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Academic and Social Attainments of Children with Mental Retardation in General Education and Special Education Settings

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ABSTRACT

Parents, professionals, and researchers have been concerned about the most appropriate placement for children with mental retardation. To shed light on the efficacy of integration, 36 studies were reviewed on the academic and social attainments of school-age children with mental retardation. Results show that children in general education classes do not attain social acceptance ratings at as high a level as do their typically developing peers. When comparing children with mental retardation in general education and special education classrooms, integrated students perform better than their comparable segregated students on measures of academic achievement and social competence. Other variables are discussed that might affect child outcomes, and related recommendations are given for future research.

rience within a general education setting among more academically and socially able students.

On the other hand, advocates of integration for children with disabilities cite such social advantages as positive peer modeling and greater achievement through exposure to peers. Children educated in general education classrooms are thought to display competent skills in language, behavior, flexibility, friendship relationships, and prosocial acts (Lipsky & Gartner, 1997; Stainback & Stainback, 1992; Strully & Strully, 1996). In addition, advocates cite academic improvements, stating that children with disabilities in general education classrooms do better academically than comparable children in special education classrooms (Baker, Wang, & Walberg, 1994–1995).

The question still remains, “Does integration work?” Answering this question is a difficult task. Miller, Fullmer, and Walls (1996) conducted a content analysis using *mainstreaming* as a descriptor and found 375 opinion articles and 620 research articles from 1982 to 1993. Most of the research articles were surveys of teachers and measurements of student behavior, rather than direct measurements of student achievement. Thus, it is necessary to synthesize the few articles that address achievement to provide a clearer picture of the results.

Other syntheses of research findings provide limited clarity on the issue of academic and social effects of integrating children with mental retardation in K–12 settings. For example, a thorough research review by Buysse and Bailey

THE MOST APPROPRIATE ENVIRONMENT FOR THE EDUCATION of children with disabilities has been a question at the forefront of public debate for a number of years (see Chesley & Calaluze, 1997; Kliewer, 1998, 1999; Sandler, 1999; Simons, 1998). Some involved in this debate maintain that the special education continuum of services offers unique advantages. They cite such elements as small class size, specially trained teachers, auxiliary services, functional skills curriculum, and individualized instructional materials and procedures (Kauffman & Hallahan, 1993; Sandler, 1999). Concerns are also expressed about the frustration children might experience

(1993) focused only on preschool integration. Madden and Slavin (1983) reviewed research on the effects of placing students with mild academic disabilities in certain educational settings. The students included a combined population of children with learning disabilities (LD) and children labeled educable mentally retarded (EMR). The study's main focus was to examine the instructional interventions potentially applicable for use in such classes.

A review article by Sindelar and Deno (1978) focused on the efficacy of resource programming. Only 4 of the 17 studies reviewed included children with mild mental retardation. Leinhardt and Pally (1982) reviewed the effects of restrictive educational settings on children with mental retardation. Their conclusions were that setting is not the primary issue of importance, but "it is what happens in the setting" (p. 574). Then, despite the limited evidence from the studies examined, they concluded that a least restrictive environment is preferred, primarily based on ethical reasons. An article by Gottlieb (1981) reviewed relevant studies related to the outcomes of children in mainstreamed and special education classes. In this review, however, much of the research dates prior to 1970 and includes unpublished materials and dissertations, and in many instances, the data presentation does not appear to fully justify the conclusions.

Finally, a recent review by Gresham and MacMillan (1997) examined the social competence and affective development of children with mild disabilities. This excellent review, however, included a diverse group of students with learning disabilities, mental retardation, behavior disorders, and attention-deficit/hyperactivity disorder.

In summary then, these reviews and others have examined younger children in preschool programs (Gresham, 1982; Guralnick, 1999), children with a variety of disabilities (Gresham, 1982; Hallenbeck & Kauffman, 1995), and only those in a particular educational setting (Hunt & Goetz, 1997). These diverse examinations and the numerous methodological issues in the studies as identified by the reviewers (Gottlieb, 1981; Gresham & MacMillan, 1997) make conclusions about children with mental retardation very difficult. Thus, in the present study, we focused only on children with mental retardation and school-age children—elementary, junior high, and high school—with the goal of synthesizing the results for this specific population. We reference methodological issues in the various research studies, but do not evaluate the studies in this review. Instead, our aim was to update the literature, draw conclusions, and identify variables that were related to the social and academic outcomes of children with mental retardation in general and special education programs.

We note Leinhardt and Pally's (1982) thesis that setting alone does not directly affect child outcomes. By engaging in a review of research studies that compare special education and general education settings, we can, however, identify the variables that may have direct impact on child outcomes. We can then make recommendations about further research that will lead to a better understanding of the general education

placement process and possibly improve educational outcomes of children with mental retardation.

This review therefore summarizes the diverse literature, describes the pattern of results, draws conclusions where possible, and discusses the implications. We have rejected the use of meta-analysis because of the small number of eligible studies and the diverse outcome measures (Buisse & Bailey, 1993; Slavin, 1984).

METHOD

Criteria for Including a Study

Computer searches of psycLIT and ERIC databases were conducted to locate appropriate studies. Several key words (*mental retardation, integration, inclusion, disability, mainstreaming*) were used in different combinations. All keywords were truncated to take into account grammatical differences (i.e., *mental retard#* to include *mental retardation* and *mentally retarded*). In addition, a careful examination was conducted of the references from the identified studies themselves and from review articles (Baker et al., 1994–1995; Carlberg & Kavale, 1980; Gottlieb, 1981; Gresham, 1982; Guralnick, 1999; Hallenbeck & Kauffman, 1995; Hunt & Goetz, 1997; Klassen, 1994; Leinhardt & Pally, 1982; Lipsky & Gartner, 1995; Madden & Slavin, 1983; Sindelar & Deno, 1978). All sources yielded a total of 431 documents for this review.

To judge the appropriateness of each article, the two authors independently examined the titles and abstracts and coded the articles based on the following five criteria:

1. *Published empirical articles.* Each included study had to be published in a peer-reviewed journal. Unpublished doctoral dissertations and unpublished presentations were not included.
2. *School-age students.* The studies had to include elementary, junior high school, or high school students with mental retardation and were included only if they took place within the school context.
3. *Students with mental retardation.* The disabled population examined must have been all, or substantially all, students with mental retardation. Studies that examined students with mild LD were not included, as the categories are clearly different as defined by the Individuals with Disabilities Education Act (1990). In some instances, the studies included nondisabled students as a comparison.
4. *Comparison types.* Two comparison types were found and admitted into our analysis. Some studies compared students with mental retardation and nondisabled students in general educa-

tion settings. A second type compared students with mental retardation in general education settings versus students with mental retardation in special education settings. Within both categories, students in the studies spent either all or a portion of their time in general education settings in contrast with students in special education settings. Outcome measures were derived within and between the settings.

5. *Educational placement and social or academic outcomes.* Studies included in our review had to investigate either a social or an academic outcome as a dependent variable and use educational placement (special education, general education) as the independent variable. Any social behavior (e.g., social status, peer interaction, friendship) or academic behavior (e.g., academic achievement, academic behavior) that was judged by the teacher, the students, or an unbiased observer in school was included in this review. When examining studies, the main question was, "Does the study shed light on whether classroom integration or inclusion has an effect on the academic or social achievement of school-aged students with mental retardation?"

Studies that examined the perceptions of teachers on the concept of integration were not included because they do not measure the outcomes of the individuals with mental retardation (see Semmel, Abernathy, Butera, & Lesar, 1991). In addition, studies were excluded in which nondisabled students were asked about their perceptions of "children with disabilities" in general (i.e., Helmstetter, Peck, & Giangreco, 1994; Schnorr, 1990). We also omitted studies that only measured independent variables by self-report (i.e., Meyerowitz, 1967) because of the wide variety of ability levels inherent in the mentally retarded population. Furthermore, studies were not included if they examined the process of integration and instruction rather than the outcomes of integration (e.g., Fox & Ysseldyke, 1997; Logan, Bakeman, & Keefe, 1997; McDonnell, McDonnell, Hardman, & McCune, 1991; Summey & Strahan, 1997; Wang, Peverly, & Randolph, 1984).

If the article met all five criteria, it was placed in an "include" category. If it met fewer than the five criteria, it was placed in the "delete" category. However, if it was uncertain or could not be determined from the title and the abstract, the article was placed in an "uncertain" category. After the first coding of the original 430 articles, an 88% agreement ($n = 378$) was achieved in the include and delete categories. The remaining 12% ($n = 52$) of the articles were discussed and judged by the two authors. Any article that required a more extensive examination was obtained and judged according to the five criteria in consultation. Using these criteria, 25 studies included in this review examined social outcomes,

11 examined academic outcomes, and 3 studies fell into both categories.

Examination of Included Studies

Tables 1, 2, and 3 provide an overview of the studies included in this review. The Design section of these tables follows Campbell and Stanley's (1966) description of quasi-experimental and experimental designs in research. The studies are categorized according to the following codes:

1. Single group
2. One-group pretest/posttest design
3. Two-group comparison, with one control group and one treatment group
4. Two-group comparison with matching on background characteristics and some randomization in the control group
5. Two-group or three-group comparison
6. Nonequivalent control group design, posttest only
7. Nonequivalent control group design, matching on background characteristics and some randomization in the control group
8. Equivalent time samples design
9. Randomized sample with a posttest only, control group design
10. Randomized sample with a pretest and a posttest, control group design

This review does not critique the use of one design over another, as threats to internal and external validity can be noted from an understanding of design rather than from a specific analysis (see Campbell & Stanley, 1966). However, knowledge of the type of design used is critical when drawing conclusions from the results.

The category Level of Integration summarizes the amount of time the children with disabilities were integrated into general education for each study. The summarization is not an interpretation of each study's description; instead, it is a direct abridgement of the information presented in the study itself. The terminology used in these tables and in the subsequent sections of this article reflects the terminology used by the authors of the particular empirical articles. Thus, *segregation*, *integration*, *inclusion*, and *mainstreaming* are the terms used in various articles to describe the settings, and terms were not changed based on interpretation. Otherwise, in this article the terms *inclusion* and *full inclusion* refer to the full-time placement of children with special needs in the general education classroom. The term *integration* refers to the placement of children with special needs into the general education class-

room for variable times. The category Results summarizes the findings from each study. The summary is presented from the point of view of the children with mental retardation. Thus, in the tables, MR < ND illustrates a significant difference between children with mental retardation (MR) and nondisabled children (ND), where children with mental retardation scored lower on the target variables. Integrated > segregated illustrates that children with mental retardation who were integrated into general education classrooms scored significantly higher on the target variables than did children with mental retardation who were segregated.

The two authors independently coded each category in Tables 1–3. Percentage agreement rates were calculated by dividing the total number of agreed-upon results by the total number of articles. Agreement rates for the various categories in the tables (e.g., Outcome, MR Group, ND Children, Ages, Participant Type, Design, Level of Integration, Results) ranged from 88% to 100%, with resolution of different views obtained through discussion of the authors.

RESULTS

Academic Outcomes: Between-Group (MR Versus ND) Studies

The first grouping of studies drew comparisons between children with mental retardation and typically developing children from the general education classroom. Two studies examined the academic outcomes of children with mental retardation versus typically developing children (Hudson & Clunies-Ross, 1984; Roberts & Zubrick, 1992). As anticipated, children with mental retardation as compared to students with typical development performed at an academically lower level. For this comparison grouping (MR vs. ND), then, we further report only on studies with social outcomes.

Social Outcomes: Between-Group (MR Versus ND) Studies

Quantitative Studies. The nine quantitative studies in Table 1 all used a sociometric or social acceptance scale administered to students in the general education classroom. To determine the social outcomes in most of the studies, sociometric ratings of the child with mental retardation were compared to the sociometric ratings of the typically developing children in that classroom. The children with mental retardation in these studies spent at least some time in the general education classroom. The range of time across studies was wide—from as low as 25% to 100% (full time).

On at least some measures, all nine studies clearly found that children with mental retardation do not receive as high a social acceptance rating as the typically developing children (see Table 1). Six of the nine studies showed significantly lower social acceptance ratings for the children with mental

retardation. Two (Iano, Ayers, Heller, McGettigan, & Walker, 1974; Roberts & Zubrick, 1992) of the six studies also found greater rejection ratings for children with mental retardation than for typically developing children.

In terms of the equivocal results from the remaining three studies, Bruininks, Rynders, and Gross (1974) confirmed the general trend of lower acceptance ratings for suburban children with mental retardation. However, social acceptance of urban children with mental retardation of the same gender was significantly higher than for their nonretarded peers. The authors concluded that these results could be attributed to differences in the value orientations of urban and suburban nonretarded children, the personal characteristics of urban children in particular, or differences in urban environments as a result of “residential proximity”—that is, all children living in close-knit and local neighborhoods.

The other two studies with equivocal results (Evans, Salisbury, Palombaro, Berryman, & Hollowood, 1992; Hudson & Clunies-Ross, 1984) showed no difference on acceptance ratings for children with mental retardation and their typically developing peers. In both, results were not significant in the number of positive nominations, although positive social findings were obtained through other observational measures for the children with mental retardation.

All nine studies were examined to determine whether other variables were included that might contribute to social status ratings. Developmental level (e.g., child’s IQ) did not relate to the level of acceptance (Baldwin, 1958; Roberts & Zubrick, 1992), the presence of other children with mental retardation did not relate to acceptance levels (Baldwin, 1958), and acceptance and rejection ratings did not vary over time (Brewer & Smith, 1989; Iano et al., 1974). Furthermore, classroom type (academic vs. nonacademic) did not relate to acceptance scores (Rucker, Howe, & Snider, 1969). However, as noted, urban versus suburban classrooms did relate to acceptance ratings (Bruininks et al., 1974). Moreover, Baldwin (1958) noted anecdotally that typically developing children with behavior problems received lower ratings than did children with mental retardation.

In a related, but not included, study (Siperstein & Leffert, 1997), a comparison was conducted of socially accepted and socially rejected children with mental retardation in general education classrooms. The authors identified 20 socially accepted and 20 socially rejected students with mental retardation in 34 general education classrooms. They found that accepted children displayed a higher level of social behavior and a lower level of sensitive-isolated behavior. In addition, the accepted children chose friendly-submissive goals over friendly-assertive goals in social problem solving situations. This study is not summarized in Table 1, as it was not a comparison between children with mental retardation and typically developing children. However, it was notable because it identified both socially accepted and socially rejected students with mental retardation among general education students. Further, certain behavioral characteristics were identified relative to the students’ sociometric status.

TABLE 1. Children with Mental Retardation Compared to Children with Typical Development: Overview of Studies on Social Attainments

Authors	Outcome	MR group		ND children	Ages	Participant type	Design	Level of integration	Results
		Integr	Segreg						
Baldwin, 1958	Social position	<i>n</i> = 31		<i>n</i> = 572	Grades 4–6	MR (wide IQ variation)	6	Fully integrated (unclear)	MR < ND
Brewer & Smith, 1989	Sociometric status	<i>n</i> = 20		<i>n</i> = 437	G1 = 6–12 y G2 = 9–13 y ND = 5–11 y	MR (retarded)	6	G1 = mainstream less than 3 y G2 = mainstream > 3 y	MR < ND
Bruininks, Rynders, & Gross, 1974	Sociometric status	<i>n</i> = 65		<i>n</i> = 1,234	10–11 y	MR (mild)	6	Resource room approx. 2 h per day	Equivocal
Evans, Salisbury, Palombaro, Berryman, & Hollowood, 1992	Social acceptance, social interaction	<i>n</i> = 8		<i>n</i> = 8	5–8 y	Mixed (severe)	7	Mostly included (unclear)	Equivocal
Hudson & Clunies-Ross, 1984	Sociometric status	<i>n</i> = 15		?	5.7–8.2 y	MR (specified)	6	Integrated into a normal primary school	Equivocal
Iano, Ayers, Heller, McGettigan, & Walker, 1974	Sociometric status	<i>n</i> = 40		<i>n</i> = 686 <i>n</i> = 80	Elementary school age	MR (educable)	6	Placement back into general education class; 80 nonretarded in resource room	MR < ND
Lapp, 1957	Social adjustment	<i>n</i> = 16		<i>n</i> = 274	9–13.8 y (Grades 3–6)	MR (mixed)	7	Part time (unclear)	MR < ND
Roberts & Zubrick, 1992	Social status	<i>n</i> = 97		<i>n</i> = 97	8–13 y	MR (mild)	7	Between 25% and 100% of school week	MR < ND
Rucker, Howe, & Snider, 1969	Sociometric status	<i>n</i> = 23		<i>n</i> = 1,010	13–16 y	MR (retarded)	6	Various courses (academic & non-academic) more than ½ of school day	MR < ND

Note. G = group; MR = mental retardation; ND = nondisabled; y = years.

Qualitative Studies. Two qualitative studies provide more information concerning social outcomes. Kozleski and Jackson (1993) found that a girl with severe mental retardation received very high peer nominations and social status ratings in her fifth-grade classroom. In addition, observations of her social and communicative behaviors also yielded positive increases. When the processes that supported the social relationships were examined, specific practices were cited: A special education administrator visited the general education classroom, specific strategies were used to encourage the development of social relationships, a “circle of friends” process was initiated, and the teacher demonstrated a positive social philosophy.

In the second study, Bunch (1991) examined eight students with special needs by interviewing parents, principals, and general education classroom teachers. Although the initial goal for the students was social development, greater attention was placed on academics at both the beginning and

the end of the study. However, the author noted progress in social development through an examination of the growth in the students’ social objectives.

Academic Outcomes: Within-Group (MR) Studies

This category included nine studies in which children with mental retardation were compared in special education versus general education classrooms (see Table 2). These studies showed that either the results are positive for children with mental retardation in general education classrooms, or there is no significant difference between the academic achievement of children with mental retardation in the general versus the special education classroom. These studies also provided additional insights about these positive findings. Specifically, the extent of integration seems to be associated with the more positive results. Thus, the following results are organized by

TABLE 2. Academic Outcomes: Overview of Within-Group (Mental Retardation) Studies

Authors	Outcome	MR group		ND children	Ages	Subject type	Design	Level of integration	Results
		Int	Seg						
Altman & Kanagawa, 1994	Academic engagement	<i>n</i> = 3			67 m 71 m	All MR (moderate-severe)	1	Morning integrated, afternoon segregated	NSD
Bradfield, Brown, Kaplan, Rickert, & Stannard, 1973	Academic achievement	<i>n</i> = 12	<i>n</i> = 46		8-12 y	MR (educable)	5	Fully included (6 in model, 6 in regular)	Integrated > segregated & NSD
Brinker & Thorpe, 1984	Achievement	<i>n</i> = 245			3-22 y	All MR (severe)	8	Varied for each student	More integrated > less integrated
Budoff & Gottlieb, 1976	Academic achievement	<i>n</i> = 17	<i>n</i> = 14		Int: <i>M</i> = 139 m Seg: <i>M</i> = 138 m	EMR (70 IQ for both groups)	9	Segregated = full Integrated = general education class & remedial center 40 min/day	NSD
Calhoun & Elliott, 1977	Academic achievement	<i>n</i> = 50	<i>n</i> = 50		Unknown	MR SED	5	Fully integrated vs. fully segregated	Integrated > segregated
Carroll, 1967	Academic achievement	<i>n</i> = 19	<i>n</i> = 20		Int: <i>M</i> = 8.16 y Seg: <i>M</i> = 8.71 y	MR (mild-moderate)	10	Partially integrated (details not provided)	Integrated > segregated & NSD
Casey, Jones, Kugler, & Watkins, 1988	Cognitive & academic attainments	<i>n</i> = 18	<i>n</i> = 18		44-120 m	All Down syndrome	5	Full inclusion (apparently)	Integrated > segregated & NSD
Saint-Laurent & Lessard, 1991	Academic achievement	<i>n</i> = 11	func: <i>n</i> = 17 trad: <i>n</i> = 13		6-10 y	All MR (moderate-severe)	4	Disabled student taught by aide, separate room, social integration, not academic	NSD
Walker, 1974	Academic achievement	<i>n</i> = 29	<i>n</i> = 41		Seg: <i>M</i> = 10 y Int: <i>M</i> = 9.8 y	All MR (educable)	4	Full inclusion with pull out & resource room	Integrated > segregated

Note. EMR = educable mental retardation; Int = integrated; m = months; MR = mental retardation; ND = nondisabled; NSD = no significant differences; Seg = segregated; SED = severe emotional disturbance; y = years.

those studies that examine full integration/inclusion, and then those that examine part-time participation in general education classrooms.

Full Integration. Five studies examined the full-time placement of children with mental retardation in the general education classroom. Two of these studies provided fairly positive results for the integrated settings. Calhoun and Elliott (1977) found that EMR groups in the general education classrooms did significantly better on academic achievement tests than did those assigned to special education classrooms, as measured by the Stanford Achievement Test. Also using the Stanford Achievement Test (Psychological Corp., 1973), Walker (1974) found higher scores at the end of 1 year for students in the integrated setting. Moreover, residual gains from

year to year were higher in reading and vocabulary for the integrated group.

The second two studies examined a number of academic variables, and both positive and nonsignificant results were reported. Significant positive results for the integrated students were found in numeracy and comprehension (Casey, Jones, Kugler, & Watkins, 1988) and fourth-grade reading and mathematics (Bradfield, Brown, Kaplan, Rickert, & Stannard, 1973). However, Budoff and Gottlieb (1976) found nonsignificant differences between integrated and segregated groups on language and mathematics measures. The authors speculated that results from a second year might have been positive for the integrated group, had such data been collected, based on trends in the current data and findings from another technical report by the authors.

Partial Integration. The next group of studies examined the part-time placement of children with mental retardation in the general education classroom or participation in “yard time” with typically developing children. Altman and Kanagawa (1994) examined three participants who were in the general education classroom in the morning and the special education classroom in the afternoon. The authors concluded that individual characteristics contributed so strongly to the variation in outcome that setting effects could not be identified. In Brinker and Thorpe’s (1984) study, all 245 students again were participating in both settings, but the degree of student integration depended on each student’s rate of interaction with typically developing students. In those terms, integration related positively to the proportion of Individualized Education Program (IEP) objectives met. Again, however, it is difficult to determine the effects of setting given the study design, unique definition of *integration*, and outcome variable.

Likewise, the final two studies that found insignificant differences on academic achievement have ambiguous integration situations. Saint-Laurent and Lessard (1991) described a goal of a single student with disabilities in the general education class as being primarily social integration because the child was taught the academic curriculum outside the general education classroom. No significant differences were found on academic achievement. Carroll (1967) did not provide information on the amount of time the children with mild/moderate mental retardation spent in the general education classroom, except to say that the general education students were “partially integrated,” whereas the special education students were “segregated.” Again, mostly nonsignificant results were found for most variables, although children who were partially integrated did better on academic measures of reading skills.

Social Outcomes:

Within-Group (all MR) Studies

Unlike the between-group findings of social outcomes (children with mental retardation vs. typically developing children), when within-group (mental retardation) differences are examined, results appear to be less consistent. In this analysis, 14 studies (see Table 3) compared social outcomes of children with mental retardation in a variety of educational settings. In several studies, typically developing children were also included as a comparison group, but the main analyses were the within-group differences. The research on children with mental retardation in different educational settings focuses primarily on benefits related to social acceptance and appropriate social behavior with peers.

Again, like the results from the within-group studies of academic outcomes, these results have also been organized according to the amount of time the child with mental retardation spent with typically developing children. Social-outcome studies were particularly prone to methodological deficiencies (see Table 4).

Full Integration. Five studies examined the social development of children with mental retardation who were fully integrated in general education classrooms versus special education programs. These study results showed mostly positive findings for those children in general education classrooms. Walker (1974) found that children who were being educated in the general education classroom with resource services scored significantly better at each testing, according to a social adjustment scale, than did their matched counterparts in the special day class. Unfortunately, this study lacks detailed information; for instance, statistical data are not provided, the measures are not described, the procedures are not specified, and no baseline was established for the 2-year follow-up results, which were nonsignificant. (See Table 4 for an analysis of methodological issues related to each study.) Hunt, Farron-Davis, Beckstead, Curtis, and Goetz (1994), however, also found positive results for children in general education programs. Compared to the special education students, the fully included students had more reciprocal interactions with nondisabled peers and they had more initiations to others. The study included participant control, demographic information about the participants, and a description of the observational engagement measure used. However, no clear information was provided as to the size of the classrooms, and evaluation measures occurred only during a 1- to 2-day period.

Kennedy and colleagues examined the social contacts of children with moderate and severe mental retardation in two different age groups: 6- to 12-year-olds (Fryxell & Kennedy, 1995) and 12- to 14-year-olds (Kennedy, Shukla, & Fryxell, 1997). Both studies showed that the students in general education classrooms had significantly more social contacts and interaction with nondisabled peers than did the children in the special class. These studies all employed strong measurements of the level of integration and the number of social contacts. However, the studies had very small sample sizes and insignificant differences on the perceived quality of the interactions with a nondisabled versus a disabled peer.

Finally, in a well-matched, well-described study with a broad array of preintegration measures as covariates, Budoff and Gottlieb (1976) found no significant differences on teachers’ social adjustment ratings of children (8- to 14-year-olds) in both completely segregated and completely integrated classrooms.

Partial Integration. In the studies that examined children who were partially integrated in the general education setting, the findings vary from significant and positive, to nonsignificant, to significant and negative. Brinker’s (1985) results are difficult to interpret, but appear to be positive. In this study, an integrated situation was defined as when a child without a disability was 2 meters or less away from the child with mental retardation, versus a segregated situation, where the child without a disability was more than 2 meters away. The integrated groupings promoted more social behavior than the segregated groupings. The social output and the positive

TABLE 3. Social Outcomes: Overview of Within-Group (Mental Retardation) Studies

Authors	Outcome	MR group		ND children	Ages	Subject type	Design	Level of integration	Results
		Integr	Segreg						
Altman & Kanagawa, 1994	Social engagement	<i>n</i> = 3			67–71 m	MR (moderate–severe)	1	Morning integrated, afternoon segregated	Equivocal
Brinker, 1985	Social interaction	<i>n</i> = 245			3–22 y	MR (severe)	8	Varied for each student	Integrated > segregated
Budoff & Gottlieb, 1976	Social growth	<i>n</i> = 17	<i>n</i> = 14		93–168 m Int: <i>M</i> = 139 m Seg: <i>M</i> = 138 m	MR 70 IQ for both groups (educable)	9	1 group segregated completely 1 group integrated completely	No significant differences
Cole & Meyer, 1991	Social competence	<i>n</i> = 36	<i>n</i> = 55		6–21 y	MR (severe)	5	(unclear)	Integrated > segregated
Espiner, Wilton & Glynn, 1985	Social acceptance Social interaction	<i>n</i> = 5	<i>n</i> = 5	<i>n</i> = 9	84–126 m	MR (mild, 70 IQ for MR groups)	4	On playground (unclear how much in classroom)	No significant differences
Ferencz-Stager & Young, 1981	Sociometric status Social acceptance	<i>n</i> = 26	<i>n</i> = 56	<i>n</i> = 382	<i>M</i> = 16.8 y	MR (educable)	5	Minimum of 1 general education class	Integrated < segregated
Fryxell & Kennedy, 1995	Social contacts	<i>n</i> = 9	<i>n</i> = 9		Gen: <i>M</i> = 9.2 y Sp: <i>M</i> = 8.8 y	MR (severe–profound)	7	Participation in general education 87%–100%	Integration (+)
Gilkey & Zetlin, 1987	Peer relations	<i>n</i> = 17			17–21 y	MR (severe)	8	Mainstreamed at least one period of the day	Both groups (–)
Gottlieb & Budoff, 1973	Social acceptance	<i>n</i> = 12	<i>n</i> = 12	<i>n</i> = 136	Grades 1–6	MR (educable)	3	Partially integrated (non-academics & lunch)	Integrated < segregated MR < normal
Hunt, Farron-Davis, Beckstead, Curtis, & Goetz, 1994	Social interactions	<i>n</i> = 16	<i>n</i> = 16		Grades K–8	Mixed	4	Fully included	Integrated > segregated
Kennedy & Itkonen, 1994	Social contacts	<i>n</i> = 3			Age 18 Age 18 Age 19	MR (moderate–severe)	1	One period	Integration (+)
Kennedy, Shukla, & Fryxell, 1997	Social interaction	<i>n</i> = 8	<i>n</i> = 8		Gen: <i>M</i> = 12.4 y Sp: <i>M</i> = 12.6 y	MR (moderate–severe)	7	Full time	Integration (+)
Walker, 1974	Social adjustment	<i>n</i> = 29	<i>n</i> = 41		Seg: <i>M</i> = 10y Int: <i>M</i> = 9.8 y	All MR (educable)	4	Integrated full time with pull out as needed	Integrated > segregated
Ziegler & Hambleton, 1976	Social interaction	?	?		? Regular school	All MR (trainable)	5	Integration on the playground	No significant differences

Note. Gen = general education; Int = integrated; m = months; MR = mental retardation; Seg = segregated; Sp = special education; y = years.

TABLE 4. Social Outcomes: Summary of Results and Issues

Author	Synopsis of results	Issues
Altman & Kanagawa, 1994	Participant 1 = isolated acts, no spontaneous socialization Participant 2 = low peer social engagement Participant 3 = more social interaction in integration Conclusion: Individual child characteristics transcend administrative models.	Difficult to generalize because “project construct” was implemented No reliability information or indication of amount of time in integration Small sample size & few significant differences Number of subjects, classroom assignment, “supports both settings” (unclear) Adult availability change within & between settings
Brinker, 1985	Integrated groupings promoted more social behavior than did segregated groupings. Social output of severely retarded students to nonretarded students was greater in the integrated settings. Most social bids were neutral, but within integrated environments severely retarded students emitted more positive bids to nonretarded students than retarded.	Statistical control was used for possible differences between settings Very different integrated settings for each child as determined & designed by the teacher Integrated meant a student without a disability was 2 m away Segregated was that a student without a disability was not 2 m away Sites chosen based on “innovative integration procedures,” selection bias? Wide range of age & ability
Budoff & Gottlieb, 1974	No significant differences in the analysis of covariance on teachers’ behavior ratings.	Random assignment (with prior stratification by school/area of child) Excellent array of measures preintegration used as covariates Study also examined motivation, cognitive style, & teacher behavior ratings Weak measure of social adjustment (study more focused on academics)
Cole & Meyer, 1991	Integrated children improved in ability to manage behavior, provide feedback, accept assistance, indicate peer preferences, & cope with negative situations. Segregated children regressed. Integrated children evidenced gains in social competence.	Integration is defined as a special education class on a general education campus; segregated refers to a special education class on a special education campus; there is no description of whether integrated students spent time in general education classes Peer training program implemented for typical children—hard to generalize
Espiner, Wilton, & Glynn, 1985	NSD on levels of social acceptance between any groups. Low adjusted children (normal) were significantly more often rejected (sociometric), & integrated children weren’t. NSD for playground social acceptance between groups. Higher level of rejection for low-adjusted children (normal) on playground data.	Integrated students matched with segregated students Study examined 4 groups (normal group = average & low adjustment) Unclear the level of classroom integration Unclear who performed the sociometric ratings for the segregated group; why were they included in this study?
Ferencz-Stager & Young, 1981	Mainstreamed EMR participants were perceived as significantly more competent & more likable by classmates in EMR vs. typical classmates. Regardless of type of social interaction examined (after-school socializing, talking on the phone, discussing school assignments), EMR adolescents more socially accepted by their EMR classmates than by typical ones.	Did give the sociometric questionnaire to the special education class No description of the participants’ age, IQ, gender, etc. (only mean age) No description of procedures (except that it was given orally) The sociometric was an adaptation—not validated? Questions focused on aspects particularly detrimental to MR inclusion Data related to chances of nomination are obscured due to vast differences in class size between general & special education classes

(table continues)

Author	Synopsis of results	Issues
Fryxell & Kennedy, 1995	Students in general education had higher levels of social contact with peers than students in the special education classroom group. No difference on the number of peers without disabilities per contact & the perceived quality of social contacts.	Strong description of participants, setting, & procedures Systematic measure of integration Small sample size Social contact defined as interacting with a nondisabled peer(s) within a context of an activity; did not include interacting with a disabled peer
Gilkey & Zetlin, 1987	Lack of peer interaction & friendship in special class. Few interactions with general education. Children considered themselves outsiders.	Qualitative study Teacher interfered with social interactions in class No comparison in peer relations between settings, only one classroom
Gottlieb & Budoff, 1973	Non-EMR children were selected as friends more often. No differences between segregated & integrated EMR children on being selected as friends. Partially integrated children were rejected more often than both non-EMR & segregated children.	Three-group comparison Non-EMR group randomly selected Variation in the partial integration Primary focus of study on differences in school architecture
Hunt, Farron-Davis, Beckstead, Curtis, & Goetz, 1994	High ability included students made initiations more social in nature, less task related. Low ability included students initiated more often to others than segregated students. Reciprocal interactions with others similar to above findings. No differences on level of initiations from others. Included students more reciprocal interactions with ND peers.	Control factors were included Evaluation measures during a 1–2 day period only Possible differences between classroom groups
Kennedy & Itkonen, 1994	General class participation increased students' social contacts with peers without disabilities. General class participation accounted for 48% of the new peers without disabilities met during school year. General class participation resulted in nondisabled peers becoming socially important to students with disabilities. Durable and frequent social contacts occurred with peers without disabilities. Quality of social contacts did not vary with the locus of the initial social contact (class vs. outside class).	Detailed descriptions of participants, setting, procedures, & reliability Small sample size Comparison against baseline rather than control group design General education students were prepared for this integration & participated in social interventions; the integrated classes were carefully selected to fit the needs of each student Activities arranged by the school personnel
Kennedy, Shukla, & Fryxell, 1997	Students in general education had significantly more social interaction with peers without disabilities. Students in general education had higher levels of contact with peers each day, number of peers, number of different settings & activities. No difference in the number of different peers per social contact & perceived quality.	Strong description of participants, setting, & procedures Systematic measure of integration Small sample size Posttest-only design (no baseline) Social contact defined as interacting with a nondisabled peer(s) within a context of an activity; did not include interacting with a disabled peer
Walker, 1974	Children in the resource room program were significantly better socially at each testing than their counterparts in the special class. No significant differences between the residual gains both grades made over the 2 years in social adjustment.	The two groups were matched on age, IQ, & reading level Statistical data not provided (i.e., mean, standard deviations) No descriptions of measures No description of testing procedures, reliability No baseline established
Ziegler & Hambleton, 1976	No significant differences in playground behavior (inadequate, adequate, and extremely adequate) of TMR children (special classes) at general school & behavior of TMR children at school for the retarded.	TMR groups matched on gender, CA, MA, social age, language in the home, etiology, birth order, & socio-economic background Little statistical data presented Age, number of students, & time spent on yard not included

Note. CA = chronological age; EMR = educable mental retardation; MA = mental age; ND = nondisabled; NSD = no significant difference; TMR = trainable mental retardation.

social bids of students with severe mental retardation were greater in the integrated settings. The author addressed differences between settings through statistical control, but the definition of integration and the variety of ages and general education settings leave many questions about the relevance of the findings.

Kennedy and Itkonen (1994) studied social contacts and networks of teenagers through an examination of the changes in behavior associated with participation in one integrated period. General education class participation increased students' social contacts with peers without disabilities, including more durable and frequent contacts. However, these results may have been influenced by the intervention and interactive activities arranged by the school personnel—in the first instance by an unusual operational definition of integration, and in the second by the preparation that the general education students received prior to their integrated experience with the children with mental retardation.

Ziegler and Hambleton (1976) examined the social interaction behaviors of students with TMR on the playground and found no significant differences between students in special education and those in general education. The level of integration was very slight; the children who were considered integrated were children in special day classes at a general education school who were integrated only on the playground, whereas the segregated students were at a school for individuals with MR. Altman and Kanagawa (1994) reported similar equivocal findings in an examination of three children with mental retardation who spent mornings in a general education classroom and afternoons in a special education classroom. The authors noted that "individual characteristics transcend administrative models" (p. 184). But, with three participants, no firm conclusions could be made.

Espiner, Wilton, and Glynn (1985) also defined integration as instances when children with and without disabilities spent time together on the playground. It was not clear how much time these children spent together in the classroom. The authors found no significant overall differences between three groups (integrated, segregated, and nondisabled) in social acceptance and social interaction. However, they noted significantly lower rejection ratings for integrated children than for "low adjusted" (nondisabled) children.

Negative social findings were more abundant for children whose placements were only part time in the general education classroom. Ferencz-Stager and Young (1981) found that older children (mean age = 16.8 years) who were integrated in general education classes at least one class per day were perceived as less likable, less competent, and less socially accepted than the children in the special day classes.

In Gottlieb and Budoff's (1973) study, the partially integrated children were rejected more often than the typically developing children and the children who were in special day classes. In addition, children in special day classes were selected as friends as often as those who spent part time in the general education classes. In a qualitative study, Gilkey and Zetlin (1987) were unable to find peer interaction, friend-

ships, and interactions with general education students in any setting. The children considered themselves outsiders in the general education classrooms. Unfortunately, peer relations between the settings were not compared, and only one classroom was examined.

Cole and Meyer (1991) also examined the social effects of general versus special class placement. Integration was defined as a special education class on a general education campus, whereas a segregated class was defined as a special education class on a special education campus. There is no description of whether these integrated students spent time in the general education class. The assumption is that some nonacademic time was spent with typically developing children in the integrated setting. Reported results were positive. Children on a general education campus showed greater gains on measures of social competence. However, a training program was implemented for the typically developing children to prepare them for the integrated experience.

DISCUSSION

Social Outcomes:

Between-Group (MR Versus ND) Studies

What can we conclude from the findings of these studies? First, the qualitative and quantitative studies in this synthesis yielded different conclusions, which is a fairly typical phenomenon in the special education literature. A simple explanation could be the "average case" versus "best case" issue. Most quantitative studies focus on the average score of a group of children, lessening the effects of exceptionally positive or negative causes. The number of variables examined is restricted by data collection for a single group or multiple groups. In qualitative studies, however, the focus is typically on a single child who has been predefined as, or is thought to be, a "success story." Thus, because of the focus on a single participant, the researcher has the luxury of in-depth study and the opportunity to examine many potentially contributing variables. These differing results between quantitative and qualitative studies should not be viewed as at variance with each other. Indeed, the two kinds of studies have differing purposes: One seeks to portray what is typical, and the other presents what is possible. As we examine results across groups, it is helpful to bear in mind the possibility of success and the conditions under which it is attainable.

Second, across all studies (both quantitative and qualitative), it appears that social acceptance ratings were independent of the children's developmental level and severity of mental retardation. The older studies that examined children with mental retardation likely defined mental retardation by an IQ cutoff score roughly between 50 and 85, and included the category "borderline mentally retarded" (MacMillan, Siperstein, & Gresham, 1996). Indeed, in the Lapp (1957) study, the developmental levels ranged from an IQ of 55 to an

IQ of 92. In the Baldwin (1958) study, although the IQ levels are not provided, the author noted that "IQ variation was wide" (p. 106). The range of the participants' development levels was very inclusive in both studies. Although many of the participants would not be labeled as having mental retardation today, they were still not as accepted at the time. It could be that other children experiencing difficulty in the general education classroom who were not categorized as special education students were also receiving lower social acceptance scores (Iano et al., 1974). In summary, then, children categorized as special education students with average IQs, children categorized with lower IQs, and noncategorized children who might have had average and lower IQs were all not as highly accepted; therefore, IQ was not a contributing factor to acceptance.

The study by Siperstein and Leffert (1997) confirmed this issue. The two groups of children with mental retardation (socially accepted and socially rejected) had comparable IQs and mental ages. Thus, their sociometric status was not attributable to cognitive ability levels.

Third, and surprisingly, more time spent in the general education class did not relate to level of social acceptance. In the Baldwin (1958), Brewer and Smith (1989), and Iano et al. (1974) studies, full-time participation in the general education class did not yield positive social status for the students with mental retardation. In the Iano et al. study, the children were not only unaccepted but also more likely rejected than their typically developing peers.

In studies that examined part-time integration (Lapp, 1957; Roberts & Zubrick, 1992; Rucker et al., 1969), the students with mental retardation were also significantly less accepted than the other children in the classroom. Lapp explained that the typically developing children in the general education classroom answered the acceptance questions by naming children who were close to them in proximity (children in their reading groups, children who lived in their neighborhood). Thus, the children with mental retardation might not have been nominated because they were not a dominant part of the group. In the Rucker et al. study, the children were older and in multiple classrooms. Again, children with mental retardation were not a dominant part of school and thus were less likely to be remembered.

The studies seem to support the idea that children with mental retardation who spend only part time in the general education classrooms are less accepted and sometimes more often rejected (Gottlieb, 1981; Schnorr, 1990). Less widely discussed, however, is the idea that children who are full time in general education classrooms are also not as socially accepted by their typically developing peers. Yet, from these studies, it seems clear that sameness, or similarity, is a basis for social acceptance. On the one hand, "dissimilar" might be a function of part-time participation in class, but given full inclusion, other measures of dissimilarity might also be factors. Various special circumstances that single out a child for negative reasons seem to contribute to lower social acceptance scores. These circumstances might include pullout pro-

grams or behavior problems. Indeed, Baldwin (1958) found that the antisocial behavior of certain children (with different developmental levels) might have been related to their lower social status in class. Other research has confirmed that aggression and disruptiveness are major causes of peer rejection through childhood and adolescence (Coie, Dodge, & Kupersmidt, 1990). Siperstein and Leffert (1997) found that children who were accepted had higher levels of positive social behaviors and lower levels of isolated behaviors. Further, based on Kozleski and Jackson's (1993) qualitative study, we can speculate that specific and intensive training programs for classrooms and teachers lead to better classroom social status for children with mental retardation.

Based on these findings, we conclude that children with mental retardation in general education classrooms are not as socially accepted as typically developing children. Similarity of one student to another, along a number of dimensions, seems to be a basis for social acceptance. Lower social acceptance of children with mental retardation is apparently related to dissimilarity, particularly with respect to social behavior such as disruptiveness. Moreover, lower social acceptance can apparently be mitigated, to some extent, by intensive training programs for teachers as well as any other participants.

Academic Outcomes:

Within-Group (all MR) Studies

A closer examination of these studies shows that the amount of time in general education settings distinguishes the more positive findings from the nonsignificant ones. Higher academic gains are shown when children with mental retardation are more fully integrated into the general education classroom.

This might be explained by applying Dahloff's (1971) theory of teacher expectations and levels of instruction. Due to the level of the students, the level at which the teacher is directing instruction is higher in general education than in special education. The general education teacher establishes a teaching level based on the ability of the students in the class in order to maximize instructional benefits. This might be thought to be detrimental to the typically developing children but, with the use of greater individualized instruction, the teacher is able to establish multiple levels of instruction. Thus, the child with mental retardation and the typically developing child in the general education classroom are receiving instruction that is slightly above their level. For more information on what is referred to as the Steering Control Group, see Dahloff (1971), and for more information on scaffolding instruction, see Vygotsky (1978).

Moreover, a pattern also emerges in the examination of results in terms of severity of retardation. In five of the six studies in which children show mild to moderate retardation (including labels of educable, mild, moderate, Down syndrome), the results were positive (Bradfield et al., 1973; Calhoun & Elliott, 1977; Carroll, 1967; Casey et al., 1988; Walker, 1974). Conversely, in two of the three studies in which children have moderate/severe retardation, the results

were not significantly different (Altman & Kanagawa, 1994; Saint-Laurent & Lessard, 1991). In the third study, the results were positive for the children with severe retardation, but the study design (one group of children), the unique definition of integration (rate of interaction with typically developing students), and the outcome measure (proportion of IEP objectives met) make the results difficult to interpret.

Although comparison groups were matched in the studies cited in our review, it is conceivable that other dimensions could account for differences. For example, although students might have comparable initial academic ability (by one or more measures), they might have been different in attention, school adjustment, or parent support.

These patterns provide insight into the comparative academic achievement of children with mental retardation. First, although most emphasis in the literature focuses on the social benefits of integration, these results suggest that the greater the degree of integration, the more positive the academic results. Second, children with milder levels of retardation achieve more positive results in the integrated classroom than do their counterparts in the segregated classrooms.

Social Outcomes:

Within-Group (all MR) Studies

Although the data seem inconsistent when viewed from a simple listing of the studies, a number of patterns can be identified. Following Social Learning Theory (Rotter, 1954), one would expect that more time with typically developing children would relate to more positive social outcomes in children with mental retardation as compared to those who spend less time with typically developing children. Indeed, the children who were full time in general education programs appeared to be more socially competent and accepted than the children who were in general education only part time or on the general education campus with yard time. Thus, although children with mental retardation might not be as socially competent as typically developing children in the general education program, they are more socially competent than children with mental retardation who are integrated only part time or are segregated.

Second, examining the data in terms of the severity of mental retardation shows no discernable pattern of success or failure of integration. The lack of a pattern might be related to the great diversity of social outcome measures. On the one hand, social outcome measures can be associated with social competence. Although social competence has been variably defined over the years in persons with mental retardation (see Greenspan & Granfield, 1992, for a review), McFall (1982) defined social competence as the judgments of significant others (peers, teachers, parents, observers) that social acts are competent. On the other hand, social acceptance/social status can be associated with a child's acceptance level among peers, with how much other children want to be with that child, and the child's social position in groups or classrooms (Coie et al., 1990). Social competence, then, is how others

perceive the child's social behavior, and social acceptance is how others like and desire that particular child.

Thus, as shown in Table 3, a pattern emerges in the findings when the outcome measure is categorized by the social competence of the child with mental retardation as opposed to by social acceptance by peers. In studies that examine social competence—where the child with mental retardation is judged on such variables as engagement, interaction, adjustment, and contacts—most of the results favor integration (Altman & Kanagawa, 1994; Brinker, 1985; Cole & Meyer, 1991; Fryxell & Kennedy, 1995; Hunt et al., 1994; Kennedy & Itkonen, 1994; Kennedy et al., 1997; Walker, 1974). Thus, it appears that placement of children with mental retardation in general education classrooms tends to improve their social skills and competence.

In contrast, when studies examined how the other students socially rank the child with mental retardation (social acceptance, sociometric status), results show significantly lower ratings and some nonsignificant results (Espiner et al., 1985; Ferencz-Stager & Young, 1981; Gilkey & Zetlin, 1987; Gottlieb & Budoff, 1973). At the same time, the placement of children with mental retardation in the general education classroom might not improve their social status among typically developing peers. A partial explanation may be found in the research on peer preference and friendship in typically developing children, which confirms the desire of children to associate with others who are like themselves (Farmer & Farmer, 1996; Kupersmidt, DeRosier, & Patterson, 1995; Meisel & Blumberg, 1990). Thus, it is not surprising that children with mental retardation do not achieve the same levels of acceptance as their nonretarded peers in the general education classroom, but are well accepted in the special education classroom, where their peers are similar to them.

Finally, age/grade appears to be a more relevant factor than level of retardation in explaining findings that favor integration. Children who are older suffer the most from partial integration. This phenomenon is clearly noted in Gilkey and Zetlin (1987), which includes a number of individual cases at various age levels that were not preselected based on prior estimates of success. The results provide interesting information about mainstreaming in multiple-classroom programs (high schools and middle schools). Children seem to have enough difficulty being part of the group even if they have no apparent disability; secondary school children with disabilities may be even more likely to feel unaccepted.

Limitations

At the beginning of this article, we raised the question, "Does inclusion work?" The answer is, partially—for academics and social competence, especially at the younger age groups, but not for social acceptance. Moreover, full integration yields more positive results than does partial integration, especially for younger children. However, these results are qualified by a number of limitations.

First, overall, the research presents such a variation in terminology that it is often difficult to understand exactly to whom the phrase *children with mental retardation* applies. The terminology generally reflects the policy era in which each study was conducted. Thus, studies in different years could be referring to totally different populations of children. The definition of mental retardation has changed over the past 30 years, which affects the population of students with mental retardation (MacMillan et al., 1996). Any study is, in essence, dated if it examines children with mental retardation in the 1970s, 1980s, and certainly before then. Indeed, any study prior to 1992 that examines children with mental retardation needs to be considered in light of the new American Association on Mental Retardation definition of mental retardation in which the previous classification levels were eliminated and the IQ cutoff score was raised (Luckasson et al., 1992). Thus, it is important to recognize the relevance of historical trends in making research interpretations or for changing practice (Polloway, 1984).

A second limitation also relates to terminology and involves the academic outcome variable. Caution must be exhibited in interpreting academic outcomes, especially for older students. Some academic curricula at the junior high and high school levels may be more functional in nature and thus may not be comparable to general education academic curricula. Careful examination beyond the Outcome column of Table 2 is important, but beyond the scope of this review.

A third limitation regarding the studies, both within and between groups, relates to the appropriateness of comparing the social and academic performances of students with mental retardation with those of nondisabled peers. Although this might not be a fair or reasonable comparison, some studies examined this issue and, thus, it required attention.

A final limitation relates to the interpretation of the studies on social competence. There might not be enough evidence that social competence has improved in children with mental retardation. Rather, the interpretation was based on the judgments of others about the social competence of the child with mental retardation. In some cases, these observations were from researchers, and in other cases school personnel made judgments and may not have been totally unbiased. Even though social competence is, in essence, a socially defined phenomenon, the interpretation must be qualified.

Implications for Research

The current synthesis identified potential areas for future research. First, it was clear that both the quantitative (experimental and quasi-experimental) and qualitative studies contributed important insights. Although quantitative studies might have greater generalizability, adding qualitative methodology would enhance such studies and provide more in-depth insights into real-world components.

Second, to get beyond the changing definitions and dated research, studies can examine the nature of successful inclusion/integration in light of a particular child's character-

istics. Instead of providing information on children with diverse etiologies, ages, severity, behaviors, and socioeconomic status, future research should focus on and examine variables that benefit particular children.

Third, attention to qualitative and quantitative methodologies, and a greater focus on child characteristics, demand attention to the use of multiple measures. Such measures should include the parent, teacher, observer, peer, and child.

Finally, given findings that being different substantially lessens the possibility of high acceptance ratings for any group of children, it is currently unreasonable to expect that a child with mental retardation will be accepted by typical children at the same level as other typical children. It will take much more than physical integration or what has been called the "contact hypothesis" (in regard to disability, cultural differences, gender, and so on) to have children appreciate and value diversity. Thus, future studies should examine implementation of regular practice curricula (not outside programs implemented for purposes of research) that increase acceptance and socialization for children with mental retardation.

Implications for Practice

Teachers and administrators need to consider these results as they design programs for children with mental retardation. First, full integration seems to academically benefit children with mental retardation. Moreover, empirical studies (Salisbury, Gallucci, Palombaro, & Peck, 1995; Sharpe, York, & Knight, 1994; York, Vandercook, Macdonald, & Heise-Neff, 1992) do not show evidence that typically developing children are disadvantaged by the inclusion of children with mental retardation. The maintenance of achievement by typical children may be attributable to current emphases on providing individualization of instruction in general education classrooms. Indeed, both children with disabilities and typically developing children can benefit from better instructional practice.

Second, if children with mental retardation spend a substantial amount of time in the general education classroom, they will also benefit in acquisition of social competence skills to a greater extent than will children with mental retardation who are not in the general education classroom or who are there only part time. Through participation in general education classrooms, fully integrated children demonstrate better social behaviors such as adjustment, interactions, maturity, and general social competence as judged by others.

However, professionals and parents need to be aware that children with mental retardation in integrated classrooms might not necessarily enjoy high levels of classroom social acceptance. Thus, programs might need to be implemented to improve the social status of children with mental retardation in general education. When teachers and children are prepared for integration, children with mental retardation enjoy more positive outcomes.

In general, then, research seems to support the placement of children with mental retardation in general education

classes. Nevertheless, practitioners need to be attentive to instructional and programmatic attributes that would greatly improve the academic and social attainments of children with mental retardation in both general and special education settings. ■

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AUTHORS' NOTE

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