Attitudes Toward the Participation of Individuals With Disabilities in Physical Activity: A Review

Yeshayahu Hutzler

This review covers articles published during the recent two decades on attitudes toward the participation of individuals with disabilities in physical activity. Research literature has been retrieved and analyzed by content and quality, across research type categories (cross sectional vs. intervention) and members of the participation context (i.e., professionals, peers, and participants with disabilities). The underlying theories, instruments, methodological approaches, and outcome variables are discussed in each category. Contact theory has served as the most popular theoretical foundation, however, without significant effectiveness in most trials. Gender has almost unanimously been recognized as a significant factor in all participant categories. Females tend to express more positive attitudes toward inclusion than males do. Participation in Adapted Physical Activity (APA) courses and previous experience with individuals with disability tend to improve professionals’ attitudes.

Participation of individuals with disabilities in physical activity has a tradition of over 50 years. Following Polloway, Smith, Patton, & Smith.(1996). Reid (in press) has suggested four paradigms or approaches depicting the historical development of educational and physical activity practice related to individuals with disability throughout the last century. According to Reid’s analysis, the first half of the 20th century followed a facility-based paradigm, where individuals with disabilities were mostly institutionalized. Starting with the early 1950s, the service based approach in physical education appeared, known as adapted physical education, whose main goal was to provide services to “students with disabilities who may not safely or successfully engage in unrestricted participation in the vigorous activities of the general physical education program” (Committee on Adapted Physical Education, 1952). With this approach, students with disabilities were still treated...
in exclusive settings and programs. A major breakthrough toward integrated participation came in the late 1970s (PL 94-142: Federal Register, 1977), when legislation prompting placement of students with disabilities in general education settings was adopted. However, it was not until the 1980s that educational leaders have moved toward the support based approach promoting technical, natural, or human assistance for individuals with a disability, thus enabling them to function in inclusive settings, that is, within natural settings of their community.

Nirje (1969) appears to be among the first scholars challenging the separation model of specialized education systems for children with mental and physical disabilities. He named this concept the *normalization principle*, inspiring Wolfensberger (1972) and others to launch considerable changes in the educational support systems, moving toward practices labeled “mainstreaming,” “integration,” and finally, “inclusion.” Stainback and Stainback (1996) have defined inclusion as a cohesive sense of community, acceptance of differences and responsiveness to individual needs. The fundamental principle of inclusion is the valuing of diversity in the human community (Kunc, 1992). For some authors, inclusion is viewed as a moral imperative (Bricker, 1995; Rogers, 1993; Stainback & Stainback, 1996) consisting of a noncategorical, almost limitless inclusion of children of all abilities. With this in mind, inclusion becomes more than simply placing children with and without disabilities together. It means allocating services, changing attitudes, and developing a sense of responsibility, suggesting that instead of getting a child with a disability ready for the regular class, the regular class gets ready for this child.

Although inclusion has never been legally mandated in the USA, and schools are responsible only for providing the Least Restrictive Environment (LRE) as defined by Individuals with Disabilities Educational Act (IDEA), the American Alliance of Health, Physical Education, Recreation, and Dance (AAHPERD) has developed a position statement on inclusion and physical education (AAHPERD, 1995). This statement provides gold standards for inclusion practices in American schools, suggesting a variety of placements and supportive modalities (assistant teacher, co-teaching, teacher-aid, peer tutoring) that need to be developed and used in order to account for LRE.

Following the USA, an increasing number of countries, including Australia (Downs, 1995), Canada (Active Living Alliance of Canadians with a Disability, 1994), Czech Republic (Kudláèek, Válková, Sherrill, Myers, & French, 2002); Finland (Heikinaro-Johansson, Sherrill, French, & Huuhka, 1995), and Israel (Hutzler, Fliess, Chacham, & Van den Auweele, 2002) have adopted legal, administrative, and practice related changes whose aim is the participation of children with disabilities in general education systems.

The most recent educational approach appearing in the 1990s is called empowerment and self-determination, acknowledging the importance of individuals’ decision-making and personal power over their lives, rather than compliance and dependence upon others. These relative fast paradigmatic changes occurring throughout the second half of the last century may have influenced practitioners’ attitudes toward the participation of individuals with disability in physical activity.

The recently publicized International Classification of Functioning Disability and Health (ICF: WHO, 2001) has put forward the important role of
environmental agents in changing architectural, instrumental, attitudinal, and other restrictive factors. Administrators, principals, teachers, and other education professionals, who could be considered environmental agents, are seldom likely to welcome changes that encourage architectural, instrumental, and didactical variability. In fact, several authors, including Block (1999) and Goodwin and Watkinson (2000) have articulated serious concerns that although more than two decades have passed since the adoption of IDEA legislation in the USA, attitudes toward individuals with disabilities among physical education preservice and inservice teachers have not improved. While Block (1999) proposed to revisit the basic assumptions about the environment of physical education in which children are to be included, Downs (2003), posited that a critical agent of change in the restrictive environmental factor is delivering an understanding of the functional and attitudinal limitations to participation and how to remove them. DePauw and Doll-Tepper (2000) have gone beyond this notion and urged to address change in general physical education so that it be less restrictive.

The study of attitudes provides an important means to measure environmental restrictions deriving from negative reactions toward inclusion of professionals and peers. Attitude is defined in this review as “an idea charged with emotions which predisposes a class of actions to a particular class of social situations” (Triandis, 1971, p. 2). This definition includes the three components (cognitive, affective, and behavioral attributes) typically identified with attitudes toward disability (Antonak & Livneh, 1988; Tripp & Sherrill, 1991).

The aim of this review article is to describe and analyze the literature published thus far with respect to attitudes toward the participation of individuals with disability in physical education and sports.

**Organizational Analysis of the Participation Context**

The ICF addresses three major terms describing the range of the interactions of an individual with a disability with his or her environment. These include (a) the impairment of the affected body structures (e.g., lungs, joints, limbs, brain) and functions (e.g., respiration, range of movement, muscular strength, motor control, decision-making); (b) the limitation in activities required for daily living, vocational engagement, and leisure time; and (c) the restriction of participation in socially appropriate activities (WHO, 2001). The typical physical activity context of participants with a disability is one in which one or a few individuals with a disability are placed together with a large number of individuals without any significant disability. The aims of the group usually derive from the functions available to the individuals without disability, and the individuals with disability eventually try to share them. Most general physical education lessons in which a child with a disability is included represent such a context. Typical scenes depicting this context include, for instance, a child with a paralyzed leg trying to participate in a catching game or a ball game, a child using a wheelchair trying to participate in athletics, or a child with visual impairment in a swimming class. Recent publications provide insight into practice-based vignettes of restricted or not restricted participation in physical activity (Hodge, Murata, Block, & Lieberman, 2003; Lieberman, Houston-Wilson, & Kozub, 2002).
Based on ICF (WHO, 2001) taxonomy, the factors relating to this context can be divided into following major categories:

**Environmental Factors**

- *Professional factors*. This category includes variables of participating professionals (teachers, social workers, coaches, and significant others involved in the inclusion process), e.g., gender, age, previous experience, formal and informal education, and self-efficacy.

- *Peer factors*. This category includes variables of the participating children without disabilities who compose the larger part of the class population, e.g., gender, age, previous experience, existing or missing peer modeling (i.e., is the individual with disability the only one in his or her environment and are other individuals with disability available to share experiences?).

**Personal Factors**

This category pertains to variables of the participating children with disability who are included in the general curriculum within a regular class, e.g., gender, disability, number of children with disability included in one session, and personality traits of each child.

From an ecological perspective (Davis & Burton, 1991), the factors mentioned in the previous section create a contextual frame of reference that is characterized through direct links between professional, peer, and individual variables. These links are expressed through contextual relations that may affect the outcome of the interaction. For instance, if a teacher has low self-efficacy, he or she is likely to be less persistent and demanding with children who have difficulties in learning a specific task than teachers who have high self-efficacy (Gibson & Dembo, 1984). In turn, children with difficulties will learn that they are not required to persist as much as their peers, and their motivation toward persisting on learning the task will decrease.

**Literature Search**

A literature search was conducted to retrieve articles related to the study of attitudes toward the participation of individuals with disability in physical education. Participants in the studies belonged to the subject categories that were referred to earlier, including professionals, peers, and individuals with a disability. The events to which attitudes were generated always included the participation of one or more individuals with a disability in a general class. A computerized search of English Speaking Citations in the Sport Discus (SIRC), National Institute of Rehabilitation (NARIC), and Educational Resources (ERIC) databases was performed, using the descriptors “attitudes,” “physical activity,” and “disability.” Another source of information retrieval was the research digest of the *Adapted Physical Activity Quarterly* and the recently published on-line newsletter of the European Thematic Network into Adapted Physical Activity (THENAPA). Data were delimited to published articles in scientific journals, containing research designs aimed at the participation of individuals with a disability in physical activity. Studies aimed merely at developing new instruments were not included in this
analysis. All together, 39 articles were retrieved. A descriptive analysis was performed by means of a classification system deriving from the contextual factors and their specific variables as described earlier. First, articles were divided between cross-sectional and intervention studies. Twenty-three cross-sectional and 16 intervention studies were identified. The overwhelming majority of the articles (n = 26; 66.6%) were published in the *Adapted Physical Activity Quarterly*. Four were published in *Perceptual and Motor Skills*, two in *Therapeutic Recreation Journal*, and one in each of seven further professional journals. At the second stage, the cross-sectional studies were classified according to the participants of the attitude survey, i.e., professionals, peers, and individuals with disability.

At the next stage, the author performed a reading analysis on each article, sorting the information provided in the article about its methods and results into the main descriptive categories appearing in Tables 1–4, including (a) authors and year of publication, (b) participants, (c) participant variables, (d) description of methods and assessment instruments, (e) methodological quality, and (f) major outcomes. The analysis of methodological quality of each individual study was established, based on a self-developed scoring instrument. The scoring instrument included criteria related to methodology and presentation of information incorporated in two significant literature analyses pertaining to adapted physical activity (Porretta, Kozub, & Lisboa, 2000; Sherrill & O’Connor, 1999). One point was assigned to each of the following: (a) theoretical approach, (b) hypotheses or research questions, (c) sampling procedure, (d) participants, (e) data collection, (f) instrument validity, (g) specific validity during the present study, (h) instrument reliability, (i) specific reliability, (j) scale description, (k) response rate, (l) non-response bias, (m) scores, (n) effect-size, and (o) statistical analysis. A dichotomy coding procedure was developed. Each item that was present in a study was coded with 1 point, absent items with 0. The same investigator coded all studies. Since studies varied across quantitative survey studies, qualitative survey studies, and intervention studies, not all 15 scoring items were relevant to all reviewed articles. For example, in the intervention articles, items (l) and (m) and in the qualitative designs, items (g) to (o) were not rated. Thus a percent score of the present out of the expected items was calculated and reported. In the sections that follow, the main trends appearing in each of the main subject categories will be described and discussed.

**Cross Sectional Studies—Professionals’ Attitudes**

12 studies dated 1984–2002 were retrieved. The aim of these studies was to describe attitudes of physical activity professionals toward including participants with disabilities into their classes (Table 1). Nine articles focused on physical education classes (four concerning PE teachers, four about PE majors, and one about both), two articles on public school coaches, and one study on aquatic instructors.

*Theory and Instruments.* Most studies (n = 9) adopted the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980) or its successor, the Theory of Planned Behavior (TPB; Ajzen, 1985) as its theoretical frame of reference. According to TRA, behavioral intention is an outcome of attitudes (i.e., an individual’s evaluation whether a behavior is favorable or not) and a subjective norm (i.e., expected
<table>
<thead>
<tr>
<th>ID</th>
<th>Authors (Year)</th>
<th>Participants</th>
<th>Independent variables</th>
<th>Theoretical construct and Instruments</th>
<th>Quality Score %</th>
<th>Major outcomes</th>
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<tbody>
<tr>
<td>1</td>
<td>Bishop, Rizzo &amp; Silva (1999) [5]</td>
<td>119 USA youth coaches returning to a random sample of all registered coaches (25.4% return rate; 76% males)</td>
<td>• gender • previous contact • coaching experience</td>
<td>TRA Coaches’ attitudes toward payers with disabilities: baseball (7 subscales)</td>
<td>67</td>
<td>A significant gender mail effect on the subscale; beliefs, females &gt; males; a significant experience effect on the subscales; beliefs and subjective norm, experienced &gt; novices; previous contact had no significant effect.</td>
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<td>2</td>
<td>Conaster, Block &amp; Gansender (2002) [1]</td>
<td>111 (82 female &amp; 29 male) aquatic instructors from 25 states across the USA</td>
<td>• level of disability</td>
<td>TRA; aquatic instructor; belief toward inclusion (AIBTI); 3 point, 21 items scale</td>
<td>67</td>
<td>Attitudes toward mild disabilities &gt; severe disabilities</td>
</tr>
<tr>
<td>3</td>
<td>Downs &amp; Williams (1994) [1]</td>
<td>371 preservice PE students (53% males) in 4 European countries</td>
<td>• previous contact • gender • type of disability</td>
<td>TRA; physical educator’s attitudes toward handicapped PEATH II (Rizzo, 1984)</td>
<td>47</td>
<td>females &gt; males; attitudes toward LD &gt; PD, SD; previous experience = significant factor</td>
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<tr>
<td>No.</td>
<td>Study</td>
<td>Participants</td>
<td>Variables</td>
<td>Measure(s)</td>
<td>Report</td>
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<td>4</td>
<td>Folsum-Meek, et al. (1999)</td>
<td>2943 students</td>
<td>academic major, gender, experience with disability</td>
<td>TRA; PEATID III</td>
<td>73</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(60% males)</td>
<td></td>
<td></td>
<td>Non PE majors &gt; PE majors; females &gt; males; students with hands-on experience &gt; without experience</td>
<td></td>
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<td>5</td>
<td>Hodge &amp; Jansma (2000)</td>
<td>704 college &amp; university students</td>
<td>gender, course preparation, type of disability</td>
<td>TRA; Physical educators' attitudes toward teaching individuals with disabilities PEATID III</td>
<td>73</td>
<td></td>
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<td></td>
<td></td>
<td>at 40 institutes in 21 U.S. states</td>
<td></td>
<td></td>
<td>Females &gt; males; attitudes toward LD &gt; PD, SD; course preparation = significant factor</td>
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<tr>
<td>6</td>
<td>Kozub &amp; Rizzo (1998)</td>
<td>295 public school coaches of grades 9-12 (84% males) in Midwest USA</td>
<td>Provision of athletic opportunities for adolescents with disability</td>
<td>TRA; Coaches’ attitudes toward inclusion; questionnaire CATIQ</td>
<td>79</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>Very few ~ 5% provide athletic opportunities for adolescents with disability</td>
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<tr>
<td>7</td>
<td>Kowalski &amp; Rizzo (1998)</td>
<td>133 PE students</td>
<td>gender, perceived competence, number of APA courses studied</td>
<td>TRA; PEATID III</td>
<td>60</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>Perceived competence = best, significant predictor; number of APA courses = significant predictor</td>
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<td>8</td>
<td>Lieberman, Houston-Wilson, &amp; Kozub (2002)</td>
<td>148 (96 female, 52 male) PE teachers in New York and Minnesota states who had taught children with visual impairments (VI)</td>
<td>gender, inservice training, number of children with VI, professional preparation variables, years of teaching experience</td>
<td>10-item questionnaire of perceived barriers to including children with VI in general physical education</td>
<td>83</td>
<td></td>
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<td></td>
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<td>A logistic regression analysis failed to indicate significant predictors of perceived barriers.</td>
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<tr>
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<tr>
<td>9</td>
<td>Rizzo &amp; Vispoel (1991) [1]</td>
<td>94 PE teachers (50% males) in Midwest USA</td>
<td>• perceived competence • number of APA courses studied • type of disability</td>
<td>TRA; PEATH II</td>
<td>53</td>
<td>Attitudes toward LD &gt; MR, BD; perceived competence, experience with students with special needs = strong significant predictor for positive attitudes.</td>
</tr>
<tr>
<td>10</td>
<td>Rizzo (1984) [1]</td>
<td>194 PE teachers (60% males)</td>
<td>• gender • type of disability</td>
<td>TRA; PEATH</td>
<td>77</td>
<td>LD &gt; PD; grades K-3 &gt; grades 7,8</td>
</tr>
<tr>
<td>11</td>
<td>Schmidt-Gotz, Doll-Tepper &amp; Lienert (1994) [7]</td>
<td>722 teachers (60% females); 369 students (60% females) in Berlin region, Germany</td>
<td>• gender • professional experience • previous contact • type of disability • age • perceived competence</td>
<td>PEATH II</td>
<td>60</td>
<td>Attitudes toward PD &gt; LD; females &gt; males; previous contact = not significant factor; previous competence = significant factor</td>
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<td>12</td>
<td>Tripp (1988) [6]</td>
<td>38 regular PE teachers (52% females); 47 adapted PE teachers (52% females)</td>
<td>• type of professional preparation • type of disability</td>
<td>Attitudes toward disabled persons; ATDP with a list of 10 health conditions</td>
<td>20</td>
<td>Attitudes toward MR, CP, ED &gt; amputation, epilepsy; attitudes less than median in both groups.</td>
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Abbreviations: LD = learning disorders; PD = physical disabilities; BD = behavioral disorders; SD = sensory disorders; CP = cerebral palsy; MR = mental retardation; IEP = individual educational program; TRA = Theory of reasoned action.

judgments of significant others). For predicting these constructs, several personal and environmental factors need be taken into consideration and evaluated, specifically individuals’ outcome evaluation, belief strength, normative beliefs, motivation to comply, and the relative importance of the attitudinal and normative components.

Based on this theoretical background, instruments were developed measuring Physical Educators’ Attitudes Toward Handicapped (PEATH II), Physical Educators’ Attitudes toward Teaching Individuals with Disabilities (PEATIDIII), or Aquatic Instructors’ Beliefs Toward Inclusion (AIBTI). The first two instruments in this section are the 2nd and 3rd versions of Rizzo’s efforts over the last two decades to provide insight into this topic. The instrument uses 12 statements toward an identified category of students with special labels. Construct validation of this instrument was recently established (Folsum-Meek & Rizzo, 2002), categorizing statements into three constructs:

1. Outcomes of teaching students with disabilities (e.g. an acceptance of children with disability by their peers, the possibility that children with disability would disrupt the harmony of the class).
2. Effects on student learning (e.g., learning to work together toward achieving goals, developing a more favorable self concept of the children with disabilities).
3. Need for more academic preparation (i.e., not having sufficient training).

Instruments using TRA and TPB as their theoretical guidelines were also developed for Greek (Theodorakis, Bagiatis, & Goudas, 1995) and Czech (Kudláèek et al., 2002) populations.

Participant Variables and Outcomes. Physical educators’ gender was more or less equally distributed. Yet, among the coaches reported by the coaches reported by Bishop, Rizzo and Silva (1999) as well as by Kozub & Porretta (1998), males dominated with 76% (n = 119), and 82% (n = 295), respectively. On the contrary, among the aquatic instructors surveyed by Conaster, Block, and Gansender (2002), the females dominated with 74% (n = 111). Females had more positive attitudes toward including children with disabilities in most studies that compared gender. Participant variables studied besides gender included professional experience or previous contact, course preparation in adapted physical activity, teachers’ perceived competence, age and disability of children taught, and teachers’ perceived competence. Research outcomes can be summarized as follows:

- Previous contact with children with disabilities appears to have controversial findings. While Rizzo and Vispoel (1991), who studied Midwestern teachers in the USA, and Downs and Williams (1994), who studied preservice PE students of four European countries, found previous experience to be a strong significant predictor, Schmidt-Gotz, Doll-Tepper, and Lienert (1994) found no significant effects for this predictor in either teachers or PE students in the Berlin area.

- Course preparation seems to be a significant factor for American college and university students (Hodge & Jansma, 2000; Kowalski & Rizzo, 1996). Research on attitudes toward inclusion in general school teachers has reported deficient course preparation (e.g. Reiter, Schanin, & Tiros, 1998; Vaughn, Schumm, Jallad, Slusher, & Samuel, 1996).
Teachers’ perceived competence was measured by means of one question within the PEATH II or PETTID III measures and has typically proven to be a significant predictor of positive attitudes (Kowalski & Rizzo, 1996; Rizzo & Vispoel, 1991; Schmidt-Gotz et al., 1994).

The ages of children taught was addressed in one study (Rizzo, 1984), reporting better attitudes toward K-3 grade children than toward children in grades 7-8.

The type of disability in children taught was reported in several studies, mostly showing better attitudes of American and European PE students and teachers toward children with learning disorders compared to children with physical disabilities, sensory disabilities, and mental retardation (Downs & Williams, 1994; Hodge & Jansma, 2000; Rizzo, 1984; Rizzo & Vispoel, 1991). However, in a large scale study in the Berlin region, Schmidt-Gotz et al. (1994) found contradictory results showing better attitudes toward physically disabled children compared to learning disabled. In general education, results of attitude surveys (e.g., Center & Ward, 1987; Siederis & Chandler, 1996) have often shown the same trend as the Berlin study, and perhaps the reason for the contradictory result in this study was because German teachers usually combine PE with another subject matter such as language, math etc. However, it must be noticed that the in the Berlin study, several methodological issues, including specific validity and reliability of the translated questionnaires and nonresponse bias, were not reported.

Cross Sectional Studies—Peers’ Attitudes

Four cross-sectional studies dated 1989–1995, focusing on describing peers’ attitudes toward children with a disability (Table 2) were reviewed. However, since the section reviewing intervention studies included many studies whose participants were peers (n = 9: Table 4), data appearing in these studies will be referred to in this section as well.

Theory and Instruments. Contact theory (Allport, 1954) was specifically named as the theoretical construct in two cross-sectional studies. This theory is a learning-behavioral theory, suggesting that contact between individuals may reduce prejudice and stereotypes, if carefully structured and implemented (Slininger, Sherrill, & Jankowsky, 2000; Sherrill, 1998). Specific conditions supporting positive attitude change toward individuals with a disability based on contact theory have been outlined in a comprehensive review article (Tripp & Sherrill, 1991) as well in one of the most widely cited APA textbooks (Sherrill, 1998). Results of more positive attitudes in 4-6th grade children attending inclusive vs. noninclusive classes were reported by Tripp, French, and Sherrill (1995) in support of this theory.

Participant Variables and Outcomes. Peers’ gender appears in most studies to be the most significant predictor for attitudes, in favor of the females (Block, 1995; Loovis & Loovis, 1997; Slininger et al., 2000; Tripp et al., 1995; Woodward, 1995). Having a family member or a close friend with disability is another correlate of positive attitudes (Block, 1995). A range of instruments was used including the Children’s Attitudes Toward Inclusion in Physical Education – Revised (CAIPE-R; Block, 1995; Obrusníková, Válková, & Block, 2003), the Pear Attitude Toward the Handicapped (Bagley & Válková, 1981), and a self constructed
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<th>Major outcomes</th>
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<tr>
<td>13 Archie &amp; Sherrill (1989) [6]</td>
<td>146 mainstreamed (73 males and 70 females) and 86 non mainstreamed (44 males, 42 females) children grades 5,6</td>
<td>• contact • gender</td>
<td>Children’s Attitudes Toward Handicapped scale</td>
<td>53</td>
<td>No significant differences between contactgroups or gender.</td>
</tr>
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<td>14 Block (1995) [1]</td>
<td>208 (males = 58%) students of grades 5,6 in North-Central Virginia</td>
<td>• school • gender • family • class</td>
<td>Children’s attitudes toward inclusion in physical education Revised CAIPE-R</td>
<td>67</td>
<td>Favorable significant attributes: being female, having family member/closefriend with disability, not attendingschool with many children with physical disability</td>
</tr>
<tr>
<td>15 Tripp, French, Sherrill (1995) [1]</td>
<td>455 students, grades 4-6 in integrated (119 female, 107 male) and segregated (122 female, 107 male) settings</td>
<td>• gender • setting • type of disability (condition: physical, learning, behavior)</td>
<td>Contact theory: PEATH; Peer attitude toward the handicapped scale (Bagley &amp; Green, 1981)</td>
<td>67</td>
<td>Females &gt; males; integrated &gt; segregated only for behavioral disability; confirming contact theory</td>
</tr>
<tr>
<td>16 Woodward (1995) [1]</td>
<td>33 (18 female, 15 male) children K-2, participating in leisure-recreation activities</td>
<td>• gender • type of disability</td>
<td>3 conditions, 5 items, 3-point likert scale</td>
<td>62</td>
<td>Wheelchair &gt; arm amputated, nondisabled males &gt; females</td>
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scale (Woodward, 1995). The most commonly used CAIPE-R is an inventory permitting specific descriptions of tasks and individuals presented in the inclusive setting.

**Cross Sectional Studies—Attitudes of Individuals With a Disability**

Seven studies dated 1984–2002 were reviewed under this category (Table 3). Three administered questionnaires, and the rest applied qualitative methodology. Although the objectives of these studies varied, common denominators are fairly visible. The number of participants in these studies is fairly low compared to studies of professionals’ or peers’ attitudes (Tables 1 and 2, respectively). One reason for this low number of participants could be the difficulty in approaching individuals who are scattered among many schools and communities. This low number of participants may also be the reason for the shift to in-depth studies rather than administrating questionnaires. The main research topics approached in these studies were the perspectives and beliefs of individuals with disability, mainly children and adolescents, concerning their physical activity.

**Theory, Instruments, and Findings.** The theoretical foundations of studies reviewed in this section varied considerably. Sherrill, Rainbolt, and Ervin (1984) implemented a sociological approach looking at factors (placement, family) that could enhance the attitudes toward participation. Goodwin and Watkinson (2000) posed an ecological perspective referring to “good days” and “bad days” as central themes for categorizing participants’ reactions to environmental conditions. Hutzler et al. (2002) have suggested a social constructivist theory, valuing individual powers (self-efficacy, goal perspective) adjacent to environmental agents (peers, important adults, type of physical activity) as mediating factors for their participation in activity. The most prevailing finding in the studies reported in this section was that about a half of the comments related to experiencing failure (e.g., bad days) during physical activity, suggesting that the mainstreamed environment often presents barriers to children’s social power. However, an encouraging finding in the study of Hutzler et al. (2002) was that about a half of the reactions to the failure experiences were regarded as supporting empowerment. Apparently, this finding depicts the importance of exposure to real-life within a mainstreamed setting, rather than keeping optimal control over graded task difficulty at a segregated setting.

**Intervention Studies**

Sixteen studies dated 1985–2003 were identified. (Table 4), comprising of intervention designs ranging from awareness activities lasting two hours (Grayson & Marini, 1996; Loovis & Loovis, 1997) to experimental programs lasting 15-18 weeks (Hutzler et al., 2002; Kisabeth & Richardson, 1985; Slininger et al., 2000; Vogler, Koranda & Romance, 2000). Participants’ ages varied among kindergarten children in one study, children grades 2-6 in four studies, adolescents in one study, and adult college students in 10 studies. Four studies out of the latter group specifically concerned PE students. Most of the studies measured peers’ attitudes, whereas the 4 studies including PE students measured professionals’ attitudes.

**Theory and Instruments.** Contact theory was specifically named or identified as the theoretical construct in most intervention studies. Contact theory was
Table 3  Attitudes of Participants With a Disability

<table>
<thead>
<tr>
<th>ID</th>
<th>Authors (Year) [Journal]</th>
<th>Participants</th>
<th>Independent variables</th>
<th>Theoretical construct and Instruments</th>
<th>Quality Score %</th>
<th>Major outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Blinde &amp; McCallister (1998) [3]</td>
<td>10 (17 male, 3 female) students, grades 4-11, physically impaired (15 congenitally)</td>
<td>• participation in PE  • emotional response</td>
<td>Tape recorded interview; content analysis to identify major themes</td>
<td>43</td>
<td>Participation often valued as limiting with reaction, e.g., sadness, embarrassment, “outsiders,” “teachers keep away”</td>
</tr>
<tr>
<td>18</td>
<td>Goodwin &amp; Watkinson (2000) [1]</td>
<td>9 (6 male, 3 female) elementary school students (grades 5,6) with physical disabilities</td>
<td></td>
<td>Focus group interviews; Semiotic cluster analysis</td>
<td>100</td>
<td>Dichotomic distribution of “good and bad days” representing “belonging bring benefits and participation” vs. “questioned competence, social isolation, and restricted participation”</td>
</tr>
<tr>
<td>19</td>
<td>Hutzler, Fliess &amp; Chacham (2002) [1]</td>
<td>10 (8 female, 2 male) students, grades 4-11, physically impaired (all congenitally impaired)</td>
<td>• situations and reactions during participation in PE  • empowerment</td>
<td>Intraindividual hierarchical analysis + traditional content analysis</td>
<td>86</td>
<td>Fairly similar distribution of reactions depicting situations and emotions limiting and supporting empowerment</td>
</tr>
<tr>
<td>20</td>
<td>Politino &amp; Smith (1989) [1]</td>
<td>80 emotionally disturbed (ED) children from 2 psych. hospitals; 390 children without disabilities</td>
<td>• disability</td>
<td>Pierrs Harris Self Concept Scale; Children’s Attitudes Toward Physical Activity (CATPA) Inventory</td>
<td>40</td>
<td>Significant difference: Able-bodied &gt; ED</td>
</tr>
</tbody>
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(continued)
Table 3  (continued)

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<tr>
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</thead>
<tbody>
<tr>
<td>21</td>
<td>Seaman (1984) [8]</td>
<td>75 orthopedically and neurologically impaired children in regular (34) and specialized APA programs (41) in LA, CA, USA</td>
<td>• type of program (regular vs. APA)</td>
<td>Self-rating 5-item scale + attitude inventory of 40 items; 5-point likert scale, rating personal daily living activities</td>
<td>46</td>
<td>Regular &gt; APA; more favorable attitudes in those active in PA outside school</td>
</tr>
<tr>
<td>22</td>
<td>Sherrill, Rainbolt, &amp; Ervin (1984) [1]</td>
<td>30 blind adults</td>
<td>• school placement (residential vs. public) • gender</td>
<td>Retrospective interviews responding to open ended questions, rated as positive or negative by experts</td>
<td>70</td>
<td>No significant difference by school placement; Males &gt; females</td>
</tr>
<tr>
<td>23</td>
<td>Toon &amp; Gench (1990) [6]</td>
<td>381 students ages 14-18: 30 with disabilities (36% male); 351 nondisabled (42% male)</td>
<td>• attitudes toward participation in PE • gender • disability vs. able-body</td>
<td>Kneer Attitude Inventory Diagnostic Statements</td>
<td>60</td>
<td>No gender differences; AB significantly more positive attitude toward PE</td>
</tr>
</tbody>
</table>

described above in the section on cross-sectional designs studying peer attitudes, with one study supporting it (Tripp et al., 1995). One study applied the self-efficacy construct (Hedrick, 1986) derived from Social Cognitive Theory (Bandura, 1977). Several studies investigated different service delivery alternatives, such as the People Resource Model (adding an APA professional to the PE sessions; Vogler, Koranda, & Romance, 2000), or reverse integration (bringing nondisabled children into a special school; Karlyvas & Reid, 2003).

**Intervention Outcome Variables.** The effectiveness of intervention in changing attitudes was the main outcome variable measured in the studies reported in this section. Some studies have also reported cross-sectional findings that were partially discussed in previous sections. Generally, intervention studies measuring peer attitudes toward children with disabilities in formal or informal educational settings have not been successful in revealing substantial evidence in favor of relying on either structured or nonstructured contact for a favorable attitude change (Archie & Sherrill, 1989; Block & Zeman, 1996; Obrusníková et al., 2003; Sable, 1995; Rowe & Stutts, 1987; Tripp et al., 1995). Nevertheless, authors have argued that no negative influences exists on peers attitudes (e.g., Block & Zeman, 1996).

Among adult participants, only one study measured significant change toward participants with a disability (Stewart, 1988). It must be noted, though, that the activity participants were exposed to in this study (weight training) is not as dynamic as ball games, lead-up games, athletics, and other typical contents of physical activity, thus imposing less limiting barriers to the participants with disability who were wheelchair users.

Challenging a more dynamic activity, Karlyvas and Reid (2003) were successful in showing significantly more enjoyment scores among students without disabilities (ages 7-12) in a carefully adapted volleyball lead-up game. It must be noticed, however, that the proportions of participants with and without disability in the latter study (15 with a physical disability and 20 without) refer to reverse integration and do not reflect typical mainstreamed conditions. Although using a fairly similar proportion of adolescents with and without a disability (15 in each group), Hedrick (1986) found that exposing children with disabilities to full integration in a competitive tennis context too early could be detrimental to their self perceptions of competence and inhibit positive change of their peers’ attitudes. This study supports some of the concerns posited by some authors (e.g. Block, 1999; Downs, 2003; Goodwin & Watkinson, 2000), suggesting that inclusion into sports requires carefully preplanned awareness practices to remove environmental and personal barriers. Findings of simulation experiments (e.g., Grayson & Marini, 1996; Loovis & Loovis, 1997) encourage using such intensive (2-3 hours) yet apparently effective practices for changing attitudes.

With respect to experiences of PE students participating in various contact circumstances, Slininger et al., (2000) did find a significant change among the males participating in structured contact on an adjective checklist. The nonsignificant difference revealed in the females was explained due to high pretest scores, suggesting a ceiling effect. Participation in an APA course revealed significant changes in PE students’ attitudes as measured with both ATDP and PEATHII instruments (Patrick, 1987 and Rizzo & Vispoel, 1992, respectively). No significant differences were obtained in the evaluation of on-campus compared to off-campus practicum conditions (Hodge, Davis, Woodward, & Sherrill, 2002).
<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>24</td>
<td>Bergman &amp; Hanson (2000) [4]</td>
<td>54 university students</td>
<td>2-day sport camp for persons with disabilities</td>
<td>Contact theory ATDP</td>
<td>62</td>
<td>No significant effect of participation on attitudes, more effect in those with less positive attitudes initially</td>
</tr>
<tr>
<td>25</td>
<td>Block &amp; Zeman (1996) [1]</td>
<td>3 children with moderate to severe MR participating in 1 of 2 intact 6th grade classes: treatment = 28 (12 female, 16 male); control = 28 (15 female, 13 male) in a small midwest USA city</td>
<td>basketball unit lasting 3.5 weeks</td>
<td>Contact theory; CAIPE-R (Block, 1995). Basketball skill test (shooting, passing, dribbling)</td>
<td>77</td>
<td>No significant difference in CAIPE-R gain score; no negative effects in skill test</td>
</tr>
<tr>
<td>26</td>
<td>Grayson &amp; Marini (1996) [2]</td>
<td>38 rehab counseling students (20 treatment, 18 control)</td>
<td>2 hour wheelchair sensitivity training</td>
<td>Questions pertaining to daily frustration of people with disabilities</td>
<td>54</td>
<td>Significant difference in responses to questions post treatment</td>
</tr>
<tr>
<td>27</td>
<td>Hedrick (1986) [10]</td>
<td>15 nondisabled adolescents included with 15 adolescents with disability in 3 conditions learning &amp; performing tennis</td>
<td>• condition (fully inclusive, fully separate, inclusive in learning but not performance)</td>
<td>• tennis self-efficacy • general competence • physical competence • social competence</td>
<td>77</td>
<td>Separate and partially inclusive &gt; fully inclusive, recommending not to start to early inclusion when high level skill required.</td>
</tr>
</tbody>
</table>
28 Hodge, Davis, Woodward, & Sherrill (2002) [1] 37 PE students attending off campus (17 male, 5 female) and on campus practicum (9 male, 6 female)  
• gender  
• practicum setting (on campus vs. off campus)  
6 week practicum period (total 8 sessions)  
• PEATTID III (Rizzo, 1993)  
• perceived competence  
No significant difference between pretest to posttest on attitudes; no difference on posttest between practicum settings; significant difference on posttest in perceived competence under both practicum settings.

29 Karlyvas & Reid (2003) [1] 15 children with and 20 without disability (ages 7-12)  
Newcomb—volleyball lead-up game adapted vs. nonadapted  
Participant’s enjoyment; academic learning time skill  
Sport adaptation increased participation. Older students without a disability expressed some dislike of adaptations.

30 Kisabeth & Richardson (1985) [10] 41 undergraduate students (14 male, 9 female experimental group; 9 male, 9 female control group  
1 equal status peer with disability in experimental group. Setting = raquetball class of 15 women, 37.5 hrs.  
Contact theory; attitudes toward disabled persons scale (ATDP, Yuker, Block, & Campbell, 1960) + self constructed questionnaire  
No change in ATDP

31 Loovis & Loovis (1997) [6] 430 students, grade 2-6 in 2 elementary schools  
2-hr. simulated exposure to physical activities in gym  
Children attitudes toward the handicapped scale  
Main effect only for gender, not for grade or school

32 Obrusníková, Block, & Válková (2003) [1] 2 intact classes, 4th grade inclusion of one child in a wheelchair, vs. 5th grade non inclusion in VA, USA  
2 weeks, 4 days per week, 30 min each session for serving, bumping, and setting volleyball skills; no assistant or tutor  
Contact theory; adjective check list (Siperstein, 1980); CAIPE-R  
No significant difference between attitudes toward children with disability in inclusion/control classes. Small to moderate effect sizes.

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</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>Patrick (1987) [1]</td>
<td>92 APE course participants and 87 nonparticipants PE majors (59.8% female)</td>
<td>10-week quarter APE course (50 min classes) including lectures, assigned readings, guest speakers, and videotapes of adapted activities</td>
<td>ATDP</td>
<td>62</td>
<td>Significant difference of participation in the course. Nonsignificant differences across gender or age.</td>
</tr>
<tr>
<td>34</td>
<td>Rizzo &amp; Vispoel (1992) [1]</td>
<td>77 APE course participants and 97 physical education for children course participants PE majors (37% female)</td>
<td>16-week semester courses including 3, 50-min sessions per week. The APE had an extra 50-min practicum session per week where the control group had 1 50-min lab</td>
<td>PEATH II</td>
<td>54</td>
<td>Significant time by course interaction in favor of the APE course participants. No significant difference across disability label.</td>
</tr>
<tr>
<td>35</td>
<td>Rowe &amp; Stutts (1987) [1]</td>
<td>175 undergraduate PE majors assigned to one of 4 practicum sites (62% female) required in an APE course</td>
<td>12 weeks practicum assignments, 2 days per week, 1 hr each day</td>
<td>Contact theory</td>
<td>ATDP-A</td>
<td>46</td>
</tr>
<tr>
<td>36</td>
<td>Sable (1995) [10]</td>
<td>66 campers, ages 11-16, comprising 2 intervention gr: awareness program (15), adventure program (21), + control (30)</td>
<td>1 week, 15-hr. program including simulations, readings, accessibility studies in the awareness gr, equal status contact in the adventure group</td>
<td>Acceptance scale (Voeltr, 1980, 1982)</td>
<td>85</td>
<td>Significant improvement in acceptance in both intervention compared to control group</td>
</tr>
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</tr>
<tr>
<td>37</td>
<td>Slininger, Sherrill, &amp; Jankowski (2000) [1]</td>
<td>131 (62 female, 69 male) grade 4 students</td>
<td>• gender • contact setting (structured, non-structured, control); 15 week program</td>
<td>Contact theory Adjective checklist + intention survey</td>
<td>92</td>
<td>Females &gt; males; m in structured contact significantly improved on adjective checklist; males in non-structured contact significantly improved on the intention checklist</td>
</tr>
<tr>
<td>38</td>
<td>Stewart (1988) [1]</td>
<td>15 treatment, 19 control male adult students</td>
<td>2 equal status paraplegic male students participating weight lifting class (10 w 2 sessions per week)</td>
<td>Contact theory; ATDP</td>
<td>46</td>
<td>Significant improvement in treatment ATDP scores</td>
</tr>
<tr>
<td>39</td>
<td>Vogler, Koranda, &amp; Romance (2000) [1]</td>
<td>A kindergartner with disability (severe spastic diplegia) + 20 able bodied peers</td>
<td>People recourse model: APA specialist + regular PE teacher 18 week period</td>
<td>Case study methodology using systematic observation and interviews</td>
<td>71</td>
<td>Inclusion classes highly effective in time management; there was widespread social acceptance and successful motor participation.</td>
</tr>
</tbody>
</table>

Abbreviations: ATDP = Attitudes Toward Disabled Persons Questionnaire; PEATTID = physical educators’ attitudes toward teaching individuals with disabilities; PEATH = physical educators’ attitudes toward handicap; APA = adapted physical activity; PE = physical education; LD = learning disorders; PD = physical disabilities; SD = sensory disorders; CP = cerebral palsy.
Comparative Analysis

The volume of publications in the 4 above categories across the recent two decades is described in Figure 1. Two 10-year periods were established. An increase of nearly a 100% in volume of articles in the categories referring to professionals and intervention studies can be observed in Table 1 from the first to the second decade reviewed.

Also, a certain increase in the quality of articles is noticeable during the recent decade compared to the previous one (Tables 1-4). In the second decade, only 4 studies out of 25 (16%) scored below 60% on our quality score, compared to 8 out of 14 (57%) in the first decade. The increase of quality over the years can be explained due to increased editorial concern to quality of the journal *Adapted Physical Activity Quarterly* during the recent years (Sherrill, 1997; Sherrill & O’Connor, 1999). This journal published most articles (66.6%) reviewed in this literature analysis. In spite of this encouraging finding, considering the experimental design of most intervention studies under criteria suggested in clinical literature (e.g., Ader & Mellenbergh, 1999; Tabachnick & Fidell, 1996) would have resulted in poor ranking. None had true experimental design, and most implemented nonrandomized convenience sampling procedures and nonblinded data collection. Also, very few studies have used control conditions, providing a program without specific intervention. Yet it is important to notice that it is very difficult to achieve this methodological level in educational practice, where many administrative and participant constrains are present.

Another noteworthy observation is that the paradigmatic change suggested by Reid (in press) is not very visible in the sample of studies reviewed. Inclusion is increasingly used as the preferred term designating participation of individuals with and without disability at the same setting, but not always based on the same

![Figure 1 — Volume of studies by decade and category.](image-url)
definition or measured with appropriate instruments. It is expected that the re-
search conducted be more reflective of the developments in educational approaches 
and practices, particularly with respect to self-determination and preparation to 
inclusion.

Summary and Recommendations
In this review, 39 research articles pertaining to the study of attitudes toward 
participation of individuals with a disability in physical activity, together with 
nondisabled peers, were analyzed with respect to their design and participants’ 
variables. Based on a critical analysis of research outcomes, several general con-
clusions can be made:

1. Gender has widely been recognized as a significant factor in all partici-
pant categories. Female professionals, peers, and individuals with disability tend 
to have more positive views toward participation than males do. Increased aware-
ness, for instance among sports coaches, could have encouraged participation of 
athletes with a disability in nonschool settings. More longitudinal interventions 
are warranted to deal with participation in the sport context rather than predomi-
nantly in PE.

2. Previous experience with individuals with a disability, as well as partici-
pation in adapted physical activity courses, often proved beneficial to profes-
sionals’ attitudes toward individuals with disabilities. For peers’ attitudes, it appears 
important to carefully structure the adaptations incorporated into the participation 
setting.

3. The large majority of the studies analyzed in the sections relating to chang-
ing professionals’ and peers’ attitudes included quantitative designs with only two 
studies incorporating qualitative data (Karlyvas & Reid, 2003; Vogler, Koranda, & 
Romance, 2000). In contrast, the majority of the research designs describing atti-
dudes of individuals with disability were qualitative. Authors are encouraged to 
provide more inductive research with respect to professionals’ and peers’ attitudes, 
as well as at least some quantitative research on children with a disability in sup-
port of their descriptive findings.

4. Intervention studies relating to peers’ attitudes toward children with dis-
ability are still rare and need increased attention.

5. Considering the somewhat discouraging findings related to Contact Theory, 
进一步 theories should be applied, examining further potential agents for changing 
attitude. Tripp and Sherrill (1991) have suggested a variety of theoretical and prac-
tical approaches for this purpose.

6. Attitudes of participants with a disability toward physical activity have 
been investigated in some studies. They seem contextually related, having good 
days and bad days. The motivational function of potential mediators, such as physi-
cal educators, coaches, and parents warrants further study.
7. Considering data appearing in the section on participants’ attitudes suggesting a mixture of “good” and “bad” days (Goodwin, 2001), as well as the contextual empowering and disempowering factors (Hutzler et al., 2002), it appears that awareness, perhaps better defined as empowerment programs, should be established and implemented as a preparatory or complementary service for children with a disability who attend regular schools. For example, such programs could apply reflective practices deriving from narrative-cooperative counseling (Luckner & Nadler, 1995; Rappaport, 1985; White & Epston, 1990) for processing children’s experiences (Hutzler, 2003). Reflective practices are using cooperative curiosity, acknowledging the responsibility and ownership of the participant on his or her activities and decision making. Such practices have also been linked to ecological task analysis, suggesting an alternative to the traditional direct style of instruction (Bulger, Scott-Townsend, & Carson, 2001).

8. The methodological quality of articles was specifically discussed in the section on intervention research, suggesting a generally poor evidence base for intervention outcomes. Also, the survey based articles are often lacking randomization and representation of the populations investigated. One favorable exception is the large-scale study of Folsum-Meek et al. (1999), representing a 90% institutional return rate of a statistically solid U.S. sample. It is necessary to increase experimental design quality and generalizability, perhaps through multisite collaboration.

In conclusion, attitudes toward participation of individuals with disability can be considered a mediating variable constructing the behavior of the participants with disability; their peers without a disability; the professionals managing, teaching, and coaching the activities; and family members and important others within a physical activity context. It is among the responsibilities of physical education professionals to coordinate among these variables and provide good learning environments encouraging participation of all individuals, disabled or not.

References


Bagley, M., & Green, J. (1981). Peer attitudes toward the handicapped scale. Austin, TX: PRO-ED.


