posi-

tive thoughts which changed to negative ones ("giving up" sequence), or negative thoughts which changed to positive ones ("coping" sequence). Subjects responded to a variety of questions between the two intervention audiotapes and immediately after hearing both tapes; these asked for ratings (on 10-point scales) about how realistic subjects believed the interaction situation to be, how difficult it was to imagine oneself in the situation, and how difficult it was to imagine that one was having the thoughts modeled.

After these activities, all subjects completed the following measures with reference to a wheelchair user stimulus person: CISEQ-W, DSR, ATDP, and the Cognitive Role Taking Tasks. Subsequently, subjects again completed the Ease questions on the General Information Form.

Thoughts on the Cognitive Role Taking Tasks were coded in accordance with a slightly modified version of Fichten and Martos' (1986) coding manual into Curiosity, Neutral, and 6 valenced categories: Positive or Negative and either Self-Focused, Other-Focused or Situation-Focused. Thoughts were rated by a coder trained to a 71% thought-by-thought inter-rater agreement criterion (O'Leary and Kent, 1973). Inter-rater agreements between the coder and a second trained coder on 4 spot-checks of reliability (21 thought listing protocols) ranged from 77% to 82%, with a mean of 79% [Kappa coefficient = .73].

RESULTS

Cognitive Modeling

Because there were no significant sex differences on any of the variables, data from males and females were combined. All four modeling interventions were rated as highly realistic (means ranged from 7.35 to 7.85). Subjects also indicated that it was relatively easy to imagine that one was a participant in the situations indicated (means ranged from 6.89 to 7.70) and to imagine having the thoughts modeled (means ranged from 6.31 to 7.20). Nevertheless, there were no significant differences between groups on any of the dependent measures on one-way analyses of variance.

To evaluate whether those who differed in ease with wheelchair-user peers prior to the intervention responded differentially to the four modeling interventions, subjects were grouped into High Ease and Low Ease groups (based on the mean Ease score) and a series of 2-way ANOVA comparisons were conducted (2 Ease × 4 Interventions). Again, no significant interactions or main effects were found.

Because there were no significant differences among experimental conditions on any of the measures, data from the four experimental conditions were combined for all subsequent analyses.

Ease with Peers

Pre- and postintervention Ease scores were correlated to evaluate test-retest reliability. Results indicate high reliability for Ease with disabled students (Ease with: Wheelchair Users, $r(124) = 0.73, p < 0.001$; Visually Impaired students, $r(124) = 0.78, p < 0.001$; Hearing Impaired students, $r(124) = 0.78, p < 0.001$). Although the correlation coefficient was significant, Ease with nondisabled students was considerably less reliable, $r(124) = 0.40$, $p < 0.001$.

Analysis of variance and Tukey hsd test results on Ease scores listed in Table I indicate that students felt less at ease with disabled than with nondisabled students [$F(3,366) = 30.63$, $p = 0.001$], and that Ease scores were not modified by the type of disability. Furthermore, scores on Ease with individuals who have different disabilities were moderately highly correlated [Pearson r values ranged from 0.40 to 0.68, ($df = 124$), $p < 0.001$]. The relationship between Ease with disabled and with nondisabled peers was more modest [r values ranged from 0.29 to 0.30, ($df = 124$), $p < 0.001$].

Ease: Attitudes, Affect, and Cognitions

Whether students who feel at ease with wheelchair user peers differ from those who feel ill at ease was examined in a series of t-test comparisons on data from subjects who scored above and below the mean on Ease with Wheelchair Users. Results detailed in Table I show that those who felt at ease with wheelchair users, compared to those who did not, were more comfortable during interaction, anticipated being more comfortable in various social situations, had stronger self-efficacy beliefs concerning social interaction, and had more favorable attitudes toward people with disabilities in general as well as about working with a peer who has a disability.

Table I. Contact and Mean Ease Scores[a]

		Ease with a Peer Who is			
Contact	*n*	Wheelchair User	Visually Impaired	Hearing Impaired	Nondisabled
With contact	79	4.53 (1.04)	4.27 (1.27)	4.47 (1.31)	5.32 (1.01)
No contact	46	4.24 (1.13)	4.17 (1.27)	4.15 (1.19)	5.04 (1.13)
Whole sample	125	4.42 (1.09)	4.23 (1.27)	4.35 (1.27)	5.21 (1.06)

[a]Values in parentheses are standard deviations.

Table II. Comparison of Students Who Feel at Ease and Those Who Feel Ill at Ease with Wheelchair User Peers[a]

Variable	Mean Ease with Wheelchair Users: Low	Mean Ease with Wheelchair Users: High	*df*	*t*
Anticipated comfort in social situations (CISEQ-W)	3.51 (0.80)	4.22 (0.90)	123	4.60[e]
Strength of self-efficacy expectations (CISEQ-W)	40.81 (22.95)	62.24 (20.85)	123	5.46[e]
Attitude toward working together (DSR)	1.39 (0.73)	1.67 (0.59)	124	2.40[c]
Attitude toward disabled persons (ATDP)	71.76 (12.63)	82.59 (14.73)	124	4.43[e]
Comfort during interaction (Cognitive Role Taking Tasks)	5.52 (1.88)	7.39 (1.46)	124	6.23[e]
Total Thoughts (Cognitive Role Taking Tasks)				
Total Curiosity Thoughts	0.35 (0.67)	0.53 (0.85)	122	1.26
Total Positive Thoughts	3.69 (2.64)	4.16 (3.02)	122	0.92
Total Negative Thoughts	3.51 (3.09)	2.06 (2.06)	122	3.08[d]
Self-focused Thoughts				
Positive	3.12 (2.40)	3.40 (2.49)	122	0.64
Negative	2.36 (2.40)	1.46 (1.63)	122	2.46[c]
Other-Focused Thoughts				
Positive	0.51 (0.70)	0.68 (1.11)	122	1.05
Negative	1.13 (1.49)	0.57 (0.88)	122	2.56[c]
Situation-Focused Thoughts				
Positive	0.07 (0.31)	0.08 (0.27)	122	0.26
Negative	0.02 (0.13)	0.03 (0.18)	122	0.55
Ratios[b]				
SOM [Total+/(Total+ and Total−)]	0.55 (0.31)	0.65 (0.27)	119	2.03[c]
Self+/Other−	1.60 (1.38)	3.06 (2.29)	52	2.75[d]

[a]Values are means. Numbers in parentheses are standard deviations.
[b]Sample sizes are lower because some subjects listed no positive or negative thoughts.
[c]$p < 0.05$.
[d]$p < 0.01$.
[e]$p < 0.001$.

Results in Table II also show that those who felt at ease with wheelchair users, while no less curious than people who felt ill at ease, had fewer Negative Self and Other-Focused thoughts concerning interacting. The comparisons on Positive thoughts were not significant, although the differences were in the expected direction. This prompted an exploration of the relative importance of Positive and Negative thoughts.

Two ratio scores were computed. Because it has been shown that it discriminates adaptive and maladaptive thinking, Schwartz's SOM ratio on Total scores was calculated [Total + /(Total + and Total −)]. Since previous studies have shown that Other-Focused Negative thoughts are particularly important when interaction with people who have disabilities is involved, the ratio of Positive Self-Focused to Negative Other-Focused thoughts (Self + /Other −) was also computed. Comparisons on the scores of High and low Ease subjects indicate significant differences on both ratio scores, suggesting that the balance of positive to negative thoughts may be a key aspect of ease with people who have disabilities.

Contact: Attitudes, Affect, and Cognitions

The impact of previous contact with disabled individuals was evaluated by comparing scores of subjects with and without previous contact on the same variables as were used to examine the effects of Ease. The Ease scores, themselves, of subjects With Contact (M = 4.53) and with No contact (M = 4.24) did not differ significantly.

Results detailed in Table III indicate a marginally significant difference on ATDP scores, suggesting that those With Contact had somewhat more favorable attitudes toward disabled persons than those with No Contact. Significant differences between With Contact and No Contact groups were found only on Total Positive and on Self-Focused Positive thought frequencies and on the Self + /Other − ratio; all of these were in the expected direction.

Relationships Between Variables

Scores on all measures were correlated to examine the extent to which scores on the various measures are related to one another. Results in Table IV show that Ease, Comfort During Interaction, Anticipated Comfort in Social Situations, Self-Efficacy Expectations concerning future interaction, Attitudes Toward Disabled Persons and toward working with a disabled peer (DSR) were all moderately highly and significantly correlated. The frequency of Negative thoughts, both Self-Focused and Other-Focused, was also significantly related to scores on these measures. In contrast, the frequency of Positive thoughts was related only to Comfort During Interaction (positive correlation) and to the frequency of Curious thoughts (negative correlation). Further, Positive and Negative thought frequencies, regardless of valence, were not significantly correlated, indicating that Positive and Negative thoughts are independent. It is noteworthy that the correlations between the two positive/negative thought ratios and scores on the other measures were significant, suggesting that ratio scores may best reflect the joint contribution of positive and negative thoughts to cognition, affect, and behavior.

DISCUSSION

Ease with People Who Have Disabilities

Results show that (1) the measure of ease is highly reliable, (2) participants felt less at ease with disabled than with nondisabled peers, and (3) that ease with individuals who have different physical disabilities did not differ. Comparisons of participants who did and who did not feel at ease with wheelchair users show that those who were ill at ease (4) believed that they were more likely to be uncomfortable when interacting with a peer who has a disability, (5) anticipated being less comfortable with persons who have a disability in various social situations, (6) had lower self-efficacy expectations about being capable of interacting comfortably, (7) had more negative attitudes toward disabled persons, and (8) expected to have more difficulty working with a disabled peer. These results are consistent with those of our previous investigations (Amsel and Fichten, 1988; Fichten, 1986; Fichten and Amsel, 1988; Fichten *et al.*, 1989; Robillard and Fichten, 1983) and suggest that it is lack of ease with individuals who have disabilities that is a key component of interaction difficulties.

Participants who were ill at ease with persons who have a disability also had more negative thoughts about interacting with a disabled peer. This was true both for self-focused thoughts (e.g., "I don't want to be with him") as well as for other-focused thoughts (e.g., "He must be shy and lonely"). While there were no significant differences between groups on the frequency of either curious or positive thoughts, analyses on ratios, which include both positive and negative thoughts, showed significant differences. This suggests that the balance of positive and negative thoughts is an important component of interaction difficulties.

Table III. Comparison of Students with and Without Previous Contact with Individuals Who Have Disabilities[a]

Variable	Contact: No Contact	Contact: With Contact	*df*	*t*
Anticipated Comfort in Social Situations (CISEQ-W)	3.77 (0.90)	3.91 (0.93)	123	0.84
Strength of Self-Efficacy Expectation (CISEQ-W)	49.92 (24.93)	52.51 (24.09)	123	0.57
Attitude Toward Working Together (DSR)	1.57 (0.62)	1.49 (0.71)	124	0.65
Attitude Toward Disabled Persons (ATDP)	74.28 (13.40)	78.91 (15.29)	124	1.72[b]
Comfort During Interaction (Cognitive Role Taking Tasks)	6.17 (2.15)	6.63 (1.77)	124	1.29
Total Thoughts (Cognitive Role Taking Tasks)				
Total Curiosity Thoughts	0.34 (0.51)	0.50 (0.89)	122	1.30
Total Positive Thoughts	3.15 (2.11)	4.35 (3.09)	122	2.55[c]
Total Negative Thoughts	2.89 (2.98)	2.73 (2.57)	122	0.32
Self-Focused Thoughts				
Positive	2.46 (1.80)	3.68 (2.62)	122	3.07[d]
Negative	2.07 (2.56)	1.79 (1.97)	122	0.70
Other-Focused Thoughts				
Positive	0.61 (0.80)	0.60 (1.01)	122	0.04
Negative	0.80 (1.31)	0.91 (1.23)	122	0.45
Situation-Focused Thoughts				
Positive	0.09 (0.29)	0.06 0.30	122	0.42
Negative	0.02 (0.15)	0.03 (0.16)	122	0.14
Ratios[f]				
SOM [Total + /(Total + & Total −)]	0.57 (0.32)	0.61 (0.29)	119	0.67
Self + /Other −	1.22 (1.04)	2.68 (2.10)	53	3.46[e]

[a]Values are means. Numbers in parentheses are standard deviations.
[b]$p < 0.10$.
[c]$p < 0.05$.
[d]$p < 0.01$.
[e]$p < 0.001$.
[f]Sample sizes are lower because some subjects listed no negative or positive thoughts.

Table IV. Relationships Among Variables[a]

	CISEQ-W		DSR	ATDP	Cognitive Role Taking Tasks										Ratios	
	Antici-pated Comfort	Strength of Self-Efficacy	Att.: Work	Att.: Disa-bled Persons	Comfort During Inter-action	Tot. Curi-osity	Tot. Pos.	Tot. Neg.	Self Pos.	Self Neg.	Other Pos.	Other Neg.	Sit'n Pos.	Sit'n Neg.	SOM	Self+/ Other−
Base[b]	.436***	.443***	.266**	.330***	.541***	.118	.141	−.295***	.122	−.246**	.087	−.232**	.079	.034	.267**	.422***
CISEQ-W Com.		.874***	.200*	.290***	.503***	.154	.063	−.326***	.027	−.285***	.098	−.227**	.080	−.045	.183*	.258†
CISEQ-W Str.			.290***	.385***	.576***	.134	.090	−.341***	.061	−.291***	.076	−.249**	.131	−.052	.229*	.283*
DSR				.391***	.246**	.114	.067	−.064	.064	−.052	.043	−.047	−.027	−.042	.021	.002
ATDP					.431***	.247**	.121	−.189*	.121	−.188*	.050	−.090	.009	−.056	.116	.116
Com. Inter.						.137	.277**	−.425***	.275**	−.357***	.064	−.335***	.189*	.055	.405***	.380**
Curiosity							−.216*	.028	−.253**	.010	.037	.031	−.095	.100	−.257**	−.232†
Total Positive								−.048	.946***	−.044	.488***	−.012	.263**	−.163	.586***	.650***
Total Negative									−.103	.893***	.162	.672***	−.112	.091	−.728***	−.411**
Self Pos.										−.089	.196*	−.058	.206*	−.145	.593***	.762***
Self Neg.											.129	.272**	−.082	.033	−.657***	−.247†
Other Pos.												.149	−.046	−.104	.155†	.101
Other Neg.													−.103	.019	−.457***	−.517***
Sit Pos.														−.039	.217*	.123
Sit Neg.															−.182*	−.128
Ratio:SOM																.750***
Ratio:Self+/Other−																

[a]Pearson *r* values. *df*s vary from 121 to 124 except for Ratio: Self+/Other− where *df* = 53.
[b]Ease with wheelchair user students.
†$p < .10$.
*$p < .05$.
**$p < .01$.
***$p < .001$.

Previous Contact with People Who Have Disabilities

Contact had minimal effects on either attitudes or affect but had a significant impact on thoughts. Specifically, previous contact was associated with an increased frequency of self-focused positive thoughts and with an enhanced ratio of positive self-focused to negative other-focused thoughts regarding interaction with a disabled peer.

Findings on contact are consistent with previous results and suggest that while contact does not appear to be highly effective in changing attitudes or affect (cf. Fichten, Compton, et al., 1985; Fichten, Hines, *et al.*, 1985; Robillard and Fichten, 1983), it may exert beneficial effects on thoughts (cf. Amsel and Fichten, 1988). To shed more light on this issue, future research should specify the nature, extent, duration, context, and consequences of the contact as well as the characteristics of both the disabled and the nondisabled individuals who are involved in the interaction (cf. Yuker, 1988b; Yuker and Hurley, 1987). The results also suggest that in future investigations of the effects of contact, both self-focused and other-focused thoughts should be investigated. A convenient and inexpensive way to evaluate such thoughts is the CISST (College Interaction Self-Statement Test: a rating scale measure of positive and negative thought frequency which was designed to evaluate self-statements concerning interaction with disabled peers) (Amsel and Fichten, 1988; Fichten and Amsel, 1988).

Positive and Negative Thoughts, Thought Ratios, and Curiosity

Consistent with Kendall's (1984) "power of non-negative thinking" notion, the present results show that the fewer negative thoughts that students had, the higher their ease with disabled peers, the more comfortable they were likely to feel in social situations with individuals with disabilities, the higher their self-efficacy expectations, and the more favorable their attitudes. Findings on positive thoughts were considerably weaker. Comparisons on ratio scores which reflect the balance of positive and negative thinking, however, were significantly related to the key variables of interest.

Surprisingly, curiosity was positively related to favorable attitudes toward people with disabilities, negatively related to the presence of self-focused positive thoughts, and unrelated to the frequency of negative thoughts. While it is tempting to speculate that being curious about an individual's disability implies that one has an interest in the person, and, thus, has a favorable attitude, it is not clear why curiosity should suppress positive thoughts.

It is noteworthy that the effects of contact on thoughts about interacting with a wheelchair user peer were different from the effects of ease. For example, while ease with wheelchair users was related to the absence of nega-

tive thoughts, contact was related to the presence of positive thoughts. In both cases, however, the balance of specific types of positive and negative thoughts (i.e., the Self+/Other− ratio) appears to be important.

The findings on ease and contact as well as on the correlational analyses show that the measures of cognition and affect used in the present study are logically related to one another as well as to expected results, thereby supporting previous findings on the validity of these measures. The data also indicate that positive and negative thoughts may differ in origin and may serve different but complementary functions in guiding and organizing affect and behavior (cf. Ingram & Kendall, 1987). As suggested by others (e.g., Clark, 1988; Ingram, and Wisnicki, 1988), evaluation of the genesis, role, and contribution of positive thoughts deserves careful attention.

Cognitive Modeling

Contrary to expectations, cognitive modeling had no significant effects on attitudes, thoughts, or affect. This may have been due to factors such as the brevity of the intervention or to the choice of thoughts and situations modeled. We believe, however, that a more likely reason is that subjects had no opportunities for either overt or covert practice and rehearsal (cf. Kazdin, 1984; McFall and Twentyman, 1973). To modify feelings of discomfort and lack of ease, it is probably necessary to experience positive thoughts about interaction several times. In addition, it may be important that individuals learn to generate their own positive thoughts and rebut their spontaneous negative thoughts. The modeled pattern of thoughts may need to be practiced, thereby allowing for opportunities to build up strong self-efficacy expectations concerning future interaction. Indeed, cognitive modeling may demonstrate its impact when it is used as an adjunct to other components of social skills training, such as coaching, behavioral rehearsal, graded practice, and feedback.

CONCLUSIONS

The present results suggest that affective factors, such as the level of ease experienced by nondisabled individuals with people who have disabilities, are of prime importance in influencing relations between these two groups. Given the importance of affect, cognitive modeling, by itself, may be insufficient in bringing about major cognitive, affective, attitudinal, or behavioral changes. Future efforts to eliminate interaction difficulties should focus not simply on changing nondisabled individuals' cognitions or attitudes but, most particularly, on increasing their level of comfort and their self-

efficacy expectations concerning interaction with individuals who have disabilities. Adding cognitive modeling to conventional social skills training components may prove beneficial in accomplishing this. Perceived task difficulty has been shown to have the same impact as discomfort and anxiety on thought patterns (cf. Fichten *et al.*, 1988). Therefore, changing beliefs about the difficulty of interacting with individuals who have disabilities may also be useful in resolving interaction difficulties.

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