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Evidence-Based Special Education and Professional Wisdom: Putting It All Together

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There has been an increasing focus on evidence-based practices in special education with efforts underway to authoritatively identify those practices that are evidence based. However, the identification of evidence-based practices is only the beginning of the process of implementing evidence-based special education. The professional wisdom of special educators will be necessary for evidence-based practices to be implemented effectively and result in improved outcomes for students with disabilities. Specifically, special educators will have to apply their professional wisdom in (a) selecting and adapting evidence-based practices to their students' learning needs and goals, their own teaching strengths, and the educational environments in which the practice will be implemented; (b) assessing the effects of evidence-based practices; and (c) integrating effective teaching techniques in the delivery of evidence-based practices.

Keywords: *effective instruction; law/legal/policy; personnel preparation/professional development; education/training/preparation; teacher(s)*

Recently, there has been an increasing focus on evidence-based practice (EBP) in special education, and rightly so. The notion of using educational practices that have been shown to improve students' learning and behavior outcomes through reliable, trustworthy research seems to be both an essential and principled goal for the field of special education. However, achieving the broad implementation of EBPs for students with disabilities will be no easy task. It will necessitate a multifaceted, sequential process that relies heavily on the wisdom and expertise of teachers. Although the process of determining EBPs (i.e., through the systematic evaluation of the research literature on specific interventions and practices; Cook, Tankersley, Cook, & Landrum, 2008 [this issue]) may rest primarily in the domain of researchers, teachers will ultimately determine whether EBPs are

used, how they are implemented, and the effect they have on student outcomes.

Whitehurst (2002), the former Assistant Secretary of Educational Research and Improvement (i.e., the predecessor to the U.S. Department of Education's Institute of Education Sciences), explicitly recognized the role that teacher expertise plays in implementing EBPs. Whitehurst conceptualized evidence-based education as emanating from the professional wisdom of teachers as well as from research findings. For example, Whitehurst suggested that professional wisdom, described as the judgment that individuals acquire through experience, is necessary for educators to adapt EBPs to local circumstances. Recognition of the interdependence of professional wisdom and research evidence is similarly found in the foundations of evidence-based medicine. As

Sackett, Rosenberg, Gray, Haynes, and Richardson (1996) stated,

Good doctors use both individual clinical expertise and the best available external evidence, and neither alone is enough. Without clinical expertise, practice risks becoming tyrannized by evidence, for even excellent external evidence may be inapplicable to or inappropriate for an individual patient. Without current best evidence, practice risks becoming rapidly out of date, to the detriment of patients. (p. 71)

In the near future, an initial list of practices determined to be evidence based in special education will be available (Bruno, 2007), indicating to special educators practices that are highly likely to positively influence student learning. However, as Cook and Schirmer (2006) stated, "Identifying effective practices is only meaningful to the extent that they are applied (and applied with fidelity) with children and youth with disabilities" (p. 181). The crucial determination of whether and how EBPs are used with students with disabilities, where the rubber truly meets the road, ultimately lies with teachers.

At the most basic level, teachers must choose to devote their time and energies to implement EBPs for students with disabilities. Weatherley and Lipsky (1977) described teachers as "street-level bureaucrats" who have relative autonomy regarding what they do in their classrooms, regardless of policy mandates. That is, even if EBPs are emphasized in legislation, advocated in pre-service and in-service trainings, and aggressively promoted by administrators, if teachers do not want to implement them, they will not. Indeed, top-down reforms in education have a history of falling short of their aims (Sarason, 1990). Perhaps, as has long been suggested (Sarason, 1971), most large-scale educational reforms fail in large part because they do not adequately involve teachers and consider the realities of teachers and classrooms (Spillane, Reiser, & Reimer, 2002). Despite their potential for increasing student outcomes, EBPs for students with disabilities will have little impact on students' educational experiences and outcomes if teachers view EBPs as limiting their instructional freedom and disregarding their professional wisdom and therefore choose not to implement them.

Special educators recognize that students with disabilities have unique learning needs and understand that no single approach, regardless of the evidence base supporting it, works for all children. Accordingly, if efforts to implement EBPs are executed as, or even perceived to be, a rigid, top-down movement that restricts teachers' instructional decision making, the EBPs themselves are likely to be resisted. However, EBPs are adaptable tools

that can work in concert with teachers' professional wisdom toward the goal of increasing student outcomes. Not only will teachers have the possibility of using their experience and expertise when they use EBPs, it will be imperative for successful evidence-based special education that teachers integrate their professional wisdom into their application of EBPs. Specifically, teachers will need to use their professional wisdom to select and adapt EBPs to match the needs of their students, the learning environment, and their professional strengths; monitor EBPs to know if and when they need to be altered or abandoned; and recognize the implementation of EBPs as being only one element of the larger activity of effective teaching.

Selecting and Adapting Evidence-Based Practice

Practicing evidence-based special education involves a variety of considerations, and identifying what EBPs are and disseminating them to teachers is only the beginning. Effective teaching in special education requires not only an awareness of the research evidence but also application of nonresearch knowledge—tacit or accumulated knowledge gained largely through experience (i.e., professional wisdom). For example, although a teacher might be aware of EBPs, the actual decision making of whether, when, and how to implement those practices is part of a complex cognitive *sense-making* process based on teachers' professional wisdom regarding the learner, teacher, and learning environment (Spillane et al., 2002).

Considering the Learning Needs and Goals of Students

One of the guiding tenets of special education is that instructional decisions are based on the individual needs of the learner. Students with disabilities are a diverse group of learners, and no single instructional approach, even an evidence-based one, will meet all of their needs. Not only do students with disabilities have different needs and goals than students who are (a) not identified with a disability and (b) identified in other disability categories; even students within the same category of disability learn differently from one another (Hallahan & Kauffman, 2006). Moreover, students with disabilities often come from different cultures, many of which rely on languages other than English to communicate. This heterogeneity of learners makes it particularly difficult



to predict which educational practices will be most effective for particular learners or groups of learners in a classroom. Instead, teachers must rely on their knowledge of students' learning needs and related educational goals to connect instructional practice to learner.

To meet the needs of the diverse students in their classrooms, then, special educators cannot decide to simply follow a list of EBPs. Rather, they must exercise their professional wisdom to (a) judiciously select EBPs to implement and (b) adapt selected EBPs to meet the individual needs and goals of specific students. For example, suppose a student tests poorly on reading comprehension, even though his word recognition level is strong. A closer examination of the student's performance in the classroom during reading activities shows that he tends to be distractible and is often off task. Using her professional wisdom, the teacher recognizes the need for first introducing an EBP to increase the student's attention to task, such as self-monitoring (Harris, 1986), instead of focusing solely on EBPs that target reading comprehension. To ensure that the instructional practices they use match the learning needs of their students, special educators should select EBPs

on the basis of their practical knowledge of each student's individualized learning needs and goals.

The professional wisdom of evidence-based education will also be used to adapt EBPs to meet the needs and goals of students. As Kavale and Forness (1999) stated,

A special education student is quite likely to present problems for which scientific generalizations, principles, and suppositions will not apply directly and must be mediated through the teacher's own rendering of best practice. Therefore, the creativity of the individual special education practitioner must not be stifled because quality education for special education students will always be based on the artful application of science. (p. 1016)

For example, if a teacher knows that many of her students have trouble completing work independently (i.e., a skill that is interfering with their level of success in most academic subjects) and they also have firmly established cliques that are at odds with one another, she may be able to adapt classwide peer tutoring (CWPT) so that this practice can be used in her classroom. Classwide peer tutoring (see Maheady, Harper, & Mallette, 2003, for a description of CWPT) has been shown to increase students' engagement, but it often is implemented in a way that teams of students compete in team-of-the-week recognition. If this teacher has many students who are overly competitive, he or she could adapt CWPT so that instead of competing against one another, teams would be working together to establish criterion levels of points so that everyone had the potential to win.

Of course, when adapting EBPs to best meet the needs and goals of their students, it is important that teachers not change the essential components of the practice. Teachers must ensure that they are maintaining the essential elements of the EBP and are not adapting it in such a way that it undermines the effectiveness of the practice. Indeed, implementing effective practices as designed is directly associated with the extent of behavior change achieved (Allinder & Oats, 1997; Gansle & McMahan, 1997; Greenwood, Terry, Arreaga-Mayer, & Finney, 1992; Gresham, Gansle, Noell, Cohen, & Rosenblum, 1993). That is, if an EBP is implemented incorrectly, its positive impact is likely to be diminished or completely lost. When an inventory of EBPs is provided to teachers, the essential steps involved in implementing the practices should be thoroughly described. Yet teachers will still have considerable freedom to adapt the practice to fit the needs and goals of their students, so long as they adhere closely to these essential elements of the practice. Substantial professional

wisdom and expertise will be needed to balance adapting an EBP to meet the individual needs and goals of students while also ensuring that the essential elements of the practice are not compromised. In addition to selecting and adapting EBPs to meet the needs of their students, special educators must also consider their own professional strengths as they decide what and how to teach.

Considering the Professional Strengths of the Special Educator

Teachers have particular instructional practices and approaches with which they are most experienced and comfortable delivering. This is not to suggest that teachers should dismiss the possibility of implementing an EBP because they have not used it before. Indeed, supports for teachers to adopt and maintain EBPs that are new to them should be an essential element of evidence-based reforms in special education (Wanzek & Vaughn, 2006). But when faced with decisions about selecting and adapting EBPs, teachers should exercise their professional wisdom to implement practices and make adaptations with which they are most knowledgeable, comfortable, and experienced.

Knowledge of a practice has been shown to influence interventionists' use of the practice as prescribed (Elliott, 1988). For example, Clark and Elliott (1988) conducted a study on teachers' knowledge of behavioral principles and its influence on treatment acceptability. They found that there was a significant, positive relationship between the teachers' knowledge of the practice and their use of the practice. Such results may suggest that teachers are more likely to use practices they are familiar with and to implement those practices as designed. Conversely, practices with which teachers are unfamiliar and less comfortable—regardless of the evidence base behind it—may be implemented improperly or not at all (Gresham, 1989; Telzrow & Beebe, 2002). In addition to matching EBPs with (a) learner needs and goals and (b) their own acceptance and knowledge of the practice, teachers must also use their professional wisdom to consider the role of the instructional environment in implementing EBPs.

Considering the Educational Environment

Educational policies and school-based resources provide the structure and support for teaching students with disabilities. Policy mandates (e.g., inclusion, provision of services), day-to-day practices (e.g., recess times),

and availability of resources (e.g., materials, types of curriculum, assistance, professional development opportunities) circumscribe the activities of teachers. Within the context of schools, certain instructional practices may be encouraged and others may be prohibited or unavailable. Considerations of what the educational environment supports inevitably influence teachers' instructional decisions, such as which EBPs to use or how to adapt EBPs. For example, a schoolwide intervention for improving student behavior might be ideally suited for implementation in a school with strong administrative leadership and a core of experienced teachers who are committed to improving student behavior. In contrast, implementing such a practice, regardless of the evidence base behind it, might be unwise in a school with ineffectual leadership whose clear priority is on improving proficiency test scores and in which addressing student behavior is seen as unrelated to that goal. Similarly, an intervention that requires the purchase of extensive materials would be impossible in some schools but quite feasible in others.

Teachers can also choose to adapt EBPs to match community and/or school contexts. Gersten and Dimino (2001) stressed "how critical it is to tailor the approach to the realities of the local situation. For example, our work at the middle school was fundamentally different than the work at the kindergarten and 1st grade level" (p. 129). Similarly, Speece, MacDonald, Kilsheimer, and Krist (1997) noted, "We learned that the path from research to practice is not direct and that application requires fitting research-based techniques to the local situation" (p. 186). For example, Speece et al. described how a preservice special education teacher adapted reciprocal teaching to fit the educational environment in which she worked. The authors reported that students at one low-socioeconomic school did not identify with one another and that student interactions were infrequent and abrasive. Given that reciprocal teaching involves students' working together, the preservice teacher adapted the procedure to include a behavior modification plan involving self-monitoring to facilitate positive peer interactions.

Teachers will have to use their professional knowledge related to their students' needs and goals, their own teaching strengths and experiences, and their educational environment to decide which EBPs to use and how to adapt EBPs to maximize their effectiveness. However, regardless of which EBPs are selected and how they are adapted, no practice is guaranteed to work for everyone. Therefore, it is imperative that teachers also monitor student progress while they are implementing EBPs.

Monitoring Student Progress

Although there is a high likelihood that EBPs will be effective, just as commonly effective medications do not work for everyone, not all students will respond to any single intervention (Landrum & Tankersley, 2004). Expert special educators are well aware of this fact and conduct frequent, formative assessments of their students to obtain feedback on the impact of their instructional choices. Indeed, the notion that the impact of an intervention must be determined according to an assessment of each individual student lies at the heart of special education (Fuchs & Fuchs, 1995). Using EBPs in no way obviates the importance of monitoring each student's progress to determine the effectiveness of a practice for the individual student.

By frequently assessing student progress toward desired outcomes, typically done using procedures such as curriculum-based measurement, curriculum-based assessment, performance assessment, and portfolios (Espin, Shin, & Busch, 2000), teachers provide themselves with meaningful feedback to determine whether an EBP is working for each student. If assessment results suggest that the practice is not producing adequate outcome gains for a student, teachers should first ensure that the practice is being implemented as designed or with fidelity. If an EBP is being used with fidelity and student outcomes do not increase meaningfully, the teacher should respond to these data by adapting the practice to better match the learner's needs, the teacher's instructional preferences, and/or the educational environment or by discontinuing it and selecting another practice.

Systematically collecting and analyzing information regarding student progress in relation to intervention implementation also validates the use of the practice for special educators. Given the traditional emphasis on individualized instruction in their field, special educators typically "reserve judgment about the efficacy of instructional methods until those methods prove effective for the individual student" (Fuchs & Fuchs, 1995, p. 528). By systematically collecting student outcome data, teachers can directly link their use of EBPs with student achievement. Once they are convinced that their efforts are resulting in improved outcomes for their students, special educators will be more likely to continue to implement and refine the EBP.

Engaging in Effective Teaching

Expert special educators know that teaching is much more than the sum of discrete instructional practices.



Regardless of the instructional method being used, teachers have to make innumerable decisions regarding their interactions with students and delivery of instruction. How a teacher presents instruction can often be the difference between an effective lesson and one that falls flat. The effective-teaching literature highlights a number of techniques used by teachers in whose classes students achieved high academic outcomes. Teachers whose students perform well academically tend to pace instruction appropriately, emphasize academic instruction, preview instruction and review previous instruction, monitor student performance, circulate around and scan instructional environment, recognize appropriate behavior, exhibit enthusiasm, display *withitness* (i.e., awareness of what is happening throughout classroom), and use wait time after questions (Brophy & Good, 1986; Doyle, 1986). It appears that these and other effective teaching techniques, many of which may be difficult or even impossible to measure, compose the art of effective teaching.

Although the effective teaching literature was drawn from research conducted in general education classrooms,

they apply to special education environments as well. For example, Brigham, Scruggs, and Mastropieri (1992) found that students with learning disabilities performed better academically and engaged in less off-task behavior when teachers were more enthusiastic. Thus, teachers will need to apply their professional wisdom and use effective teaching techniques, such as presenting instruction with enthusiasm. Teachers who are well versed in the art of applying these techniques will accentuate the positive effects of EBPs. Conversely, even EBPs can fail to affect students when delivered without appropriate pacing, enthusiasm, and other tricks of the trade.

Conclusion

As illustrated in Table 1, implementing evidence-based special education can be thought of as a four-step process. Indicative of the importance of professional wisdom in the implementation of evidence-based practices, only the first step in this process relies on researchers. The other steps depend upon teachers skillfully and creatively using their professional wisdom. As Malouf and Schiller (1995) suggested, "The process of applying research in special education can never be better than the local practitioner is able to make it" (p. 423). Although this principle adheres to education in general, it rings true especially for special educators, who must match their instruction to the individualized and diverse learning needs and goals of students with disabilities.

Critics have charged that evidence-based medicine might restrict the clinical freedom of practitioners to meet the individualized needs of their patients (Sackett et al., 1996). Many special educators may share these same concerns in relation to EBPs in special education and worry that prioritizing particular practices (i.e., EBPs) runs counter to the individualized nature of special education. However, the implementation of EBPs in special education should be individualized. By applying their professional wisdom as they implement EBPs, special educators can concurrently provide students with the most effective instructional practices and retain the field's traditional focus on individualized instruction. It is in the interface of teachers' professional wisdom (e.g., carefully selecting and adapting EBPs to match learners' needs and goals, the teachers' strengths and experiences, and the educational environment; monitoring student progress; and using effective teaching techniques) and the implementation of the most generally effective practices (i.e., EBPs) that special educators will maximize the educational opportunities for

TABLE 1
Process for Implementing Evidence-Based Practices in Special Education

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- Systematically identify and disseminate evidence-based practices for students with disabilities.
 - Select an evidence-based practice according to its match with the learning needs and instructional goals of the students, the teacher's strengths and experiences, and the educational environment.
 - If necessary, adapt nonessential elements of the practice to meet the learning needs and instructional goals of the students, the teacher's strengths and experiences, and the educational environment.
 - Infuse the implementation of the evidence-based practice with effective teaching techniques.
 - Monitor individual student performance frequently and regularly.
 - In case of insufficient progress, ensure that practice is being implemented with fidelity; consider adapting practice to improve match with learners, teacher, and educational environment; infuse instructional delivery with more effective teaching techniques.
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- If student progress is insufficient, return to Step 2.
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each student with a disability and therefore make special education truly special (Cook & Schirmer, 2006).

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