

President's Commission on Excellence in Special Education

Research Agenda Task Force

Testimony submitted by

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INCLUSION

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### Recommendations

#### **General Recommendation:**

The advent of comprehensive school reform and the move to establish greater accountability linked to standards embodied in the No Child Left Behind legislation are together, creating opportunities for general education and special education to work on a shared agenda to accomplish better outcomes for all students. *Research is now needed that is addressed to common priorities established jointly by OERI and OSERS research administrators. These common or shared priorities should be jointly funded by the two authorities, and grantees should be required to provide evidence of schoolwide, collaborative research partnerships involving multi-disciplinary teams that include special educators as well as general educators.*

#### **Specific Recommendations:**

1. Direct a program of research to identify accommodations that enable IDEA-served students to participate in state and district-level assessments, and that are linked to accommodations to enable those students to benefit from the teaching/learning process.
2. Research initiatives targeted to the development and validation of effective teaching/learning processes for students with high-incidence disabilities such as LD should combine prioritization and funding from general and special education resources and the research should be undertaken by multi-disciplinary investigative teams.
3. Research initiatives are needed to develop model demonstration outreach and evaluation programs that exemplify whole-school approaches to inclusive arrangements for all students who would attend the school if non-disabled.
4. Research projects are needed to establish and evaluate inclusive general education classroom arrangements that effectively use small grouping configurations and that incorporate special education teaching/learning processes.
5. Research projects are needed to design, implement and evaluate general education classroom models for effective utilization of paraprofessionals to enhance membership and social engagement opportunities for included students.
6. Research projects are needed to design and evaluate materials, both print and electronic to support initial and longitudinal training for paraprofessionals in support of inclusion of students with low-incidence disabilities in general education classrooms and other school and non-school settings.

7. Combined research projects involving general and special education resources and personnel are needed to investigate models for community-based instruction and vocational preparation of students with and without IDEA support, at the middle and high school levels.
8. Research projects are needed to further develop and evaluate adaptations and accommodations for students with low-incidence and severe disabilities in inclusive arrangements.
9. Research projects are needed to develop and evaluate adaptations and accommodations to enable students with low-incidence and severe disabilities to participate in state and district-wide assessments.
10. Research initiatives are needed to further develop and evaluate integrated uses of technology to enhance classroom academic and social outcomes for students with low-incidence and severe disabilities.
11. Early childhood research initiatives that combine general education, head-start and special education resources and personnel are needed that focus on the prevention of circumstances that could lead to segregation of special education students later on.
12. Research initiatives are needed to extend and evaluate positive behavior support (PBS) processes within early childhood and that encompass families and community-based support providers in PBS plans.
13. Further research is needed on methods of embedded instruction and naturalistic interventions addressed to diverse students including those with identified disabilities in early childhood and preschool settings.
14. Further research is needed on the development and evaluation of realistic family participation models in early childhood and inclusive, preschool programs.
15. Further research is needed on the development and evaluation of key components of successful multidisciplinary team processes that foster and utilize collaborative practices that include family members.

## History of Inclusion

### Framing the Discussion

The debate on inclusion in the field of special education has been framed as a discussion of placement. Should students with disabilities be served in general education classrooms, with appropriate supports and services, or should they be placed in special classrooms (or special schools, and even in some cases in special school districts) with, perhaps, some mainstreaming, or time in general education classrooms and other settings as determined by the IEP? By framing the question around placement, the conversation is limited to the Least Restrictive Environment (LRE) provisions in the Individuals with Disabilities Education Act (I.D.E.A.) [I.D.E.A, 34 C.F.R. § 300.550]. Thus, inclusion becomes largely a debate among special educators, when, in fact, it has important implications for general educators.

There are other ways to frame the discussion. One other way is to ask, “How can services and supports available to a school be organized and coordinated in such a manner that all students can benefit from the total configuration of all available resources?” I suggested this position over a decade ago (Sailor, 1991) on the basis of a shared educational agenda between special and general education in the implementation of comprehensive school reform (then called school restructuring). To frame the question around whole school reform issues, offers potential pathways to the solution of some thorny problems. For one, it engages general educators in the task of identifying special education practices that offer benefits to non-identified students as well as those identified for special education [I.D.E.A. 20 U.S.C. § 1413 (a) (4) (A)]. Special education practices such as positive behavior support (PBS) (Carr, et al., 2002), for example, can be applied on a schoolwide basis (Sugai, et al., 2000; Turnbull, et al., 2002), so that all students sustain benefits from special education practices. General educators can come to value special educators for what they offer the total school. Inclusion, framed this way, is more about including special services and supports for the common good and less about placement, as if it were, in and of itself, an important variable predictive of student success.

Secondly, the determination of eligibility for special education becomes a schoolwide issue rather than exclusively a special education issue. Comprehensive school reform models are typically operated with team processes involving teachers from both general and categorical programs as well as others (Lawson and Sailor, 2000). To summarize, inclusion framed as a debate over placement was an interesting issue, circa 1990, prior to general education’s policy shift away from a concern with curriculum frameworks and toward a focus on whole school models and school restructuring (Furhman, 1993). With the advent of comprehensive school reform, the issue of inclusion becomes a primary concern of general education because of the resource allocation issues at individual school sites (Lawson & Sailor, 2000). Framed this way, the issue of primary concern for research-to-practice becomes one of scientific evidence for what works in inclusive practices, rather than one of placement of students in general education or special classes, on the basis of a priori assumptions about limitations imposed by their disabilities.

*What is inclusion?* The term inclusion first appeared in the literature of special education around 1990 (Sailor, Gee, & Karasoff, 2000; Lipsky & Gartner, 1997). The term inclusion came

to replace the earlier descriptor, *integration*, which was identified with 1980's efforts to have students with severe disabilities educated in regular schools rather than in special schools, primarily for enhancement of their social and communicative development, in addition to functional skill outcomes (i.e., Sailor, Anderson, Halvorsen, Goering, Filler, & Goetz, 1989). The term *inclusion* became differentiated from integration, largely on the basis of perception of membership, by those involved, whether of a special or general education class. Salisbury (1991; quoted in Turnbull, Turnbull, Shank, Smith and Leal, 2002, p. 82) defined it this way:

“In inclusive programs, the diverse needs of all children are accommodated to the maximum extent possible within the general education curriculum . . . Driven by a vision of schools as a place where all children learn well what we want them to learn, schools become creative and successful environments for adults and the children they serve.”

One of the most extensive discussions to appear to date on the history and definitions of inclusion may be found in Turnbull, Turnbull, Shank, Smith, and Leal (2002). They trace the history of inclusion in special education through distinct phases, beginning with mainstreaming; integration and the regular education initiative (REI); inclusive education and full inclusion; and presently, universal design. In brief: *mainstreaming* is the practice of having students with disabilities participate in general education classes for some activities “to the maximum extent appropriate”. The primary placement for such students is a special class or school. Mainstreaming eventually came to be considered a failed practice, accepted by neither general educators nor special educators (Turnbull, et al., 2002). Integration, as mentioned, became associated with the movement of students with severe disabilities from special schools, institutions, etc., into regular public schools. Much of the thrust for integration was stimulated by the policies of Madeleine Will, Assistant Secretary for the Office of Special Education and Rehabilitation Services (OSERS) in the Reagan administration and, herself a parent of a child (now an adult) with disabilities.

The *Regular Education Initiative (REI)* was a policy initiative of Mrs. Will's that was largely recommended on the basis of an extensive series of scientifically controlled investigations by Margaret Wang, Herbert Wahlberg, and Maynard Reynolds, which collectively reported enhanced academic outcomes for children with learning disabilities when they are supported in the general education classroom rather than pulled out into “resource” rooms (e.g., Wang, et al, 1986; 1988; Wang and Wahlberg, 1988; Reynolds, et al, 1987). The REI engendered controversy within the LD professional community, many of whom were identified with resource-room delivery practices. At one point, an entire issue of the *Journal of Learning Disabilities* (1988) was devoted to an attack on the research base reported by Margaret Wang and her colleagues. The REI eventually came to be regarded as a failed policy initiative, largely on the basis of a cool reception from the regular education community for whom it was named. Lieberman (1985) described it as, “. . . a wedding in which we, as special educators, have forgotten to invite the bride [general educators].”

The term *inclusion* emerged in the context of all of this debate around 1990, and came to be associated with placement of students with disabilities in general education classrooms for their primary placement (Sailor, 1991; 2002). The critical features of inclusion were defined as:

a) all students attend the school they would attend if non-disabled (with rare exceptions based on medical or forensic considerations); b) school and general education classroom placements are age/grade appropriate; and c) special education supports are provided in the general education classroom.

The term inclusion quickly became bifurcated, largely on the basis of philosophical considerations advanced by some in the special education community associated with severe disabilities. The term *full inclusion* came to stand for a kind of no-exceptions policy arguing for full-time participation in age-appropriate, general education classrooms for all IDEA-served students, no matter how extensive or significant their disabilities. Full inclusion philosophy was largely grounded in an ethic of social participation and development, and less concerned with academics (i.e., Stainback & Stainback, 1992; Sapon & Shevin, 1992). Much of the argument for full inclusion was impelled by a civil-rights thrust against segregating students on the basis of disability, a theme that was reflected in several important court decisions that favored inclusive placement practices (Sailor, 2002).

*Inclusive education* (e.g., Sailor, Gee, & Karasoff, 1993; Sailor, 1991) emerged at about the same time, as a term that had similar policy implications but with a schoolwide, rather than a classroom focus. Inclusive education called for a “home-base” placement of all students as members of a general education classroom, but left open opportunities for students to be taught in other environments within the school and in the community (i.e., Sailor, Goetz, Anderson, Hunt, & Gee, 1988). While it argued against placement of students in special classes, particularly on the basis of categorical disability, it left open the possibility of removal from the general education class for those periods during which the IEP team determines that the student is unlikely to derive educational benefits from participation, regardless of in-class support (Sailor, 1991). Thus, whereas under a *full inclusion* model, a high-school student with severe cognitive disabilities might participate in a physics class with support from a paraprofessional, in an *inclusive educational* model, the same student would likely receive instruction in some other environment within the school (i.e., art; PE; other inclusive settings as appropriate; or be in community-based instruction, including vocational preparation, (e.g., Wehman, 1996).

Inclusive education, and the term “inclusion” now appears to be well on the way to becoming supplanted by signifiers associated with somewhat larger rubrics. For example, inclusion of special education supports and services (as well as the kids) is becoming a critical feature of comprehensive school reform (e.g., Pugach, 1995; Slavin, et al. 1996; Levin & Chasin, 1994; Lawson & Sailor, 2000). Where the term “inclusive education” has come to reflect a shared educational agenda of general and special education, it has nonetheless comprised a policy thrust primarily emanating from special education. A broader rubric that reflects the same policy thrust, but one that is more equally associated with researchers from both fields as well as some others, is the concept of *universal design*.

Turnbull et al. (2002), describe universal design as, “. . . a technique to enhance the learning of all students” (p. 92). Growing out of standards-based reform (e.g., Kleinhammer-Tramill & Gallagher, 2002; Thurlow, 2000), the universal design concept addresses an assumption of the application of high standards for all students. Curricular goals, objectives, adaptations and supports become multidisciplinary team-generated practices focused within the

culture and philosophy of individual schools (Orkwis & McLane, 1998; Rose, 2000), to enhance access to and maximum outcomes from the general curriculum and its standards by all students, including those with disabilities (e.g., Wehmeyer, Lattin, & Agran, 2001; Wehmeyer, Lance, & Bashinski, in press; Center for Applied Special Technology (CAST), 1998; 1999).

*Summary: History of Inclusion.* Perhaps arguably, we seem to have a tendency in America to create whole industries to address social issues. Special education was significantly upgraded as public policy in 1975 with passage of the Education of the Handicapped Amendments (EHA), later to become IDEA. It was intended by Congress to provide special supports and services to assist students with disabilities to benefit from a free and appropriate public education (Turnbull, Beegle, & Stowe, 2001). From its inception, it has grown into a separate and parallel system which has all too often become fully disengaged from the rest of public education (Hassell & Wolf, 2001; Lyon, et al., 2001). The debate over inclusion, and its various morphs, has really been about separateness of special education vs. belongingness with general education. As pointed out by Pugach and Warger (2001), even though there has long been agreement that the general education classroom “is the placement of choice for most students with disabilities, the heart of what goes on in these classrooms – that is, students learning curriculum has seldom been part of the conversation” (p. 195).

As this is being written, National Public Radio (NPR) is reporting summary information on a debate presently occurring in Congress over a proposed bill that would provide funding for the construction of special schools for homeless children. Are we, as a nation, about to create yet another social-issue industry?

There are signs that the inclusion debate may finally be ending as a placement issue and beginning to be merged with the research-to-practice policy issue. Thus, the conversation is concerned with becoming “what works for students with disabilities in regular schools”, and “what innovations to the teaching/learning process accruing from scientific research in special education work for the benefit of all students?”

It is with reference to that assumption of evolution in special/general education policy that I have organized the remainder of this paper, that which deals with scientific evidence, around the question: **What outcomes accrue to both special and general education students (separately and/or together) from inclusive education practices?** I considered early on whether to address the comparative question of inclusion vs. non-inclusion but rejected it, first because I could find little scientific evidence one way or the other in comparative studies; and secondly, because as I have argued above, it is not a fruitful question for education policy. Where I have identified comparative evidence, I have reported the findings in the topical summaries to follow.

**What is the basis for claiming scientific evidence?** An entirely separate, but also voluminous, debate has raged for years in the field of education as well as its parent discipline, psychology, over the nature of evidence for “what works” (e.g., Paul & Marfo, in press). In the review of evidence for outcomes of inclusive practices which follows, I use as a standard the recent publication of the National Academy of Science, National Research Council (NRC), Scientific Evidence in Education, by Shavelson and Towne (2001), which is presently

undergoing limited distribution by NRC in a pre-publication form. I believe it provides a useful and pragmatic framework for evaluating research on the basis of scientific rigor applied to the investigations. While its approach will not satisfy all researchers, particularly those at the extremes of post-positivism (quantitative) on the one hand and constructivism (qualitative) on the other, it is likely to generate a consensus among the majority because of its thoughtful analysis of the characteristics of rigorous methodology from both perspectives. The standard for rigor in experimental and quasi-experimental methodology is replicability (e.g., Cook & Campbell, 1979), and the standard for qualitative designs is trustworthiness (e.g., Miles & Huberman, 1994). In selecting among the studies summarized here, I applied that yardstick as best I could from perusing original research reports, summaries, reviews and meta-analyses relevant to the question above.

## **Evidence for Inclusion and its Implications**

### **Evidence for students with learning disabilities and other high-incidence disabilities.**

**Participation in Assessments.** One critical feature of outcomes from inclusive educational practices is the degree to which students with disabilities participate in standards-based reform and in assessments linked to standards-based reform. Margaret Thurlow, Director of the National Center on Educational Outcomes at the University of Minnesota recently provided a comprehensive review of the literature on the participation of students with disabilities in standards-based reform (Thurlow, 2000). She concluded, “Students must receive appropriate instruction, characterized both by access to the general education curriculum and by appropriate accommodations.” And, “. . . as we proceed through the next decade, the challenge remains to move beyond simple participation to full-blown success through comprehensive, inclusive, standards-based education for all students (p. 15).”

The issue of research on assessment is covered much more extensively in the present testimony before the Research Agenda Task Force by Doug and Lynn Fuchs. Therefore, I report here only on studies addressed to assessment in a context of inclusive educational practices.

Students with disabilities have historically been excluded from participation in standardized assessments. In the early 1990’s, most states reported fewer than 10% of students served under IDEA participated in assessments (Shriner & Thurlow, 1992). By 1999, the figures were still variable, but most states were estimating 60-65% of students with disabilities participating in statewide assessment (Thurlow, 2000). Kentucky was the first state to implement an alternate assessment (portfolio) that was linked to the portfolio portions of assessment taken by all Kentucky students under the Kentucky Educational Reform Act (KERA) (Kleinert, et al., 2002; Kearns, et al., 2002). Most states are now developing some form of alternate assessments geared to standards-based reform, to accommodate students with disabilities (Thurlow, 2000).

Researchers early on, addressed the issue of whether accommodations that would enable students with disabilities to participate in district-level assessments, such as those addressed to changes in presentation, response, timing, scheduling, setting, etc., would result in increased participation by students with disabilities. A systematic study was commissioned by the

National Assessment of Educational Progress (NAEP) addressed to this question (Anderson, Jenkins & Miller, 1996). Results, reported by Mazzeo, Carlson, Voekl and Lutkus (2000), and Thurlow (2000), provided affirmative evidence for increases in rates of participation accruing to accommodations. Much research remains to be done, however, on the specific nature of accommodations that enable students to benefit from standards-based reform and enhanced accountability in public education.

According to Thurlow (2000), “Most students with disabilities should be meeting the same high standards as other students . . . . Some special educators also hold the attitude that they are more devoted to their students and know better than anyone else how to protect them and care for them. This attitude is a disservice to students with disabilities” (p. 13). Inclusion of students with disabilities in the teaching/learning process holds the potential to reduce perceived differences by educators between IDEA-served and unserved students. As Thurlow (2000) points out, the bottom line is instruction. The key to increasing the rates of participation of students with disabilities in district and school assessments is to directly link accommodations in the teaching/learning process to test accommodations. Inclusion enhances this process by focusing both teaching/learning processes and accountability processes on students’ learning outcomes (abilities) rather than on differences among subsets of students (disabilities).

**Recommendation: There is at present, an “accountability gap” between IDEA – served and unserved students across the states. Research is needed that will close this gap and enable students with disabilities to benefit from standards-based reform. Direct a program of research toward identifying accommodations that work, not only to increase participation roles in assessment but linked directly to schoolwide teaching/learning accommodations.**

**Access to the General Curriculum.** Much of the research over the past decade that has been addressed to inclusive educational practices has investigated methods to increase access by students with disabilities to the general curriculum (e.g., Wehmeyer, Lance & Bashinski, in press; Center for Applied Special Technology (CAST), 1998-1999; Orkwis & McLane, 1998; Wehmeyer, Sands, Knowlton & Kozleski, 2002). Research on access to the general curriculum is increasingly coming to be contextualized under the broader concept of universal design (Dolan & Hall, 2001; Rose & Dolan, 2000; Piska & Coyne, 2001; O’Neill, 2001; Rose & Meyer, 2000; O’Neil, 2000; Rose, Sethuraman & Meo, 2000; Turnbull, et al., 2002). Much of the emerging work on universal design is directed to integrating technology in functional ways with the teaching/learning process for all students (CAST, 1998-1999).

Emerging research in universal design appears to bear direct relevance for both the issue of participation in assessments and access to the general curriculum. For example, researchers at Boston College (Russell, 2000; discussed in Rose, 2000) undertook a series of empirical investigations to examine different modes of expression (i.e., writing vs. keyboarding) on standardized test outcomes with general education students. Results indicated that students proficient in computer use achieved significantly higher scores when they used keyboard for their responses. Making provisions for flexibility of expression appears to extend beyond portfolio assessments. A study by Ruiz-Primo, Schultz, and Shavelson, (1997) provided similar

evidence for benefits accruing to extending automated scoring to expression modalities such as creation of concept maps (Rose, 2000).

IDEA currently requires efforts to maximize the access of students with disabilities to the general curriculum and in such a manner as to ensure that students “progress” or “advance” in the general curriculum [IDEA 20 U.S.C. § 1400 (c) (5) (A)]. While on the face of it, this language would seem to mandate inclusion, when viewed in the context of comprehensive school reform and associated “whole-school” applications, the access issue encompasses much more than just where students are placed (Wehmeyer, Lattin, & Agran, 2001). Numerous school reform models (e.g., Comer, et al., 1996) emphasize the importance of other learning environments for all students, some of which are community based. Research directed to universal design models for all students (Orkwis & McLane, 1998) would seem to afford opportunities to develop potential pathways to both participation in standards-based assessments for students with disabilities, and also for meaningful access to the general education curriculum.

**Shared responsibility: Co-teaching models.** One pathway to achieve access to the general education curriculum that has been systematically investigated is that afforded by co-teaching models, as a particular case of collaboration between general and special educators. Co-teaching has been variously described as cooperative teaching, collaborative teaching, collaborative instruction or team teaching (Scruggs & Mastropieri, 2000). Scruggs and Mastropieri (2000) reviewed scientific evidence for positive outcomes accruing to co-teaching models. They examined 23 studies made up of eight empirical investigations and 15 qualitative studies. Of interest, they were only able to identify 23 out of 300 articles (or 3% of the total) that reported evidence associated with co-teaching approaches. The vast majority of articles, books, etc., were “how to” prescriptions, etc., rather than “does it work?”

Commenting upon the review above, Weiss and Brigham (2000) concluded that, on the basis of these few investigations, “The evidence in co-teaching gathered to date suggests that although co-teaching is a viable option for some students with particular teachers in certain schools, a widespread endorsement of this option for service delivery for most students, with most teachers, in most schools is premature and ill considered,” (p. 244).

An empirical investigation reported by Martson (1996) evaluated academic outcomes of students with learning disabilities served in three different types of instructional designs. Full inclusion (100%) in general education classroom was compared to a resource-room only model (100% pullout) and to a combination of the two models (“combined service” model). Results favored the combined model over the other two on reading assessments.

These kinds of comparative instructional design model investigations are surprisingly rare. In conducting a recent review of the literature searching for comparative investigations of inclusion vs. separate instructional models, the Wisconsin Education Association Council (WEAC) (2001), concluded, “. . . an accurate comparison between separate programming and inclusive programming cannot be done” (p. 5). In drawing conclusions from their review, the authors recommended, “When considering a move from traditional/regular special educational programming to a more inclusive approach, it is important that the entire school community be involved in a thoughtful, carefully researched transition” (p. 6). Later, they state, “Real inclusion

involves restructuring of a school's entire program and requires constant assessment of practices and results" (p. 7).

**Evidence from inclusive teaching/learning processes.** The question to be addressed in this section is: What evidence exists in support of curriculum and instructional practices accruing to inclusive education of students with high-incidence disabilities?

Fisher, Schumaker and Deshler (1995) in a *Focus on Exceptional Children* paper entitled, "Searching for validated inclusive practices: A review of the literature", provided a comprehensive examination of the state of scientific evidence for inclusive teaching/learning processes up to the mid 1990's. Criteria to be included in their review were: a) investigations conducted in single-teacher general education classrooms with LD students, students with behavioral disabilities and/or students with mild mental retardation; b) studies had to report empirical outcome data on academic outcomes; and c) studies had to have a rigorous experimental design. Studies were sorted into six categories for purposes of review: peer-tutoring, cooperative learning, teaching devices, content enhancement, curriculum revision, and strategies instruction.

Results of studies examining classwide peer-tutoring models including those using curriculum-based measures were positive. Significant increases in spelling, social studies and other indicators of academic progress were obtained, not only on students with mild disabilities but also, in three studies reporting data on all students, similar effects were found for students without disabilities (Delquadri, et al., 1983; Maheady, et al., 1988; Pomerantz, et al., 1994). Fisher, et al., concluded that classwide peer tutoring (CWPT) models appear to hold promise as inclusive instructional practices for both special and general education students, but that more research is needed to establish optimal practices.

Slavin, Madden, and Leavy (1984a; 1984b) investigated the effects of a form of cooperative learning called team-assisted individualization (TAI). Results revealed significantly higher post-test scores on math for both groups of students. The magnitude of the difference approached half a grade level. Other studies examined reading outcomes. Fisher, et al., concluded that while cooperative learning processes offer encouraging results for both special education and general education students in inclusive arrangements, more information is needed, particularly on teacher satisfaction, and on the amount of time required to implement cooperative learning processes.

Teaching devices as inclusive practices include graphic organizers, study guides, and computer accommodations. For example, Horton, Lovitt, and Berglund (1990) conducted a series of studies to examine graphic organizers' effectiveness as inclusive practice. One hundred eighty, seventh and tenth grade students, including students with learning disabilities, participated in a controlled pre-test, post-test design. Results were significant with both groups of students. Following use of teacher-directed graphic organizers, the students with learning disabilities moved from 30% correct answers to 70% correct on quizzes directed to reading comprehension. Similar results, though less dramatic, occurred with the general education students. Fisher, et al., reported that six of seven studies using teaching devices were supported

by the evidence, to be effective as inclusive teaching practices. They concluded that further research is needed, particularly on teacher satisfaction with use of the devices.

Use of content enhancement routines (i.e., Lenz, Schumaker, Deshler, et al., 1993; Lenz, et al., 1994) produced similar dramatic results with LD students increasing unit quiz performances by an average of 10 percentage points. In a study by Bulgren, Schumaker, and Deshler (1994a; 1994b) students with learning disabilities answered an average of 36% of concept questions under traditional instruction compared with 63% using a concept comparison routine. These investigators also obtained teacher satisfaction data suggesting that use of the routines would become a permanent part of their teaching practice. Fisher, et al. (1995) concluded that content enhancement methods "seem to fit many of the realities of general education classes and can improve the achievement of the majority of students with learning disabilities enrolled in general education content classes" (p. 12).

Similarly, studies of the use of curriculum revision strategies (i.e., Carnine, 1994; Carnine, Crawford, Harniss & Hollenbeck, 1995) provide a growing body of scientific evidence for use as an inclusive instructional practice. These investigations supported use of the practices not only with students who have high-incidence disabilities, but also with low-achieving students who were not identified for IDEA support.

Finally, studies investigating strategies instruction as an inclusive instructional practice were reviewed by Fisher, et al. (1995). Strategies instruction helps students to become self-directed and self-regulated learners (Deshler & Lenz, 1989). The studies reviewed provided evidence that strategies instruction methods prove to be effective across many grade levels and require no more instructional time than traditional instructional methods when applied to math skills (Harris, et al., 1995).

Altogether, Fisher, et al. (1995), reviewed some 29 empirical investigations into 14 different inclusive teaching practices, and found promising practices for improving the academic achievement of students with and without disabilities enrolled in general education classrooms. They concluded: "Obviously, before the fields of special education and general education can include all students with disabilities successfully in general education classrooms, more research and development are needed" (p. 17).

**Secondary inclusive practices.** Schumaker, Deshler and McKnight (in press) have compiled a review of the evidence in support of the use of teaching routines as inclusive practice in secondary programs. They concluded from their review that, ". . . research has shown that to bring about a strong impact on the academic success and life adjustment of at-risk students requires the use of a broad array of instructional strategies and techniques in a coordinated fashion by several teaching and support personnel." And further, "Given the results presented here, general education teachers clearly possess the means of significantly halting the decline in school achievement of many at-risk students as well as reducing the escalation of referral rates of these students to special education" (p. 15).

**Conclusions.** Empirical investigations lending scientific evidence for the validity of a broad array of inclusive instructional practices resulting in significant gains for students with

high-incidence disabilities have now been well documented. Furthermore, many of these investigations have provided evidence that general education students, particularly "at-risk", low-income and/or low-achieving general education students benefit from these practices as well.

The sum of these studies provides striking evidence that innovative teaching practices that are validated for students with disabilities hold promise for general education students as well, when applied in inclusive educational settings. It is clear that a fruitful line of research has been established in the 1990's to this end, and that more research is needed. Again, the evidence suggests that research directed to teaching/learning processes with students who experience high-incidence disabilities should be organized within a universal design rubric that approaches phenomena from the combined perspectives of whole school stakeholders (students, teachers, families and administrators) and particularly, integrates validated sources of knowledge from both general and special education (Turnbull, et al., 2002).

**Recommendation: Research initiatives targeted to the development and validation of effective teaching/learning processes for students with high-incidence disabilities such as learning disabilities, should combine funding resources and research prioritization processes from OERI and OSERS (research units). Resultant investigations should be conducted by teams of investigators representing special as well as general educators.**

### **Students with Low-Incidence Disabilities including Severe, Cognitive and Multiple Disabilities**

One of the most comprehensive reviews of research on inclusive education to appear in recent years is that provided by McGregor and Vogelsberg (1998). Their review included many of the earlier studies that were discussed and summarized in a previous comprehensive review of the literature on inclusion provided by Halvorsen and Sailor (1990). A synthesis of the McGregor and Vogelsberg review formed the basis for the section of the 21<sup>st</sup> Annual Report to Congress (USDE/OSEP, 2001), entitled, Outcomes of the Inclusive Schooling Practices (pp. III 19 - III 32). Of the studies reviewed by McGregor and Vogelsberg (1998) 36 (of 112) meet the criteria for scientific evidence accruing to inclusive educational programs with low-incidence students. They summarized the findings from their review around several topical areas, which I address below.

**Acquisition of skills as outcomes of inclusive practices.** McGregor and Vogelsberg (1998) reported: 1) that students with disabilities demonstrate high levels of social interaction in settings with typical peers, but that placement alone is insufficient to assure positive social outcomes (e.g., McDonnell, Hardman, Hightower & Kiefer-O'Donnell, 1991); 2) social competence and communication skills improve in inclusive settings (e.g., Hunt, Alwell, Farron-Davis & Goetz, 1996); 3) academic skills improved (McDonnell, Thorson, McQuivey, & Kiefer-O'Donnell, 1997); 4) skills improved in interactive, small group contexts in general education classrooms (e.g., Hunt, et al., 1994); and 5) the quality of IEP's is improved in inclusive programs compared to self-contained programs (e.g., Hunt, et al., 1994). In sum, there is a small body of empirical evidence for positive skill acquisition outcomes in inclusive educational programs.

**Social outcomes from inclusive programs.** Social outcomes are of particular importance for students with low-incidence and severe disabilities since poor social skills become the basis for segregation and a more restrictive quality of life in adulthood (Turnbull, et al., 2002). The studies reviewed indicated: 1) friendships develop between students with disabilities and their typical peers in inclusive settings (i.e., Kennedy, Shukla, & Fryxell, 1997); Meyer, et al., 1998); 2) teachers play an important role in facilitating friendships among disabled and typical students (i.e., Janney & Snell, 1996); 3) instructional assistants placed in general education classrooms who maintain ongoing physical proximity to their included students can actually inhibit positive interactions with their students and general education peers (i.e., Giangreco, et al., 1997); and 4) friendships and memberships are facilitated by longitudinal involvement in the classroom and in routine activities of the school (i.e., Schnorr, 1997).

In sum, social development including enduring friendships and perception of membership in the class by typical peers can be characterized by positive outcomes according to the available evidence from inclusive settings. It is clear, however, that these outcomes are dependent upon instructional arrangements that include small groupings; upon specific teaching interventions designed to stimulate interactions; and upon creative use of classroom assistants, i.e., "inclusion facilitators" rather than "bonded to the student with disabilities."

**Impact of inclusive programs on typical peers.** One of the early barriers to inclusive educational placements resulted from fears on the part of general educators that inclusion would detract from outcomes of general education students. This concern led to a number of investigations targeted to outcomes for typical peers in inclusive settings. The evidence can be summarized as follows (McGregor & Vogelsberg, 1998): 1) inclusion does not compromise general education students' outcomes (i.e., Sharpe, York, & Knight, 1994; Salisbury & Palombaro, 1998; McDonnell et al., 1997); 2) typical peers benefit from involvement and relationships with students who have disabilities in inclusive settings (i.e., Kishi & Meyer, 1994; Helmstetter et al., 1994); and 3) the presence of students with disabilities in general education classrooms leads to new learning opportunities for general education students (i.e., Evans, et al., 1994; Salisbury, et al., 1997).

**Impact of inclusive education on parents.** Parents are often caught in conflicting streams of opinion and information on inclusive programs. McGregor and Vogelsberg (1998) summarized available evidence on parental impact as follows: parent support for inclusion is enhanced by experience with inclusive programs (both parents of general and of special education students) (i.e., Diamond & LeFurgy, 1994; Palmer et al., 1998), but that parent attitudes are strongly shaped by their perceptions of teacher attitudes (i.e., Green & Shinn, 1994; Giangreco, et al., 1991).

**Impact of inclusive education on teachers.** McGregor and Vogelsberg (1998) discussed evidence from teacher impact investigations under three themes: 1) teachers gain confidence in their ability to run inclusive classrooms over time (e.g., Giangreco, et al., 1993; Bennett, DeLuca, & Bruns, 1997; Wolery, et al., 1997); 2) support from other teachers is essential (e.g., Pogach & Johnson, 1995); and 3) inclusion is facilitated by teacher abilities to make on-the-spot judgments concerning support to encourage participation (e.g., Olson, et al., 1997).

**Program-related outcomes.** The final category of evidence from studies reviewed by McGregor and Vogelsberg (1998) accrues to investigations of cost effectiveness. They conclude, ". . . while start-up costs may initially increase the cost of inclusive services, the costs over time decrease, and are likely to be less than segregated forms of service delivery" (p. 69) (e.g., Salisbury & Chambers, 1994; McLaughlin & Warren, 1994; Halvorsen, et al., 1996).

McGregor and Vogelsberg (1998) summarize their findings overall as follows: "Connections to the larger 'whole' of the school are not clearly visible from all perspectives. It is the connection of efforts to include students with disabilities to the larger school, district and state level contexts, that must be a primary focus of the future as efforts to make schools more inclusive continue" (p. 71). And later, "Toward this end, future research and demonstration needs to be focused on classroom-wide and building-wide contexts, reflecting an alignment within special education as well as between special and general education" (p. 71).

These conclusions by McGregor and Vogelsberg (1998) are also reflected in a review of research on inclusive practices provided by Kavale and Forness (2000). They conclude, "Although the trend has been for greater integration for a greater number of students with disabilities, whether or not this means all students all the time has been subject to passionate debate (see Roberts & Mather, 1995, and response by McLesky & Pugach, 1995). A more cautious policy is thus warranted. Inclusion appears to be not something that simply happens, but rather something that requires careful thought and preparation. The focus must not simply be on access to general education, but rather the assurance that when inclusion is deemed appropriate, it is implemented with proper attitudes, accommodations, and adaptations in place (Deno, 1994; King-Sears, 1997; Scott, Vitale, & Masten, 1998" (p. 287).

Lipsky and Gartner (1997) in their book, *Inclusion and School Reform*, also provided a review of evidence to date from scientific studies of inclusive practices with students who have low-incidence and severe disabilities. In addition to the studies reported above, Lipsky and Gartner found that, "Students with severe disabilities have higher levels of 'active academic responding and lower levels of competing behaviors, resulting from inclusion" (Keefe & VanEtten, 1994). The study also found peer modeling to be the 'most powerful tool' in the general education setting.

Also, "General class participation for students with severe disabilities increases the frequency of interactions of these students with peers without disabilities, both in and outside of the classroom (Hunt, et al., 1994; Kennedy & Ikonen, 1996)" (p. 187). Finally, Lipsky and Gartner (1997) provided excerpts from the National Center on Educational Restructuring and Inclusion (1995) which summarized school district evaluations of inclusion from around the country. Positive outcome data from inclusive practices with low-incidence students was reported by Fort Bragg Unified School District (California), Napa Valley Unified School District (California), Anne Arundel County Public Schools (Maryland) and others. While it is unknown from available sources whether the results reported by these districts used scientifically controlled methods, the findings reported do suggest some control in the investigations. In the Anne Arundel study, for example, the report stated, "Results found that the co-taught classes, with a general educator and special educator working collaboratively with a heterogeneous group

of special and general education students, can produce significantly better results than general education classrooms in achieving academic requirements for high school graduation" (p. 195).

Lipsky and Gartner (1997) conclude their review and analysis of evidence in support of inclusion with a quote from the Final Report of the Inclusive Education Recommendations Committee: Findings and Recommendation (1993), Lansing, Michigan State Department of Education: "When one contrasts such [positive] indicators [regarding inclusion] with the fact that there appears to be little, if any evidence in research to support superior student outcomes as a result of placement in segregated settings, one must seriously question the efficacy of spending ever-increasing sums of money to maintain dual systems" (p. 198).

Hunt, et al (2001) summarized evidence for efficacy of collaborative team processes at school sites using a process termed Unified Plans of Support (UPS). Using a program evaluation design, these researchers found that consistent implementation of resultant plans from the UPS team process produced significant increases in academic skills, self confidence indicators, social interaction indicators and measures of pride in academic accomplishments across students with disabilities, including severe disabilities, as well as general education students. The results of this investigation build upon and extend the implications of earlier research on team-guided, collaborative planning approaches to teaching/learning processes with this population (e.g., Giangreco, et al, 1993; Giangreco, et al, 2000; Rainforth and York-Barr 1997, Salisbury, et al, 1997; Snell and Janney 2000; Villa and Thousand, 1992); and Soto, et al (2001). Hunt, et al (2001) discuss the challenges posed by consolidating resources from various categorical programs to achieve a fully integrated process at school sites (e.g. McLaughlin and Versteegen, 1998; Mattson & Beckstrom, 1999; Miles and Darling-Hammond, 1998). They conclude "...the vision of consolidated services to more efficiently and effectively meet the needs of diverse populations of students must exist at all levels of education from federal and state education policy and regulations to school-district accounting systems, to school buy-in" (p. 254).

Other reviews of research on inclusion of students with severe disabilities can be found in Sailor (2002); Gee (2002); and Sailor, Gee, and Karasoff (2001). These reviews, however, cover much of the same ground as those reported above and come to essentially the same conclusions, so they are not reported here. I was unable to identify any scientific evidence accruing to inclusive practices for students with blindness or deafness/hard-of-hearing. Inclusion with children who are deaf/hard-of-hearing, however, appears to be unacceptable to the majority of researchers and practitioners in the deaf community, if it occurs in accordance with the "natural proportion" principle (no more than one student with deafness per classroom). With interpreters (ASL) and opportunities to cluster, as in home-room and ASL classes on general education school sites, inclusion appears to be increasingly becoming more acceptable.

## **Conclusions**

There are too few comparative investigations using rigorous methodology, between inclusive and separate programs for students with low-incidence and severe disabilities to draw any firm conclusions. Those few that exist (i.e., Jenkins, et al., 1989; Cole & Meyer, 1991) suggest performance gains favoring inclusive settings on skill areas reflecting socialization and communication. While some might suggest that socio-communicative development is less

important than progress in academic skills, these social skills are nonetheless "building blocks" for further progress in educational and other settings with this population. The findings of these comparative studies were also matched in non-comparative studies (i.e., Hunt, et al., 1996; 1994; Jolly, et al., 1993; Kozleski & Jackson, 1993).

An important variable affecting academic progress in inclusive settings for low-incidence students is grouping arrangements. Small grouping arrangements such as cooperative learning (i.e., Johnson & Johnson, 1983), adaptive learning environments (i.e., Wang & Birch, 1984), and peer tutorial arrangements (Maheady, et al., 1987) appear to produce greater gains than whole-classroom instruction models for students with low-incidence and severe disabilities.

Concerns that inclusive educational approaches will prove detrimental to outcomes for typical general education students appear to be unfounded. In fact, there is some mounting evidence that innovations introduced into general education classrooms to accommodate students with a variety and range of disabilities directly benefit general education students (Manset & Semmel, 1997). This finding parallels the review of available evidence for high-incidence disabilities by Fisher, Shumaker and Deshler (1995).

Finally, summary data reported in the 21<sup>st</sup> Annual Report to Congress indicate a continuing slow but steady trend of placing students with disabilities in general education schools. For example, by 1997 more than 90 percent of students with high-incidence disabilities were served in general education schools and close to 70 percent of low-incidence students with severe disabilities. Within the regular schools, however, the split is about 50-50 between pull out and "pull in" support models.

### **Recommendations:**

**As with high-incidence students, those with low-incidence and severe disabilities can benefit socially and academically from inclusive educational models under certain conditions. Additional research should be directed to:**

- a) Whole-school approaches to inclusive educational arrangements for all students who would attend the school if non-disabled.**
- b) Combined, multidisciplinary investigations of classroom arrangements utilizing small-groupings to accommodate included students assisted by special education research;**
- c) Utilization of paraprofessionals in general education classrooms in ways that enhance social development of students with disabilities and academic gains for all students;**
- d) Model demonstration and outreach projects that blend community-based and on-site instruction for middle and high-school students involving both included students and non-referred general education students;**

**e) Development of instructional adaptations to further enable low-incidence students with disabilities to participate in the general curriculum;**

**f) Development of adaptations to the district and school-level assessments to enhance the participation of low-incidence students in assessments that will facilitate their gaining benefits from standards-based school reform; and**

**g) Further development of integrated uses of technology to enhance classroom participatory academic and social outcomes for students who experience low-incidence disabilities.**

### **Early Childhood Education**

Comprehensive reviews of research on inclusive practices in early childhood and preschool programs are available from Nisbet (1994), Buysse and Bailey (1993); Peck, Odom, and Bricker (1993); Odom, et al., (1995); Strain (1990); Lipsky and Gartner (1997); and most recently by Odom (2002). Nisbet's comprehensive review, which extends back over some 25 years of empirical studies provided the following conclusions (Nisbet, 1994; also reported in Lipsky & Gartner, 1997, pp. 190-191):

a) Positive effects accruing to inclusion were found for social competence and interactions of preschoolers with disabilities, including comparative (with non-inclusive programs) gains in playing time with peers; positive interactions with peers, and more verbalizations with peers;

b) Positive effects from inclusion were found in behavioral outcomes such as more sophisticated tag play;

c) There are no differences between separately and inclusively served preschool children on measured developmental progress on standardized tests; and

d) No negative impacts were found on typical children from inclusion.

Systematic studies, for example, by Jenkins et al., (1985; 1989), using randomized treatment designs concluded few significant differences distinguish between preschoolers served in separate versus inclusive arrangements on standardized measures of developmental progress. These studies were important at the time because virtually the only rationale for segregating young children for educational services has been and continues to be the argument that separate programs can provide more specialized and more effective interventions. The obvious problems associated with segregating early childhood and preschool children with disabilities for educational services is that it establishes an early pattern of perception by family members and later school service providers, that some form of segregated placement is needed for students with disabilities (Turnbull, et al., 2002). Thus, it establishes a lifelong pattern of segregation in the absence of any evidence that young children benefit from being served separately.

Strain (1990), for example, concluded on the basis of a review of empirical evidence up to that time, "No study that has assessed social outcomes for children in integrated versus segregated settings has found segregated settings to be superior. This is important because one of the things that parents of young children with handicaps most desire for their youngsters is to develop friendships with their same-age non-handicapped peers. And if we ask this question, "What developmental outcomes are most likely to lead to successful post-school adjustment?" Social skills is always the answer" (quoted in Lipsky & Gartner, 1997, p. 192).

Odom (2002) presents a more highly developed conception of inclusion: "At the outset, it is very important to note that inclusion extends far beyond the classroom setting . . . [it] also refers to participation in the broad range of activities that normally occur for typically developing children in their community and culture" (p. 3). In summarizing the results of the five-year research project, Early Childhood Research Institute on Inclusion (ECRII), he presents research summaries on such diverse topics as collaboration among adults in inclusive preschool settings, community participation, family perspectives, cultural and linguistic diversity and social policy.

**Social interaction.** Not surprisingly, there is evidence that young children with disabilities who are served separately, are less socially engaged than their peers in inclusive arrangements (Guralnick, 1999; 2000; McConnell & Odom, 1999). If specific teaching practices are directed to establishing social interactions with included peers, there is evidence that their social isolation can be effectively changed in preschool programs for some children (McEvoy et al., 1988; Twardosz, et al., 1983). For example, Frea, et al., (1999), and Odom and Choi (1998) found positive social interaction outcomes resulted from a procedure of constructing specific social interaction groups as part of a preschool curriculum. Positive results were also found from investigations into explicit social skills training for all kids, including those with identified disabilities (Odom, et al., 1993; English et al., 1997). Of the various training models tested, peer-mediated strategies appear to consistently produce the most positive outcomes (English et al., 1997; Odom et al., 1992; Odom et al., 1999; 1998).

**Curriculum modifications.** As with school programs, curriculum modifications are a form of accommodation through activities or materials that enables children with disabilities to participate in the general curriculum of the class or grouping. One form of curriculum modification with evidence for positive outcomes in early childhood inclusion is embedded learning opportunities, or the practices of embedding specialized instruction into existing classrooms and routines (Bricker & Cripe, 1992; Davis, et al., 1998; Noonan & McCormick, 1995; Wolery & Wilbers, 1994; Fox & Hanline, 1993; Venn et al., 1993).

Another class of embedded instructional procedures with demonstrated efficacy in early childhood programs is that variously called "naturalistic interventions" (Odom, et al., 2002; Rule, et al., 1998). Among the investigations reporting success with procedures of this type are, "enhanced milieu training" (Kaiser & Hester, 1994); "activity-based instruction" (Bricker, et al., 1998); "pivotal response training" (Koegel, et al., 1999), and the aforementioned, "embedded learning opportunities" (Horn, et al., 2002).

**Collaborative teaching.** Studies by McWilliam (1996); Peck, Furman & Helmstetter (1993), and Lieber, et al. (2002) provide evidence that positive outcomes for included children at

the preschool level can be enhanced when programs are guided by collaborative efforts among diverse professionals. Wolery and Odom (2000) recommended on the basis of many of these findings, that administrators of preschool programs address: a) the need for a shared philosophy among staff; b) the need for adequate staff meeting times; c) the need to agendaize meetings to work efficiently toward common goals (e.g., Friend & Cook, 1996; Thousand & Villa, 1992); d) the need for team members to share expertise across disciplines; e) the need to support efforts to resolve conflicts arising from collaborative planning; and f) the need to support distributive workloads across the team, including commitments from parents who choose to be team members.

**Family involvement.** There is evidence that positive outcomes in early childhood and preschool inclusion programs are enhanced by increased family involvement (Beckman, Hanson, & Horn, 2002; Beckman, et al., in press; Strain, Smith, & McWilliam, 1996; Turbiville, et al., 1996; Vincent & McLean, 1996). The most critical feature that emerged from these studies was the nature and quality of the relationship developed between service providers and family members. Understanding the family's frame of reference and willingness to share information with families and include family members in planning and decision-making were also important.

**Community participation.** One difference between pre-1990 and more contemporary research investigations in early childhood has to do with the greater array of contexts that were investigated in present studies, such as neighborhoods, religious organizations, recreation centers, etc. Positive outcomes accruing to inclusion in community settings have been reported by Bruder (1993), McClean & Hanline (1990), and Yellen-Shiring & Voss (1996).

**Costs of preschool and early childhood inclusion.** Odom, et al. (2001; 2002; in press) reported a detailed study to investigate costs of services related to instruction comparing inclusive program models with separate programs serving only children with disabilities. They found that inclusive programs were less expensive. The total cost per service hour was about 8% less (\$5.77 versus \$6.28) in inclusive models (Odom, et al., 2002, p. 132).

**Conclusions.** Available research indicates that membership is an important variable and is dependent upon specific teacher-directed activities. Teachers need to consider that disability is but one feature comprising diversity in a preschool class, and as such, should be addressed in a common context. Multi-disciplinary team processes contribute to successful outcomes from inclusive programs, but to be successful, these require adequate planning time; efficient agendas and use of the available time; and active collaboration across professional identities and families.

There is evidence to suggest that specialized instruction is a critical component for positive outcomes for inclusion. When instruction is directed to inclusive activities and outcomes both students with and without disabilities benefit. Naturalistic instruction and interventions have demonstrated particular effectiveness in this regard.

Finally, there is evidence from the research literature in early childhood which suggests that typical peers derive benefits from having peers with disabilities included in their program (Odom, 2002; Diamond & Innes, 2000; Diamond, et al., 1997; Okagaki, et al., 1998; Favazza & Odom, 1997; Li, et al., 1997).

In summarizing the report on the five-year research effort of ECRII, Odom (2002) provided the following implications:

- Our research was consistent with other research reviews in indicating that children with disabilities, as a group, experience developmental and social benefits from being in inclusive settings.
- Despite the overall positive benefit, inclusive experiences may not be positive for all children, so the progress and daily experiences of children with disabilities and their typically developing peers should be monitored frequently;
- Typically developing peers benefit from the overall experiences gained from early childhood settings (i.e., are not held back by the presence of children with disabilities), and their attitudes toward children with disabilities may be positively affected” (p. 121).

### **Recommendations**

**There appear from available evidence to be no good reasons to segregate young children (early childhood/preschool) on the basis of disability. Research is therefore needed to be directed to a prevention focus in inclusive arrangements.**

- **Policy studies. Further research is needed on the process of transition from Part C and Early Head Start programs to preschool to ensure inclusion of students with disabilities in Head Start, community-based and district-provided preschool programs.**

- **Positive Behavior Support. Research is needed to expand functional behavioral assessment and PBS applications to family and related environmental configurations in early childhood to enable the development and implementation of longitudinal PBS plans that will prevent later emergence of severe behavioral disabilities and anti-social behavior in general.**

- **Inclusive instructional practices. Further research is needed on methods of embedded instruction and naturalistic interventions addressed to diverse students including those with disabilities in early childhood and preschool settings.**

- **Family participation. Further research is needed on development of realistic family participation models of benefit to diverse populations including families of students with disabilities.**

- **Team processes and collaboration. Further research is needed on key components of successful multidisciplinary team processes that foster and utilize collaborative practices that include family members.**

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