Intervention Research and Bridging the Gap between Research and Practice

Donald D. Deshler[1]

University of Kansas

Getting research-based instructional practices into the hands of professionals who teach students with learning disabilities is one of the most significant challenges for educators. This paper describes some of the major factors accounting for the gaps that exist between the special education research and classroom practice and presents four major policy recommendations to be considered by those who frame legislative initiatives on behalf of individuals with disabilities.

One of the cornerstones of the No Child Left Behind Act of 2001 that was passed overwhelmingly by both chambers of Congress and signed into law by President Bush is its call for be grounded in scientifically-based research. In that particular bill, the phrase "scientifically-based research" appears 111 times. A belief shared by both the Congress and the Administration is that effective educational reform must be linked to educational practices that are solidly grounded in research. It is clear that evidenced-based practices will be a central feature in the reauthorization of IDEA later this year.

Given the importance of ensuring that any investments on behalf of individuals with disabilities yield optimal outcomes, it is encouraging to have legislative initiatives that deal with individuals with disabilities tied so closely to practices that have been validated and shown to make a difference in the performance of individuals. As encouraging as it is to have legislation espousing and even requiring the use of scientifically-based practices, there is no guarantee that results in our nation's classrooms will change unless we seriously confront the broad array of issues involved in effectively translating promising research findings into practice. A failure to address these issues may have the net effect of having these "scientifically-based practices" not impacting the performance of students any more than when teachers base their practices on tradition and anecdote.

Therefore, I wish to address a challenge that should be foremost in the mind of every educational researcher, policy maker, or agency that sponsors educational research for individuals with disabilities. Namely, do the findings of a research program improve the quality of practices and the outcomes for individuals with disabilities? If neither practice nor outcomes improve *on a large scale, sustainable basis*, it is reasonable to question either the value of the specific line of research *or* the way that research programs in general are conceptualized and operated within a given funding agency. In short, federal investments in research programs for children, including those with individuals with disabilities are defensible only if they lead to practices that improve the quality of services and outcomes for these individuals and their families.

For years, much of education has been plagued by the infamous research-practice gap (e.g., Carnine, 1997; Elmore, 1996; Gersten, Vaughn, Deshler, & Schiller, 1997; Greenwood & Abbott, 2001; Kauffman, 1996; Kennedy, 1997; Robinson, 1998). While encouraging results sometimes emerge in individual research studies, more often than not, these practices are not successfully brought to scale and sustained over an extended period of time in a broad array of settings and under differing conditions. I would submit that unless a so-called "scientifically-based practice" has been shown to get results in a scaled-up and sustained fashion, it can't be said to be scientifically-based. That is, just because a study or line of research is embraced by the scientific community and hailed as a wonderful breakthrough, there is no guarantee that the innovation will impact practice. If the innovation ends up sitting on the shelf in most classrooms because it is too cumbersome or burdensome to use, we need to question the overall value of its contribution, and we need to question the standards that lead to it being labeled as "scientifically-based." Unless an innovation has been proven to be effective *and* usable in front line settings, researchers cannot legitimately claim their innovation to be scientifically-based. In short, if questions of external validity have not been satisfactorily answered in a broad array of contexts, the claim of "scientifically-based" is premature.

REASONS FOR THE GAP

Prior to turning to policy recommendations for ways to improve the utility of research findings, it is important to recap some of the major reasons accounting for the difficulty of having research-validated practices embraced by practitioners. There is a growing literature that explains the major reasons accounting for the research-practice gap in both general education (e.g., Elmore, 1996; Kennedy, 1997; Robinson, 1998) and special education (e.g., Carnine, 1997; Gersten, Vaughn, Deshler, & Schiller, 1997; Greenwood & Abbott, 2001; Kauffman, 1996).

In summarizing this literature, Greenwood and Abbot conclude the research-practice gap to be largely caused by: (a) the separateness of the research and practice communities (i.e., often times researchers fail to involve practitioners in the research process as meaningful and valued partners; hence, they miss the opportunity to discover exemplary classroom practices that have the potential for formal validation and

[1] Address correspondence to Don Deschler, Ph. D., University of Kansas, Center for Research on Learning, 518 J.R. Pearson, 1122 West Campus Road, Lawrence, KS 66045. E-mail: ddeschler@ku.edu

widespread applicability); (b) the limited relevance of educational research as perceived by practitioners (i.e., research is often conceptualized and conducted in settings that are different from the realities of schooling); (c) the failure of researchers to produce usable interventions (i.e., with sufficient specificity and concreteness for use by practitioners); and (d) the limited opportunities for meaningful professional development (i.e., there is often a heavy reliance on traditional models of professional development that call for a top-down transmission of information to teachers).

These factors underscore the magnitude of the challenge confronting those involved in the disability research enterprise. I would submit, however, unless research agendas are conceptualized in light of these realities, many of the field's research investments will produce poor dividends for individuals with disabilities and their families. At the U.S. Department of Education's Working Group Conference on *The Use of Scientifically Based Research in Education* (February 6, 2002), Assistant Secretary Susan Neuman indicated that the Office of Educational Research and Improvement is concerned about the need for research that will address the challenge of translating scientific research into practice. Such initiatives are essential if we are to reap the full benefit of the Department's research investments. To this end, it is imperative that impending legislative initiatives and strategic plans within agencies that support research on behalf of individuals with disabilities deliberately and aggressively address the broad array of issues surrounding the research-practice gap. A failure to do so will lead to minimal benefits from federal investments in the disability research enterprise.

Toward a Solution

Given the scope and interrelated nature of the challenges described above, it is clear that only a comprehensive and well orchestrated plan of action that has an explicit goal of *bringing scientifically-based practices to scale on a sustained basis* will lead to dramatic changes in prevailing practices and improved outcomes for individuals with disabilities. Toward this end, I would offer the following recommendations for ensuring that every individual with a disability served under IDEA have a program firmly grounded in scientifically-based practices.

Recommendation #1: Support an R & D agenda that addresses the contextual realities within which individuals with disabilities function and are served

Individuals with disabilities live in families, attend schools, and receive service from agencies that are highly complex and often unpredictable. The quality of services, childcare, or instruction varies greatly as do the abilities and skills of parents, care givers, and teachers. Because of these realities, it is important that research programs appropriately account for the many contextual factors and the systemic complexity of implementing and sustaining scientifically-based practice in schools and other organizations.

The newly released National Research Council report, written by a distinguished team of educational scholars entitled *Scientific Research in Education* (2002) edited by Richard J. Shavelson and Lisa Towne, specifies a set of six guiding principles that should underlie all scientific inquiry, including edu-

cational research: (1) pose significant questions that can be investigated empirically; (2) link research to relevant theory; (3) use methods that permit direct investigation of the question; (4) provide a coherent and explicit chain of reasoning; (5) replicate and generalize across studies; and (6) disclose research to encourage professional scrutiny.

This report emphasized the fact that *how* these principles get operationalized varies from one discipline to another according to the *unique features* of that discipline. Among the salient features of the educational research enterprise and their effects on scientific research are: values and politics, human volition, variability in educational programs, the organization of schools, and the diversity of the many individuals involved in education. The resulting implication of the complexity inherent in the educational process is that researchers *must* account for influential contextual factors within the process of inquiry and in understanding the extent to which findings can be generalized. The committee summarized the vital role of context as follows:

> In sum, the features that shape the application of our principles of science to education research...underscore the important role of context. A specific implication of the role of contextual factors in education research is that the boundaries of generalization from scientific research need to be carefully delineated. . . .Naïve uses and expectations of research that do not recognize such contextual differences can lead to simplistic, uninformed, and narrow interpretations of research and indiscriminate applications. To build theory, formulate research questions, design and conduct studies, and draw conclusions, scientific education research must attend to such contextual conditions.
>
> This attention to context also suggests that advancing understanding of complex and diverse education settings may require close coordination between researchers and practitioners, interdisciplinary work, and the interplay among varying forms of educational research. It also means a far greater emphasis on taking stock of the inherent diversity of the educational experience and its results for different populations of students. In short, it requires specific attention to the contexts of research more frequently and more systematically than has been the case for much of the work in education to date (National Research Council, 1999).

Leading researchers in special education have also underscored the importance of deliberately considering contextual factors in the research process. For example, Keogh (1994) remarked that if we researchers are to "understand problem conditions and what to do about them—we must take into account the context in which they occur. . . .(and). . . .at least part of our effort must be put into research and development carried out in the field" (p. 62). Similarly, Fuchs and Fuchs (1990) argued that "More researchers must be willing to move their research from laboratories into schools and to try to find problems that are of mutual interest to practitioners and themselves" (p. 106). Lyon (2002) also emphasized the importance of context by supporting the guiding principles of edu-

cational research advanced by Shavelson and Towne (2002) including a call for all research to ensure both the internal and external validity of ones research.

It is clear that research programs that fail to carefully and deliberately consider contextual factors ignore the realities of the education enterprise and produce research findings that have a low probability of being adopted by practitioners. Research that is limited to traditional "bench science" results in a broadening of the research-practice gap and an increase in skepticism by practitioners about the value of educational research (Greenwood & Abbott, 2001).

The following actions are recommended for federal education research agencies to ensure that federal investments effectively address the contextual realities within which individuals with disabilities function and are served:

1. Establish standards that researchers must meet to demonstrate that their research effectively accounts for the complexities inherent in the settings in which individuals with disabilities and their families live and are served.

2. Create mechanisms within federal education research agencies that build significant and sustained connections among researchers, practitioners, and policy makers to guide both the knowledge production and knowledge utilization enterprise (Shavelson & Towne, 2002). The purpose of these mechanisms would be to enhance the quality of collaboration between those stakeholders most responsible for improving the quality of services and outcomes for individuals with disabilities and their families.

Recommendation #2: Deliberately link research investments to other parts of IDEA

The R & D programs authorized by IDEA-Part D are unique among federally sponsored R & D initiatives because they are integrally linked to: (a) the provision of services to students with disabilities and their families (Part B), (b) the provision of early intervention services to infants and toddlers with disabilities and their families (Part C), and (c) training for special education teachers, administrators, teacher educators, and researchers as well as the movement of advances in the research knowledge base into policy and practice through IDEA's dissemination and technical assistance programs. (Higher Education Consortium for Special Education, 2002)

In short, the purpose of IDEA-Part D is to support investments that produce scientifically-based practices *and* other investments for training and technical assistance to enhance the quality of services and outcomes for individuals with disabilities. Part D funding, which represents 4.23% of the annual national expenditure to educate individuals with disabilities, plays an extremely important role in identifying, implementing, evaluating, and disseminating information about effective practices. IDEA-Part D programs provide an infrastructure of practice improvement that supports the other 95% of our national expenditure to educate infants, toddlers, children and youth with disabilities, and their families.

Federal policy makers had a vision for this infrastructure that dates back over 30 years when they established the Bureau of Education for the Handicapped (BEH) within the U. S. Office of Education in 1967. At that time James Gallagher, Associate Commissioner of BEH, articulated a brilliantly conceived plan of how BEH would support the effective translation of research into improved practice through five interrelated phases of Part D investments: (1) investments in research projects to produce new knowledge, (2) investments in development projects to help integrate research findings into instructional curricula, (3) investments in demonstration projects to validate that research-based practices and curricula could be replicated, (4) investments in implementation projects to support dissemination and use of proven practices and curricula, and (5) investments in adoption projects to support administrators and policy makers responsible for institutionalizing proven practices in schools and other service settings. Through these five strategies, research was integrally linked to other parts of federal investments on behalf of individuals with disabilities, hence creating an infrastructure for bridging the research-practice gap.

Subsequent federal investments authorized under P.L. 94-142 and IDEA have continued to reflect this research-to-practice paradigm by deliberately linking research to training and technical assistance activities. In effect, this paradigm constitutes an integrated infrastructure of federal investments in early childhood education and special education. IDEA 1997 authorized seven Part D programs that continue the long history of federal support for improved practice. The seven strategies are: research, technology, training, technical assistance, parent training and information centers, evaluation, and state improvement grants. The power of this investment strategy is that it provides researchers with access to resources that enables them to not only conduct the foundational research to develop scientifically-based practices but also to access funding streams that will facilitate the translation of the validated innovation into configurations that can be supported by policy makers and embraced by practitioners.

An example of how this IDEA-Part D multi-pronged strategy can be used to effectively bridge the research-practice gap and support the scalability and sustainability of scientifically-based practices can be seen in the following example from a 17-year line of research conducted by researchers at the University of Kansas Center for Research on Learning (CRL).

> **The Challenge:** Enabling adolescents with high-incidence disabilities to succeed in rigorous general education curricula where the demands of high school settings and general education curricula require interventions that are (a) palatable for the teachers to use; (b) valued by and make a difference in the performance of average- and high-achieving students; and (c) valued by and make a difference in the performance of students with disabilities. Our work proceeded through three phases.
>
> •   **Phase 1: Foundational Research:** We designed a set of interventions entitled Content Enhancement Routines (Schumaker, Deshler, & McKnight, 2002). These routines are an instructional methodology designed to successfully deliver curriculum content (e.g., science, social studies) in academically diverse general education classes that include students with disabilities. Through several Part D research grants including three Field-Initiated Research Grants,

three Student-Initiated Research Grants, and one Teacher Planning Research Grant, a host of foundational research studies were conducted by CRL researchers to validate an array of Content Enhancement Routines to enable teachers to clarify for students the organizational structure of a chapter or unit of instruction (e.g., Lenz, etc.), to teach core concepts (e.g., democracy) to mastery (e.g., Bulgren, etc.), to enable students to use textbooks (e.g., Deshler, etc.), and to improve the performance of students on unit and chapter tests (e.g., Rademacher, etc.). The data from these studies demonstrated that students with high-incidence disabilities (who were receiving failing grades during baseline,) move their performance in rigorous general education classes to the C to B range when their teachers taught curriculum content using one or more content enhancement routines. Of equal note is the fact that this research has shown that students *without* disabilities who are in general education classes with students with disabilities show commensurate gains. Hence, this research demonstrates the potential for significant benefit for populations without disabilities.

• **Phase 2: Refinement R & D**: Once initial validation efforts were completed, a Part D Research Institute Grant supported studies to determine the efficacy of Content Enhancement interventions within differing school contexts (Schumaker, Deshler, & Woodruff, in prep.). From these studies, we were able to determine what types of support materials, activities, and classroom arrangements were required to ensure sustained use of the instructional procedures (e.g., Bulren, etc.)

• **Phase 3: Bringing Interventions to Scale**: Several Part D grants to the CRL in Training, Technology, and Technical Assistance supported activities to bring the Content Enhancement interventions to scale. Through these Part D investments, the CRL researchers have written 13 teacher-use manuals for the Content Enhancement Routines, have established an International Training Network consisting of over 1200 certified trainers, and have developed a host of staff development support materials (e.g., overhead masters, CD ROMS, video tapes, etc.) to promote quality professional development for teachers and administrators. As a result, more than 100,000 general education teachers have received in-depth staff development in the use of these validated instructional procedures. The Content Enhancement Routines have been specified as one of the key evidence-based intervention strategies in six State Improvement Grants. Finally, over 300 college and university professors have received intensive training in the use of these interventions and are incorporating them into their teacher preparation and leadership preparation courses.

This example underscores the fact that IDEA-Part D investments can be effective in helping to bridge the research-practice gap and to bringing scientifically-based interventions to scale. The availability of the seven strategic funding areas under IDEA-Part D enables researchers to think in terms of ways of effectively developing and expanding findings from foundational research initiatives into products and processes that practitioners will value and can use to influence student outcomes. In the absence of a federal program that enables researchers to access funding for such things as training, technical assistance, and technology enhancements, there would be a low probability of closing the gap between research and practice. While the linkage of the various components of Part D is essential, it is important to note that it is the research component in Part D that serves as the "engine" to drive the rest of the Part D programs. Research is the cornerstone of Part D. As such, it is imperative that it remain closely linked to these programs under the auspices of the Office of Special Education Programs. Any other configuration of research investments on behalf of individuals with disabilities will contribute to a broadening of the gap between research and practice.

The wisdom of the interrelated strategy articulated in IDEA-Part D investments is not only conceptually sound but numerous examples such as the one cited above have underscored the merits of deliberately linking research initiatives to other components under Part D (Delquadri, 2002, Fuchs & Fuchs, 2002; Sugai & Homer, 2002). *However, funding appropriations to support Part D investments have fallen woefully short of what is required to adequately support the validation of a broad array of scientifically-based interventions and the subsequent development of strategies for bringing these interventions to scale. During the past several years, Part D funding has fallen steadily in relation to Part B appropriations. For example, in 1990, Part D appropriations were 11.95% of Part B; in 2002, they fell to 4.67% of Part B*. These data help to explain why current programming on behalf of individuals with disabilities often fails to achieve higher outcomes. Part D investments are key to ensuring the quality of services provided to students with disabilities and their families through Part B and Part C services.

To enhance the quality and effectiveness of the linkages among the various programs in Part D and to increase the probability that educational research will have a stronger impact on practice, it would be important to build infrastructures in federal education agencies that promote ongoing collaborations among researchers, policy makers, and practitioners (National Research Council, 1999); that is, more productive perspectives for the entire knowledge production and knowledge utilization enterprise would emerge through strong partnerships that bring these three stakeholders together.

The following actions are recommended for deliberately linking research investments on behalf of individuals with disabilities:

1. Index Part D funding directly to Part B and Part C funding. As the amount of services to individuals with disabilities increases under Parts B and C of IDEA, it is imperative that Part D funding increase commensurately. In order to deliver on the call for "scientifically-based practices" being used in all services provided to individuals with disabilities, investments are required to support foundational research studies and to support research to validate systems

and programs that will facilitate bringing those findings to scale and to sustaining their use over time.

2. Create mechanisms within federal education research agencies that build significant and sustained connections among researchers, practitioners, and policy makers to guide both the knowledge production and knowledge utilization enterprise (Shavelson & Towne, 2002). Such mechanisms would enable the seven funding strategies available through Part D to be more effectively linked together to transform worthwhile research discoveries into usable tools for practitioners.

3. Ensure that federal and state policy developers are knowledgeable about and responsive to research findings and support applications of research-based practices.

Recommendation #3: Support research programs that deliberately study issues of scalability and sustainability

There have been some outstanding advancements in special education research during the past two decades—advancements that have increased the capacities of organizations and practitioners to more effectively meet the needs of students with disabilities (e.g., the NICHD early reading initiative, school-wide positive behavior interventions, class-wide peer tutoring programs, learning strategy interventions for adolescents). The ways in which the performance of students with disabilities has been impacted when these innovations are implemented with fidelity underscores how dramatically the lives of individuals with disabilities can be improved when they are provided with scientifically-based interventions (e.g., Swanson, 1999). Regrettably, there are limited instances of these validated innovations being brought to scale and sustained over time (Elmore, 1996; Vaughn, Klinger, & Hughes, 2000). More often than not, these exemplary educational practices do not move beyond pockets of excellence to reach a much greater percentage of educators and students with disabilities and their families (Deshler, 1996).

Replicating validated practices on a large-scale basis and ensuring their sustainability has proven to be an extremely difficult and vexing problem. *However, unless the broad array of issues related to scalability and sustainability are deliberately and aggressively addressed, the lofty vision and goals inherent in the No Child Left Behind Act of 2001 will not be realized.* More specifically, using scientifically-based practices to improve the results of *all* students, including those with disabilities, will *only* happen if researchers and policy makers develop an array of sophisticated and powerful strategies for broadly disseminating and effectively integrating proven practices into schools and other organizations that serve children.

In many respects, much of the basic infrastructure for addressing the broad array of issues surrounding scalability and sustainability are already in place in IDEA-Part D. Specifically, the seven interrelated strategies (i.e., research, technology, training, technical assistance, parent training and information centers, evaluation, and state improvement grants) built into the P. L. 105-17 provide an array of mechanisms and policy levers through which federal support can be channeled to promote best practice in the field. In order to

appropriately address the issues surrounding scalability and sustainability, the following actions are recommended:

1. Earmark specific funds that go to Part D research to study scalability and sustainability research questions. By definition, these investments will need to be sizable and of considerable duration to adequately study the complexities inherent in scalability and sustainability.

2. Amend evaluation criteria for judging intervention research proposals to award credit for sophisticated plans for studying issues related to generalization, robustness, and maintenance of intervention effects. One of the guiding scientific principles specified by Shavelson and Towne (2002) is to ensure external validity by determining the degree to which treatment conditions reflect the world to which generalization is desired. Until researchers have demonstrated that their treatment can achieve comparable results when brought to scale, the claim of having developed a "scientifically-based practice" can't be made.

3. Increase funding for programs in IDEA-Part D. Issues of scalability and sustainability will require substantial investments. In the absence of substantial investments in IDEA-Part D, only a small fraction of individuals with disabilities will realize the benefits of research initiatives that develop effective practices. In short, "lots of children will be left behind." It is important to emphasize that this is not a call to simply "throw more money at research." Money alone will not ensure broad-scale knowledge utilization. Increases in funding must be targeted to critical research questions that are addressed by the field's best researchers working in close collaboration with practitioners and policy makers.

4. Re-institute a process similar to the Joint Dissemination and Review Panel (Tallmadge, 1977) or the Program Effectiveness Panel (Ralph & Dwyer, 1988) that would provide researchers with mechanisms and incentives for making their research available in broader venues.

Recommendation #4: Structure federal education research agencies according to design principles that foster quality educational research and effective knowledge utilization

For decades, the federal government has played a vital role in enhancing the quality of education and services available for individuals with disabilities and their families. Remarkable gains and achievements have been realized during the past quarter century. Some examples of the successes achieved as a result of this legislation include:

- In 1970, before P.L. 94-142 was in place, U. S. schools educated only one in five students with disabilities, and many states had laws excluding certain students who were deaf, blind, emotionally disturbed, or mentally retarded. Today, the majority of students with disabilities are being educated in their neighborhood schools in general education classrooms with their peers without disabilities.

- High school graduation rates and employment rates among youth with disabilities have increased dramatically—from 1984 to 1997, they increased by 14%.
- Post-school employment rates for youth served under IDEA are twice those of older adults with similar disabilities who did not have the benefits of IDEA.
- Post-secondary enrollments among individuals with disabilities receiving IDEA services have more than tripled since 1978.

While these results are encouraging, much remains to be done to improve the quality of services and outcomes for individuals with disabilities. A key element in enabling the ambitious goals articulated in the No Child Left Behind Act of 2001 (and the goals that undoubtedly will be articulated in the yet to be reauthorized IDEA) will be the presence of a strong federal leadership role manifested through the Office of Special Education Programs. To enhance the capacity of OSEP to be optimally responsive to the principles embodied in No Child Left Behind, the following actions are recommended:

1. Increase the number of research scholars in the agency so that a culture of scientific rigor can be supported and sustained and that the attention given to the R & D mission of the agency can take precedence over other functions (e.g., monitoring). Continued strong leadership and growth in the intellectual capital in the agency is foundational to future successes.

2. Reduce the number of authorizing statutes that place restrictions on budgets. The models used in NSF and NICHD afford much more budgetary discretion to agency leaders. Crafting R & D agendas that are optimally responsive to both short- and long-term needs requires that agency leaders have the necessary degrees of freedom to make investments in promising areas as dictated by emerging discoveries and data.

3. Develop mechanisms for targeting R & D priorities to areas of highest need and priority. The breadth of programs currently supported by OSEP is overwhelming given the limited budget allocations. Concentrating investments into a narrower range of priorities will promote the development of more powerful, reliable discoveries that will have an increased probability of improving outcomes.

4. Establish practices that will ensure public review and input through the use of visible mechanisms for soliciting input by stakeholders (parents, educators, administrators, policy makers, researchers, etc.) to identify critical need areas that, in turn, will drive Part D investments.

CONCLUSION AND NOTE OF CAUTION

In our efforts to ensure that scientifically-based practices are used in every curricular area and within every classroom, we need to exert caution in two areas. First, we must be careful not to describe practices—even those with demonstrated effectiveness—in terms that suggest they are "magic bullets" or "miracle cures." As policy makers, we must be as cautious in our rhetoric and enthusiasm for proven practices as are those medical professionals who have made major breakthroughs in the areas of HIV or cancer treatment. Medical professionals know very well that the effectiveness of a particular treatment is *contingent on* the specific condition of a patient at a given moment in time and on the competence and art of the practitioner who administers it. The treatment will only be beneficial *if* the doctor can discern when to administer it, how much to administer, and what concomitant factors will act to degrade it. Moreover, the good doctor has contingency plans if things go wrong. Similarly, in education, with our efforts to translate research-based strategies into practice, we must ensure that teachers know a sufficiently broad repertoire of scientifically-based strategies to address the very unique learning needs and circumstances that students bring to the classroom.

A second, related caution is that we need to be cognizant of the advertising potential currently associated with the phrase "scientifically-based research." Within the past several months, most publisher's booklists include several publications that claim to include "research-based" practices. While some of these publications are grounded in good research and careful trials across a variety of classroom contexts, it is clear that many are very loosely applying the term "scientifically-based research." Regrettably, this term can end up being used as political marketing and lose its intended meaning in the process. Advertising *will* take place, and advertisers are astute observers of federal education policy. However, if we really want to be certain that research is effectively translated into the classroom, we need to make sure that teachers and administrators are girded with the necessary skills to critically evaluate these claims.

Donald D. Deshler, Ph.D., *is a professor of special education and director of the Center for Research on Learning at the University of Kansas. His major research interests are in the areas of instructional strategies and teaching routines for students with learning disabilities and other at-risk learners.*

REFERENCES

Bulgren, J. A., Deshler, D. D., Schumaker, J. B. & Lenz, B.K. (2000). The use and effectiveness of analogical instruction in diverse secondary content classrooms. *Journal of Educational Psychology, 92*(3), 426-441.

Bulgren, J., Schumaker, J. B., & Deshler, D. D. (1988). Effectiveness of a concept teaching routine in enhancing the performance of LD students in secondary-level mainstream classes. Learning Disability Quarterly, 11(1), 3-17.

Carnine, D. (1997). Bridging the research-to-practice gap. Exceptional Children, 63(4), 513-521.

Delquadri, J. (2002). *Class-Wide Peer Tutoring Infused into the Beginning Reading Curriculum of Young Children.* Model Demonstration Project for Children with Disabilities—Directed Research, Office of Special Education Programs.

Deshler, D. D. (1996) Influencing effective practice through IDEA-supported research. *Exceptionality, 6*(2), 69-80.

Deshler, D. D., Schumaker, J. B., Lenz, B. K., Bulgren, J. A., Hock, M. F., Knight, J., & Ehren, B. J. (2001). Ensuring content-area learning by secondary students with learning disabilities. *Learning Disabilities Research and Practice, 16*(2), 96-108.

Deshler, D. D., Schumaker, J. B., & McKnight, P. C. (1997). *The survey routine.* Lawrence: The University of Kansas Center for Research on Learning.

Elmore, R. F., (1996). Getting to scale with good educational practices. *Harvard Educational Review, 66*(1), 1-26.

Fuchs, D. & Fuchs, L. S. (1990). Making educational research more important. *Exceptional Children, 57*(2), 102-107.

Fuchs, L., & Fuchs, D. (2002). *Monitoring Authentic Problem Solving: MAPS to Enhance Outcomes for Students with Disabilities: Phase 2.* Technology and Media Services for Individuals with Disabilities, Office of Special Education Programs.

Gersten, R., Vaughn, S., Deshler, D. D., & Schiller, E. (1997). What we know about using research findings: Implications for improving special education practice. *Journal of Learning Disabilities, 30*(5), 466-476.

Greenwood, C. R., & Abbot, M. (2001). The research to practice gap in special education. *Teacher Education and Special Education, 24*(4), 276-289.

Higher Education Consortium for Special Education (2002). *A policy statement regarding research in special education and the Individuals with Disabilities Education Act.*

Kauffman, J. M. (1996). Research to practice issues. *Behavioral Disorders, 22*(1), 55-60.

Kennedy, M. M. (1997). The connection between research and practice. *Educational Researcher, 26* (7), 4-12.

Lenz, B. K., Alley, G. R., & Schumaker, J. B. (1987). Activating the inactive learner through the presentation of advance organizers. *Learning Disability Quarterly, 10*(1), 53-67.

Lyon, G. R. (2002). *Guiding Principles of Scientific Research.* Conference sponsored by Academy for Educational Development, *Research in Education: On the Leading Edge of Educational Reform.* Washington, DC (March 26, 2002)

National Research Council. (1999). *Improving student learning: A strategic plan for education and its utilization.* Washington, DC: National Academy Press.

Rademacher, J. A., Schumaker, J.B., & Deshler, D. D. (1996). Development and validation of a classroom assignment routine for inclusive settings. *Learning Disability Quarterly, 19*(3), 163-178.

Ralph, J. & Dwyer, M. C. (November, 1998). Making the case: Evidence of program effectiveness in schools and classrooms—Criteria and guidelines for the U. S. Department of Education's Program Effectiveness Panel. Washington, DC.

Robinson, V. M. J. (1998). Methodology and the research-practice gap. *Educational Researcher, 27*(1), 17-26.

Schumaker, J. B., Deshler, D. D., & McKnight, P. (2002). Ensuring success in the secondary general education curriculum through the use of teaching routines. In G. Stover, M. R. Shinn, & H. M. Walker (Eds.), *Interventions for achievement and behavior problems*, Washington, DC: National Association of School Psychologists.

Shavelson, R. J., & Towe, L. (Eds.) (2002). *Scientific research in education.* Washington, DC: National Academy Press.

Skrtic, T. S. (2000). *Civic professionalism and the politics of need.* Keynote address. OSEP Research Project Director's Meeting. Washington, DC.

Sugai, G., & Horner, R. H. (2002). *Research and Demonstration Center on School-Wide Behavior Support.* Research and Innovation to Improve Services and Results for Children with Disabilities, Office of Special Education Programs.

Swanson, H. L. (1999). Instructional components that predict treatment outcomes for students with learning disabilities: Support for a combined strategy and direct instruction model. *Learning Disabilities Research and Practice, 14*(2), 129-140.

Tallmadge, G. K. (October, 1977). The Joint Dissemination Review Panel IDEABOOK. Washington, DC: Department of Health, Education, and Welfare, National Institute of Education, and U. S. Office of Education.

Vaughn, S., Klinger, J., & Hughes, M. (2000). Sustainability of research-based practices. *Exceptional Children, 66*(2), 163-171.