The Attentional Mechanisms Model of Interaction Strain

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Integration of people with physical and sensory disabilities requires effective interactions in occupational and recreational contexts. Major impediments are nondisabled individuals' discomfort, negative thoughts, and stereotyped characterizations. This article describes the Attentional Mechanisms Model of Interaction Strain (AMMIS), which integrates known findings about these cognitive and affective factors and generates hypotheses both about causes of interaction difficulties and about remedies. Ways to evaluate the model are proposed through: examination of attentional processes, exploration of attentional focus effects on affect, cognitions, and attitudes, and preparation and evaluation of intervention strategies based on the model. Implications of using the model are discussed.

KEY WORDS: physical disabilities; social cognition; affect.

INTRODUCTION

Casual interaction between individuals with and without disabilities, who do not know each other well, is often problematic (Gibbons *et al.*, 1980; Horne, 1985; Katz *et al.*, 1986; Stovall and Sedlacek, 1983) and many nondisabled people are uncomfortable with those who have disabilities (Kleck, 1966; Kleck *et al.*, 1966; Marinelli and Kelz, 1973). In the college context, the data show that nondisabled students often avoid contact with their disabled peers and that both able-bodied students and professors alike are uncomfortable with students who have a disability (Fichten *et al.*, 1990;

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Nathanson, 1983; Newman, 1976; Snyder *et al.*, 1979). Furthermore, it is generally not the individuals with disabilities who are responsible for creating interaction problems (Fichten, 1988; Fichten *et al.*, 1991).

It has been amply demonstrated that many able-bodied people have negative attitudes toward those with disabilities (Gottman, 1963; Katz, 1981; Yuker, 1988, 1992). Results from our own investigations of college students have also shown that nondisabled people have negative views about peers with disabilities which can lead to problems in interaction. For example, able-bodied students were found to attribute characteristics to students with disabilities that are not only different and less socially desirable but also "opposite" to those they attributed to nondisabled students (Fichten and Amsel 1986). Moreover, our data show that nondisabled students are equally uncomfortable with peers who have disabilities, regardless of the nature or severity of the impairments (Fichten *et al.*, 1991). As people usually like and seek out similar others (Byrne, 1969; Condon and Crano, 1988), one would expect able-bodied students to avoid or limit their contact with disabled classmates who are — wrongly — presumed to be dissimilar (Fichten *et al.*, 1989).

Although inadequate social skills can also contribute to problematic and infrequent interaction between able-bodied people and those with disabilities (Ammerman *et al.*, 1987; Gresham, 1986), previous work has shown that both nondisabled and disabled college students know what behaviors are appropriate in frequently occurring interaction situations (Fichten and Bourdon, 1986). This suggests that lack of knowledge about what constitutes effective behavior is not the principal cause of social strain. Results of this investigation did suggest, however, that cognitive and affective factors such as concern about one's behavior and about the disabled peer's reactions are likely contributors to interaction difficulties.

Cognitive and affective factors that have been shown to inhibit interaction in other areas include anxiety, expectancy of negative consequences, faulty appraisals of one's own performance and abilities, inaccurate evaluation of the other person's feelings, intentions and attitudes, and inhibitory thoughts and self-statements (Curran and Wessberg, 1981). Indeed, thoughts related to task performance have been found to constitute an important aspect of anxiety and behavioral difficulties in a variety of areas (Bandura, 1982; 1986; Heimberg *et al.*, 1987; Ingram and Kendall, 1987; Myszka *et al.*, 1986). In our own studies of relations between college students with and without disabilities, we have found that affective factors, such as lack of ease, and cognitive factors, such as low self-efficacy expectations about being able to interact comfortably and negative self and negative other-focused thoughts (e.g., "I'll be stuck doing everything," "he must

be shy and lonely"), are strongly related and constitute important elements of interaction difficulties (Fichten, 1986; Fichten *et al.*, 1987).

In summary, the data indicate that key components of interaction difficulties between nondisabled individuals and those with disabilities are (a) discomfort, anxiety, and lack of ease on the part of nondisabled persons, (b) negative self-focused thoughts and low self-efficacy expectations concerning social interaction, and (c) negative other-focused thoughts and stereotyped, "different," and "limited" evaluations of the individual with the disability.

A variety of formulations about the genesis of these negative cognitive and affective factors abound. Yet, none has resulted in a parsimonious model or in a good understanding of the basis underlying problematic interaction between nondisabled and disabled individuals. Nor have these formulations yielded effective intervention approaches (Yuker, 1992). It is, therefore, the objective of this article to describe the Attentional Mechanisms Model of Interaction Strain (AMMIS), which integrates known findings about these factors and generates hypotheses about the causes of interaction difficulties and about ways to remedy problems. Illustrations of the model's concepts focus on college interactions because this setting has permitted exploration of cognitive and affective factors in a milieu where opportunities for casual, "equal status" interaction between peers with and without disabilities abound. The model and the principles, however, have much broader applicability.

ATTENTIONAL MECHANISMS

An examination of the data relative to the genesis of negative affective and cognitive factors in problematic interactions reveals three major principles: these guided the development of the AMMIS and are presented below.

Paying Extra Attention to People Who Are Different: The Impact of Distinctiveness, Salience, and Novelty

When a nondisabled individual first encounters a person with a visible disability, because of distinctiveness and novelty, more attention will be paid to the person with the disability than to nondisabled individuals (Langer *et al.*, 1976). In particular, attention will most likely be focused on the most salient aspect of the person (i.e., the disability or disfigurement).

The social cognition literature shows that novel, distinctive, and salient stimuli have a number of properties: (1) they draw more attention than nonsalient stimuli, (2) they influence causal attributions (the salient person or feature is seen as more causally influential in a social context), (3) there is better recall for salient persons, (4) evaluations of salient individuals are more extreme, and (5) salience increases the coherence of an impression (Fiske and Taylor, 1984). These properties of salient stimuli have been called "top of the head" phenomena (Taylor and Fiske, 1978) because they seem to occur due to attentional focus rather than to deeper levels of cognitive processing.

We propose that the potential consequences of salience due to a disability are as follows: (1) in a mixed group, the person with a disability will attract more spontaneous attention than other members, (2) nondisabled individuals are more likely to focus on the disability than on other aspects of the person, (3) the disability is likely to be seen as responsible for a variety of behaviors and outcomes, and (4) the extra attention is likely to create the illusion that people with disabilities differ more from others than they actually do (Langer and Imber, 1980). (5) An attempt will be made to fit the person into existing "disabled person" schemata and prototypes; these are likely to have been formed through superior recall of distinctive and extreme cases (cf. Myers, 1990, p. 357) such as media presentations of Terry Fox and Rick Hansen, images of blind beggars and circus "freaks," as well as the familiar pictures of cute, helpless, "unfortunate" children on little crutches — images which have, in the past, characterized a variety of major fundraising campaigns (cf. Adler et al., 1991; Elliott and Byrd, 1982). (6) The person with a disability is likely to be perceived coherently (i.e., a stereotyped "handicapped person"), the evaluation of whom can be either very positive (e.g., courageous hero) or negative (e.g., helpless cripple), depending on the circumstances (Katz et al., 1988). Data indicate that the balance of the favorable–unfavorable evaluation dichotomy may be tipped toward the negative by eliminating social desirability effects or by the possibility of personal contact, especially if contact may be avoided (Eberly et al., 1981; Gibbons et al., 1980; Semmel and Dickson, 1966; Stovall and Sedlacek, 1983).

Difficult Interactions Cause Self-Focus and Negative Affect: The Attentional Consequences of Task Difficulty

A social encounter with a novel, salient, or distinctive individual, such as a person who has a disability, is likely to be viewed as a difficult task. A variety of studies have shown that tasks judged difficult elicit anxiety

and more thoughts, especially negative self-focused and self-evaluative thoughts, than easier tasks (Daly *et al.*, 1989; Fichten *et al.*, 1988); these, in turn, can exacerbate the negative affect experienced.

In addition to studying the impact of interpersonal factors on self-focused attention, effects of both environmental and dispositional factors have also been examined. Studies of the consequences of environmental factors have manipulated self-focus through the presence of props, such as video cameras, audiences, mirrors, and tape recorders (Carver and Scheier, 1986; Wicklund, 1975). Studies of dispositional factors have evaluated correlates of self-focusing through use of the Self-Consciousness Scale (Fenigstein *et al.*, 1975; Scheier and Carver, 1985). Generally, manipulated and dispositional self-focusing have shown similar effects on self-evaluations (Buss, 1980; Carver and Scheier, 1981).

When attention is directed within oneself (self-focused attention) a variety of consequences, primarily negative ones, generally ensue. These include anxiety and negative self-evaluation (Borden et al., 1993; Carver *et al.*, 1983; Fiske and Taylor, 1984; Hope and Heimberg, 1987; Ingram, 1990; Ingram and Kendall, 1987). In spite of a vast literature, there has been little investigation of information processing in self-focused states.

Preoccupation with the Self-Prevents Accurate Perception and Evaluation of the Other Person in an Interaction: The Role of Distraction

Interaction difficulties can also arise because self-focusing prevents paying specific attention to another person or to a task at hand. For example, data show that people who are "cognitively busy" have their cognitive resources depleted, leaving little attention available for accurate evaluations of others (Gilbert and Krull, 1988; Gilbert *et al.*, 1988). Indeed, data show that "cognitively busy" individuals were more likely to apply stereotypes than non-busy people (Gilbert and Hixon, 1991).

The expectation that one will interact with a person who has a disability has been shown to result in preoccupation with one's own behavior — to the detriment of correcting any errors in perception (Osborne and Gilbert, 1992). When an interaction task is difficult, preoccupation with negative self-focused thoughts is expected to further detract from accurate perception of the other, resulting in "mindless" assessment of the other person, with consequent "top-of-the-head" schema and prototype based categorizations. Indeed, a recent investigation by Osborne and Gilbert (1992) shows that (1) evaluations of others by "cognitively busy" perceivers were biased, and (2) that individuals who expected to play an active or

demanding role in an upcoming interaction were preoccupied with self-focused thoughts and with the preparation of their own behavior, (3) failed to correct erroneous impressions of the other person, and (4) had relatively more self-focused and fewer other-focused thoughts than people who expected to play a passive or familiar role in the interaction. Thus, expectation of an active role is likely to contribute further to interaction difficulties.

The Attentional Mechanisms Model of Interaction Strain

The AMMIS is based on the principles described above. It is an attempt to provide a coherent, interlocking series of hypotheses to account for the emergence of negative cognitions, affect, and evaluations in interactions with people who are "different" in some important way. Understanding the genesis of such inhibitory factors will lead to the development of better techniques to change unfavorable attitudes and discriminatory behaviors.

The model postulates that stereotyped negative evaluations of persons with disabilities are due to attentional factors, primarily to aspects of other-focused attention and to "mindless" information processing which is exacerbated by cognitive "busyness" due to self-focusing. Further, the model proposes that negative cognitive and affective reactions, such as the discomfort, negative self-focused thoughts, and low self-efficacy expectations which characterize nondisabled individuals' thinking about interacting with a stranger who has a disability, are mediated by the effects of attentional
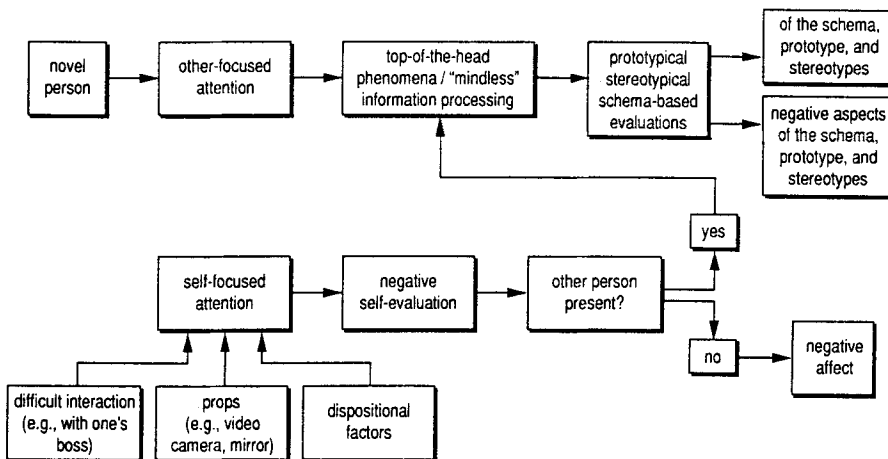

Fig. 1. Attentional Mechanisms Model of Interaction Strain (AMMIS).

focus, primarily by heightened self-focused attention. Thus, we contend that attentional focus and attentional mechanisms — which have recently received considerable attention in both social and clinical psychology — lie at the heart of interaction difficulties and that it is through modifying attentional processes that we can facilitate problem-free interaction.

TESTING THE MODEL

A model's utility is based on its ability to explain findings not used in its formulation and on its ability to make accurate predictions. Therefore, key aspects of the AMMIS must be tested prospectively. A series of suggestions as to how this can be done follows.

Evaluation of Prototypes and Schemata About People with Disabilities: What Is the Prototypical "Disabled Person" Like?

Before trying to eradicate "top-of-the-head" imagery, it is necessary to understand what these images are actually like. Both we and others have examined positive and negative personality characteristics (stereotypical evaluations) attributed to college students with disabilities (Fichten and Amsel, 1986, 1988; Fichten et al., 1989; Weinberg, 1978). While such work with traits (adjectives such as honest, dependent) has been interesting, recent investigations in social perception have shown that typological views about others — for example, person prototypes (nouns or noun phrases such as a bookworm, a do-gooder, a cripple, a blind beggar) — are more powerful organizers of social information than are associations built on relationships between traits (Andersen et al., 1990; Anderson and Sedikides, 1991).

The most complex and inclusive organization of information about people is the schema; this involves a coherent, structured set of cognitions, including some knowledge about the person, some relationships among the various cognitions about the person, and some specific examples (Taylor and Crocker, 1981). Sears et al. (1985) provide a good illustration of a person schema about the prototype, "'a preppie:' a WASP college student who wears alligator shirts and khaki pants, buys clothes from L. L. Bean, is partial to pink and kelly green, sports Oxford cloth button-down shirts with madras ties, and likes to sail and jog and play tennis. This 'preppie' schema would probably not include going bowling, wearing Caterpillar Tractor caps, driving a 1970 Chrysler Imperial, or having a beer belly" (p. 83).

While media images — both positive and negative — provide proto-types for our schematic views about people with various disabilities, it is difficult to know how able-bodied individuals view the prototypical "dis-abled person" in different contexts (e.g., a wheelchair user accountant, a hearing impaired nurse, an amputee sales clerk, a blind co-worker) and what kinds of schemata people have about the values, activities and beliefs of peers with different disabilities. Because data show that prototypes and schemata are more powerful in simplifying and organizing complex inter-personal information, and because such pre-existing cognitive structures in-fluence how we perceive and interpret new information, it is essential that investigations about typological views concerning people with different dis-abilities be conducted (Crocker & Lutsky, 1986). According to the AMMIS, such prototypical views can most easily be obtained by providing subjects who are cognitively busy (e.g., experiencing self-focused attention) with minimal information about various categories of disabled stimulus persons.

Effects of Novelty on Other-Focused Attention and "Mindless" Information Processing

As proposed in the top row of the AMMIS model, an expected con-sequence of the novelty and salience of a person is heightened other-fo-cused attention. Coupled with "mindless" evaluation of the characteristics of the individual, this is expected to result in "top-of-the-head," schema-based evaluations. This tendency is likely to be exacerbated when people are in a self-focused state — a condition which may be created in a variety of ways, including the prospect of an encounter with a novel person such as someone who has a disability (see bottom row of the AMMIS model).

If the schema or prototype contains mainly negative elements, then the prospect of a difficult interaction (i.e., with a novel individual), com-pared to an encounter with a non-novel individual, should result in (1) the activation of negatively valenced aspects of the prototype (e.g., a social iso-late, a loser), (2) negative stereotyped evaluations (e.g., nervous, depend-ent) (3) negative schematic evaluations (has few friends, doesn't go out much), as well as (4) relatively more negative thoughts about the other person (e.g., she will fail).

Should the schema be positive, then the prospect of an interaction with a novel individual should (5) activate positive aspects of the prototype (e.g., an over-achiever), (6) cause the formation of a positive stereotyped evaluation (e.g., kindhearted, courageous), and (7) result in positive sche-matic evaluations (e.g., attends fund raisers, helps others). Also, (8) rela-

tively more positive other-focused thoughts (but not necessarily self-focused) would be expected.

Encounters with novel individuals are likely to result in (9) more other focused thoughts than similar encounters with non-novel individuals; this should be true whether the "novel" stimulus person is negatively valued (e.g., prospect of interaction with a welfare recipient), positively valued (e.g., prosperous professional), or neutral. However, (10) the nature of the novelty should have an impact on the valence of other-focused thoughts (positive/negative).

These hypotheses related to novelty need to be tested by evaluating social and situational self-efficacy expectations, self and other evaluations, self and other-focused thoughts concerning future interactions, social anxiety, as well as behavioral intentions in a variety of contexts. To help in this endeavor, Table I lists positive and negative self, other, and situation-focused thoughts which we have found occur reasonably frequently in casual encounters between nondisabled and disabled acquaintances.

Table I. Examples of Thoughts About Peers with Disabilities

Positive codes
   Self-focused subscale
      (S1)   Want contact with other: "I'd like to get to know her."
      (S2)   Knowing what to say/do: "I'll ask about that later."
      (S3)   Positive consequences for self: "I'm sure I'll have a good time."
      (S4)   Positive affect: "I feel good about my ability to get along with people."

   Other-focused subscale—Positive codes
      (O1)   Positive consequences for other: "She'll appreciate my making the first move."
      (O2)   Other is "OK": "She seems like a nice person."

   Situation focused subscale—Positive code
      (N1)   Situation will turn out favorably: "This sounds like fun."

Negative codes
   Self-focused subscale
      (S1)   Want to avoid contact with other: "I'll pretend I didn't see her."
      (S2)   Uncertainty about what to say/do: "Should I ask her or not?"
      (S3)   Negative consequences for self: "Others will avoid me if I get too friendly with her."
      (S4)   Negative affect: "I feel really uncomfortable."

   Other-focused subscale
      (O1)   Negative consequences for other: "She might get offended."
      (O2)   Other is not "OK": "She can't do anything."
      (O3)   Pity implied but not overt: "I'd kill myself if I became handicapped."

   Situation-focused subscale
      (N1)   Situation will turn out unfavorably: "Things won't go well."

Difficult Interactions and Self-Focused Attention

The model proposes that the prospect of a difficult interaction, such as an encounter with a novel stimulus person (whether this person is "novel" in a positive or in a negative way) is likely to result in heightened self-focused attention. Therefore, the prospect of an encounter with a "different" peer should result in more discomfort and self-focused thoughts, especially negative ones, than would interaction with a familiar peer. This is exactly what we recently found in a preliminary investigation of the effects of novelty (Fichten et al., 1994). Also, the results of a recent investigation by Osborne and Gilbert (1992) show (1) that people expecting to interact with a non-novel individual corrected a previously formed erroneous impression of the stimulus person whereas those who expected to interact with a disabled stimulus person did not, and (2) that people who expected to interact with a person who had a disability devoted more thought to preparing their own behavior and less thought to the other person's attributes than did those who expected to interact with a nondisabled individual.

The model's predictions about the effects of expecting a difficult interpersonal situation need further evaluation through assessment of the effects of novelty on components of self-evaluation during social encounters (c.f. Mahone et al., 1993). It may be of particular interest to examine the hypothesis that self-focusing — either dispositional or manipulated — is expected to (1) increase the relative frequency of negative self-focused thoughts when interaction with a novel (disabled) peer is contemplated, as well as to (2) increase the frequency of both positive and negative self-focused thoughts when the stimulus person is an "average" nondisabled peer, and that (3) such "cognitive busyness" results in more "mindless" evaluation of the other person.

Disrupting Negative Self-Evaluations Caused by
Self-Focused Attention

Symbolic modeling (i.e., visual presentation of appropriate behavior) has long been known to be effective in changing affect and behaviors in many realms (cf. Gambrill, 1977). Although a variety of mechanisms for its action have been suggested, Albert Bandura, one of the most influential writers in the social learning area, has proposed that most interventions, be they cognitive or behavioral in nature, exert their beneficial effects through changing self-efficacy beliefs (Bandura, 1977; 1982). Therefore, symbolic modeling would be expected to alter low social self-efficacy expectations characteristic of relations with people who have a disability. Also, symbolic

modeling should exert a positive effect on self-focused thoughts by altering the perceived difficulty of interaction and changing, "I don't know what to do" thoughts; this should decrease the frequency of other types of negative self-focused thoughts as well (e.g., feelings of discomfort, negative consequences, wish to avoid — examples of thoughts about interactions with peers who have disabilities can be found in Table I). Moreover, modeling of appropriate behaviors with a person who has a disability would be expected to decrease the frequency of negative self-focused thoughts without necessarily altering the frequency of other-focused thoughts.

It should be noted, however, that showing people how to engage in new behaviors with someone who has a disability could highlight inadequacies in both the nondisabled individual as well as in the person with the disability; it creates a "mindful" awareness (1) that the person with a disability is inadequate in some way and cannot do things the way others can, and (2) that the nondisabled person is inadequate and needs to learn how to do things differently because he/she doesn't know what to do in this new situation. Thus, a modeling approach could result in negative affect, negative self-evaluation, and negative other-focused thinking. Indeed, some of our previous work indicates that other focused thoughts can become highly negative in helping situations (Fichten et al., 1991), while our recent work on self-efficacy beliefs suggests that symbolic modeling may not be the best approach when the goal is to make nondisabled people more comfortable (Fichten, Lennox, Robillard, Wright, and Amsel, in press).

We expect that symbolic modeling can have either a negative or a positive impact, depending on prior awareness of difficulties and on the expectation of future interaction requiring the modeled behavior. Because of the importance of both the theoretical and the applied issues, this topic should be investigated by evaluating the effects of symbolic modeling on behavior, affect, self-efficacy beliefs, and both self and other-focused thoughts in different circumstances.

Disrupting Mindless Information Processing
Through Manipulation of Other-Focused Attention

An alternate means of changing mindless, stereotyped evaluations of peers with disabilities is to make people question their assumptions, schemata, and prototypes through paying close, critical attention to aspects of the other person which are "different" (Frable et al., 1990; Langer, 1989a, 1989b; Langer and Piper, 1987). This should eliminate "top of the head" effects and allow an individual with a disability to be seen not as a prototypical "handicapped person" but as an individual, one of whose attributes

is a disability which has both positive and negative aspects. That this line of thinking has merit has been demonstrated by an important study conducted by Langer *et al.* (1985). These investigators showed that teaching children to make new, active distinctions, a technique they call "mindfulness training," can be an effective means of reducing "mindless" prejudice and discrimination (i.e., information processing which relies on previously formed global, generalized impressions). Langer *et al.*'s (1985) results suggest that "mindfulness training" (1) can teach people that disabilities are *function* and not *people* specific, (2) can reduce inappropriate discrimination, and (3) can result in less avoidance of those with disabilities. In other realms, too, data show that "mindful" evaluation has benefits. For example, people who were taught to be mindful were less likely to comply with unjustified requests (Langer *et al.*, 1978). They were also more likely to think of creative solutions to various problems (Langer and Piper, 1987) and to use needed information which, at first, seemed irrelevant (Chanowitz and Langer, 1981).

If such results are replicable with other populations in different contexts, then modifying aspects of other-focused attention to make evaluations more "mindful" will alter attitude and behavior change efforts in many realms. While there is considerable controversy about the merits of global versus situation specific mindfulness training, it certainly seems as though situation specific training can have an impact on new evaluations in the trained context (cf. Mayer, 1991). In addition to the potential applied benefits, research on the effects of "mindfulness training" will also make a theoretical contribution by evaluating those assumptions of the model which deal with the nature and content of thoughts about the other person — aspects which, we believe, mediate the changes observed by Langer and her colleagues.

CONCLUSIONS

The model we propose — the AMMIS — is in its preliminary stages. It is to be expected that as data become available, specific predictions will be confirmed, disconfirmed, or qualified. Relevant data from the rehabilitation literature as well as from psychology and counseling are needed to test the variety of assumptions and predictions of the model. The merits of different components of the model, thus, remain to be tested. If the model's predictions are supported, hypotheses about the effects of possible reactions by people with disabilities must also be proposed and tested. This will extend the model's utility and assist in the identification of promising intervention strategies which foster problem-free interaction.

"In the past, disabled persons were placed in institutions and they were consequently 'out of sight, out of mind.' However, now that the majority live in the community, we see them more often. Yet we are not sure how to interact with them" (COC, 1981, p. 33). There have been many legal and architectural changes during the Decade of Disabled Persons (1983–1992). These have increased the visibility of people with disabilities on the streets and in our educational, recreational, and work environments. A key component of the physical, social, and economic integration of people with disabilities involves comfortable and effective interaction with nondisabled individuals in a variety of settings. Therefore, study of the genesis of attitudes and of means to reduce prejudice, stigmatization, and discrimination has become a priority for the 1990s. Our goal in proposing the Attentional Mechanisms Model of Interaction Strain was to facilitate and help guide this important endeavor.

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