

Roles and Responsibilities of Researchers and Practitioners for Translating Research to Practice

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Abstract

An important, if not defining, characteristic of evidence-based education is translating research to practice. Translating research to practice requires purposeful action on the part of researchers and practitioners alike. Researchers and practitioners involved in translating research to practice will include teachers and other “front line” educators, administrators, trainers, and policy makers. This article reviews and discusses the roles and responsibilities of practitioners and researchers translating research to practice as part of a culture of evidence based education. Analyses of professional roles and responsibilities of researchers and practitioners are presented. In addition, some of the difficulties with changing roles and responsibilities will be highlighted. Some initial steps researchers and practitioners may take in establishing an evidence-based education culture that facilitates translating research to practice will be suggested.

Roles and Responsibilities of Researchers and Practitioners for Translating Research to Practice

The Road Map for Evidence-Based Practice in Education described by Detrich, Keyworth and States (2007) in this special issue serves as an important unifying model and starting point for any discussion about implementing evidence-based practices in schools. The Road Map is re-presented in Figure 1 below and is further described in the article by Detrich and colleagues (2007, this issue). The Road Map summarily illustrates the inter-relationships between efficacy research, effectiveness research, implementation, and monitoring. In particular, the path from research to practice is clearly delineated by the bold arrow between effectiveness research and implementation. It is this path from research to practice that is the focus of this article.

INSERT FIGURE 1 HERE

To help provide context for some of the actions that take place along the path from research to practice, it is helpful to consider the mission and content of the *Journal of Evidence-Based Practices for Schools (JEBPS)*. Subscribers to this journal may well be aware that *JEBPS* was one of the first, if not the first, journal published with the sole purpose of disseminating studies that translate research to practice in education. Towards this end, Shriver and Watson (2005) proposed five parameters of what constitutes a research to practice study:

- Research to practice studies are based on a relatively large and robust body of previous applied and basic research.
- Research to practice studies are conducted in applied settings under “normal” conditions.
- Research to practice studies demonstrate successful implementation of the practice.

- Research to practice studies provide clear description of procedures, not so the study can be replicated, but so the practice can be implemented by another practitioner.
- The goal of a research to practice study is not necessarily to extend research but to improve or extend practice.

As noted in the Road Map, *effectiveness research* seeks to answer questions regarding the conditions under which a practice is effective. As described by Shriver and Watson (2005) *research to practice studies* seek to provide information about how to implement a practice that has previously been demonstrated to be efficacious and effective in research. Unlike most scholarly journals which publish efficacy research and some effectiveness research studies, *JEBPS* specifically operates along the path of research to implementation described in the Road Map by publishing effectiveness research and research to practice studies. As just described, the term “research to practice” is used to refer to a specific type of study. However, the term “research to practice” is also commonly used to refer to a broader literature that discusses issues related to the application of research-based practices. Subsequently, the term “research to practice” may refer to a specific area of inquiry or to a specific type of study. The dual meaning of this phrase is similar to other terms or phrases in other areas of science. For example, psychology refers to a specific area of inquiry or practice and the term psychological study refers to a type of research (i.e., as opposed to biological study or mathematical study).

It is an assumption of this article that successfully implementing a practice so that it produces positive outcomes and can be maintained over time requires changes in that practice relative to what may have taken place when the practice was demonstrated to be effective during research. (Ringelisen & Hoagwood, 2003). In essence, research-based practices will change to

match child characteristics, setting constraints, and practitioner skills. This article is less about what those changes typically will need to be and more about *who* is responsible for facilitating the changes necessary for successful outcomes and long-term maintenance of research-based practices. This article describes the actions that individuals must take on the path from research to practice..

Several terms have been used to describe the actions that occur along the path of research to practice including *taking*, *dissemination*, *diffusion*, *transportability*, and *translation* (e.g., Schoenwald & Hoadwood, 2001). *Translation* is the term chosen for this article as it most accurately represents the underlying assumption of change inherent in moving from research to practice. Translation can be defined as “to move from one place or condition to another” or “to change into another medium or form” or “to put into different words; rephrase or paraphrase in explanation” (Webster’s New World Dictionary). The other terms used in describing actions along the path from research to practice do not appear to include an assumption of inherent change. In fact, there may be an assumption by some that a practice demonstrated to be effective in research will be implemented similarly in practice and should be effective as such. Historically, this assumption that practitioners can or will read research and readily implement research-based practices in the classroom has not proven accurate. There is little evidence that research is currently effectively being translated to practice (Weisz & Kazdin, 2003). In fact, it is largely because of the lack of research-based practice that the evidence-based practice movement began (Sackett, et al., 2000; Gambrill, 2005).

Translation implies that there must be an agent of change, a translator. In evidence-based practice, the agents of translation might include researchers, practitioners, trainers, and administrators and policy makers. The translation of research to practice requires specific and

purposeful actions on the parts of translation agents. In the sections that follow, analyses of the current roles and responsibilities of researchers, practitioners, trainers, and administrators are provided and suggestions for roles and responsibilities that will facilitate the translation of research to practice are also provided. In addition, some actions or steps that may be taken toward assuming roles and responsibilities that facilitate the translation of research to practice are provided.

Roles and Responsibilities

A role refers to the part that is played within a particular setting. A role is “a function assumed by someone” (Webster’s New World Dictionary). Roles in educational settings include practitioners such as teachers and para-educators, school psychologists, occupational therapists, physical therapists, and other practitioners who may work with children directly. Other roles are administrators, educational researchers, and university trainers. Roles are defined by labels or job descriptors that provide some general type of information about the responsibilities of particular persons. The responsibilities of a teacher differ from those of a school counselor which differ from those of a school principal and so on. Responsibilities refer to the specific actions or behaviors for which individuals are accountable as part of their role. Accountability is an important aspect of defining responsibility. In essence, if an individual is not accountable for his or her actions or particular outcomes, then that individual is not responsible for those actions or outcomes.

There are similarities in the responsibilities of individuals with similar roles, such as teachers, but there will be individual differences in responsibilities between individuals with the same roles as well. For purposes of this article, roles and responsibilities are discussed based on a larger perspective of social and professional groups in terms of the similarities of roles and

responsibilities. The roles and responsibilities of researchers and practitioners will be emphasized in this article. A brief discussion of the roles and responsibilities of trainers and administrators and policy makers in education will also be provided .

Roles and Responsibilities of Researchers

Role of Researchers

The primary role of researchers is the production and dissemination of research. Dissemination is included as part of the role of researchers because research that is produced but not disseminated is not useful beyond the researcher's lab. Research must be disseminated for it to have an impact on other research and on practice. For researchers, the primary mode of dissemination is through publication in peer-reviewed scholarly journals. Research may also be disseminated in conference presentations and workshops, but publication in scholarly journals is the most esteemed method of dissemination. There are two aspects of research that are produced and disseminated; data and information. Data refers to the outcomes produced as a result of the research process or procedure. These outcomes are typically quantitative in nature. Information refers to the qualitative interpretation of the research process and outcomes. Information provides context for why the research was instigated, how it proceeded, what the data mean, how the data fit with other research literature, and what the implications of the data may be for research and/or for practice.

Responsibilities of Researchers

There are many responsibilities inherent in the production and dissemination of research and there are commonalities in the process of how these responsibilities are conducted that can be described. The production and dissemination of research typically follows a process that

includes collaborating, identifying questions, developing research designs and procedures, seeking funding, implementing the research procedures and disseminating research findings.

Collaboration. Research is typically conducted in collaboration with others. Researchers in education are usually individuals who are employed by a university and they collaborate with other university researchers and students (usually graduate students) in the research process. The researchers may conduct research in “applied” settings, which in this sense means settings outside the university context such as schools and classrooms. Subsequently, teachers and other practitioners may be involved with implementing research procedures and may provide some input regarding the research process. Oftentimes, this input is related to the acceptability and/or social validity of the research practice procedures. The primary investigators, however, tend to remain those individuals in the university setting. The university-based researchers and their students are often the individuals with the responsibilities for identifying the research questions, developing procedures, seeking funding, insuring procedures are implemented with fidelity, and disseminating outcomes.

Identify research question. The genesis for a research question may arise from an applied problem, but the instigator is usually the university based researcher. Research questions are often identified within a context of what gaps persist within the research literature. When research questions arise, one of the first steps is to review the research literature to see what gaps or questions need to be addressed. In other words, is this a question that has already been answered and is this a question that is considered important by other researchers? This is a good practice for research, but the subsequent research process becomes goal directed toward filling that gap in the literature or meeting other research needs, not necessarily improving practice. These two issues, research needs and practice needs, are not mutually exclusive, but the degree

to which emphasis is put on filling gaps in the literature may impede designing research that improves practice.

Develop research design and procedures. The university-based researcher is typically responsible for developing the research design and procedures to answer the research question. Most research is designed to increase internal validity. In other words, the emphasis is on experimental control and reducing the probability of false positive findings. This type of research may be described as efficacy research on the Road Map as it is designed primarily to demonstrate whether a particular practice is efficacious. External validity, or the extent to which the practice may be applied in other contexts outside the particular research setting, is afforded considerably less attention in efficacy research.

Seek funding. Research often requires extra time and resources that are not always available in typical applied settings such as classrooms. For this reason, researchers often must seek extramural funding for research projects. A large portion of available money for research comes from the federal government. Although there are some funding streams for “scaling up” research to practice (i.e., Institute for Educational Sciences) much of the federal grant funding is focused on supporting efficacy research. In addition, many university programs will include the acquisition of federal grant money as part of the consideration for university faculty promotion and tenure. In essence, researchers are held accountable for obtaining federal research grants and the majority of federal research grant programs fund research on the *efficacy* of interventions. Subsequently, current contingencies for many researchers reinforce efficacy research and provide no reinforcement or may even indirectly punish (e.g., no promotion or tenure, no financial support) effectiveness research and efforts at translating research to practice.

Implement procedures. As the principle investigator and developer of the research design and procedures, the researcher is also responsible for supervising the implementation of procedures. Research procedures typically require more time and resources than actual practice settings typically have available. The researcher acquires the necessary resources and develops the guidelines necessary for those implementing research procedures to do so with integrity. Procedural integrity often requires a written protocol or treatment manual. In addition, research assistants may often be involved to assist with implementing treatment, monitoring treatment integrity, collecting data and progress monitoring. Even if the research takes place in an applied setting, the extra resources, including personnel, may no longer remain in the applied setting once the research project is completed.

Disseminate research. As noted above, if the research is not disseminated then it can not impact other research or practice. Dissemination typically occurs through publication in peer-reviewed scholarly journals. The emphasis of the majority of scholarly journals is the advancement of science. Manuscripts are accepted based on the importance that other researchers or peers place on the findings and their implications. Journal articles are typically written to convey information to other researchers. There may be an assumption that practitioners also read scholarly journals and adapt the research findings to practice, but there is little evidence that this occurs. If practitioners did read and apply research, the evidence-based practice movement would not have gained momentum. Researchers are held accountable for production and dissemination of research through the contingencies established in promotion and tenure guidelines. Promotion and tenure in many university programs is partially and largely dependent upon the number of articles published in leading scholarly journals. In addition, reinforcement by other colleagues for publishing “cutting edge” research in leading scholarly

journals is provided through citations to the research articles and through invitations to speak as well as through continued funding of the research program.

Roles and Responsibilities of Researchers in Translating Research to Practice

Researchers provide an important contribution to evidence-based practice by producing and disseminating efficacy research. However, there is a need for researchers to also actively produce and disseminate effectiveness research and actively participate in the translation of research to practice. In translating research to practice, the basic role of researchers does not change; their role is still to produce and disseminate data and information. However, the responsibilities of researchers in translating research to practice expand to include conducting effectiveness research, research to practice studies, and disseminating data and information to a broader audience of practitioners.

Research to practice. Effectiveness research provides data and information about the conditions under which a practice is effective and is not effective (Detrich, et al., 2007). Research to practice studies provide data and information demonstrating the effective implementation of an evidence-based practice (Shriver & Watson, 2005). It is very important for practitioners to have information that a particular practice works (i.e., efficacy). However, it is also important that practitioners know when a practice works (effectiveness). In addition, practitioners need to be provided with information about how to successfully implement the practice (i.e., research to practice). It is these last two steps where the translation from research to practice takes place. Researchers can and should play a role in each of these steps.

Disseminate data and information to practitioners. Regardless of the type of research in which the researcher is engaged, it is important that researchers consider how they may disseminate data and information not only to other researchers but also to practitioners.

Disseminating data and information to practitioners may require consideration of different outlets for publication and may also require a different style of writing with which many researchers may not be familiar or skilled.

What Needs to Change for Researchers

There are at least three different actions that individual researchers can take toward facilitating the translation of research to practice; 1) expanding the types of research questions asked, 2) expanding dissemination efforts, and 3) modeling research to practice actions for future researchers. However, all of these actions will be constrained to some degree by federal funding priorities for research and criteria for promotion and tenure. Each of these issues is briefly discussed below.

Type and source of research questions. Although some research questions may be inspired by practical considerations, many research questions are derived from identifying gaps or questions from previous research. Researchers need to expand the types of questions they attempt to answer to include implementation issues such as cost-benefit analyses, examining issues related to the duration of treatment, component analyses, setting characteristics, and application of practices with different populations (e.g., ethnicity, cultural, co-morbid problems). For example, time-out is an intervention for the reduction of problem behavior that has received substantial empirical support in parent training in clinical settings (Shriver & Allen, 1996). However, questions regarding the effective application of time-out, or more specifically the enforcement of time-out, in a regular classroom setting in which there may be anywhere from eight to thirty other children and only one teacher have not been addressed. What should a teacher do when a child refuses to go to the time-out location or sit quietly in the time-out location? Even with all the empirical research on time-out, this very important practical question

has not been adequately addressed. Researchers need to collaborate with practitioners early in the research process to identify questions of importance to practitioners. Talking regularly with teachers and principals and other direct service providers will assist with identifying research questions of practical value.

Dissemination efforts. The pressure for researchers currently is to publish in highly esteemed (by other researchers) scholarly journals. The pressure comes from peers as well as from promotion and tenure requirements and prerequisites for federal grant funding. If researchers are to participate in translating research to practice, however, they must also consider the need to publish in journals or other sources that practitioners are more likely to access. There are an increasing number of journals for publication of case studies, evidence-based practice, or with emphasis on practice issues that may be more likely read by practitioners. In addition, professional association newsletters may provide an avenue of dissemination of evidence-based practices. Currently, the internet and web pages devoted to the dissemination of information to the lay public as well as professionals may provide an opportunity for publication of research written for practitioners.

It is important to note that publications written primarily for practitioners and with the goal of translating research to practice will very likely require a different style of writing than may be typical in research focused journals (Martland & Rothbaum, 2000). Most research articles are written so that the research procedures can be replicated by other researchers. That is, they are written to be concise and technically accurate. They are not written to facilitate practical implementation, progress monitoring, and data-based decision making (i.e., what to do if or when the intervention is not working as well as it did in the research studies). The focus of writing for dissemination to practitioners should be on the details of implementation procedures

as well as detailed descriptive information about the setting, population and resources required. Technical terms may need to be avoided to reach a broader, inter-disciplinary readership common in educational settings. Although data should continue to be a central aspect of articles written for practitioners, increased attention may need to be paid to the information that is provided to explain the data and data gathering process important for practitioners.

Graduate research training. Researchers typically learn the nuts and bolts of research during graduate training. It is during training that researchers learn what questions to ask and how to go about answering those questions. It is during training that researchers learn about writing research papers and the publication process. If researchers are to contribute to translating research to practice, then university-based researchers must model and actively train these behaviors for their students. Researchers must model collaboration with practitioners in seeking questions of practical importance, implementing research procedures of practical value, and writing and disseminating information and data to practitioners. There are time constraints on researchers for collaborating, however, as collaboration often requires more time and effort relative to conducting research in laboratory settings. These time constraints reduce the relative value of applied studies relative to laboratory studies as time is often a factor for researchers working toward promotion and tenure.

Funding priorities and promotion and tenure criteria. As noted above, the actions of researchers are constrained by federal funding priorities and promotion and tenure criteria. Promotion and tenure is not just about “publish or perish,” it is often about “publish the right kind of work in the right kind of journals or perish.” Both of these issues (the right kind of research and the right kind of journal) represent difficult barriers for researchers attempting to expand their contribution to evidence-based practice beyond conducting efficacy research.

Acknowledging and addressing these barriers, however, may assist with promoting discussion about how they may be overcome.

Next Steps for Researchers

Unfortunately, if researchers are to expand their efforts to contribute to translating research to practice, they will have to do so in the face of contrary pressure to focus their efforts on efficacy research. Graduate students in practicum courses that emphasize research to practice and researchers who are tenured may currently be in the best positions to contribute data and information to practitioners. Many graduate training programs require practica and it is not unusual for practicum supervisors to require practicum students to review research to support practices implemented in practicum. Data collection and progress monitoring of student achievement or performance may also be a required part of the practicum experience. These activities are all part of translating research to practice and information about successful practices might be disseminated to other practitioners (Shriver & Watson, 2005). In addition, tenured professors are not as beholden to publishing in scholarly peer-reviewed journals as non-tenured professors and may also be in a position to contribute valuable information to practitioners through dissemination of research to practice studies.

Finally, all researchers interested in promoting evidence based practice and the translation of research to practice should actively advocate within their respective programs, colleges, and communities the practical value of evidence-based practice. In particular, bringing to university administration and community leaders' attention the benefits of research in practice to assist with effectively solving problems in schools and communities may help reinforce or improve the value attached to effectiveness and research to practice studies. Although the relative time and value of the effectiveness research and research to practice studies may not be

apparent with academic circles, it is exactly this type of community benefit from research that local and state community leaders do value.

Roles and Responsibilities of Practitioners

Role of Practitioners

Practitioners are the on-site school personnel who have direct interaction with students and include teachers, teacher aides, school psychologists, school counselors, speech/language pathologists, occupational therapists, physical therapists, etc. Practitioners are the individuals accountable for beneficial student outcomes as a product of their interactions with students. In the translation of research to practice, the role of the practitioner is that of consumer of research. The term consumer may be thought to mean that a practitioner reads research. However, the term consumer is used here to mean that a practitioner reads *and* actively uses or applies research to inform practice and to facilitate data-based decision making.

Defining the role of practitioners as consumers of research implies that research is a product to be consumed. As such, there may be lessons that can be learned from the field of product marketing that will assist with improving the consumption of research by practitioners. In the most elementary terms, product marketers want consumers to buy the product they are selling and use it so that the consumer needs and wants to buy more of that product. It is hoped that using the product will be beneficial (i.e., reinforcing). For example, McDonald's does not just want customers to come to their restaurant on one occasion and eat a hamburger. They want the product to be sufficiently reinforcing that the customer returns many times to consume hamburgers. Likewise, the makers and marketers of laundry detergent do not just want the consumer to buy a product one time, they want the customer to use the product and find it beneficial or reinforcing (in this case, clean and pleasant smelling clothes) so that the customer

buys and uses the product again and again. If research is considered a product to be marketed, the goal would be that practitioners, as consumers, would read and apply research in practice and find the outcomes or action reinforcing so that additional research is read and applied again and again. Currently, such consumer behavior regarding research does not seem to be prevalent.

To make the consumption of research more likely, it is important to consider the needs and responsibilities of practitioners. Product marketers will often conduct consumer surveys and focus groups to assist with gathering information about particular consumer needs. This type of approach has rarely been done in education (Boardman et al., 2005) specific to translating research to practice, but is probably worth considering as one method for obtaining data that may assist with improving practitioners' use of research. Likewise, as has already been mentioned, researchers can collaborate more frequently with practitioners to identify questions of practical value to study. What follows are general impressions of needs and responsibilities of practitioners in education.

Responsibilities of Practitioners

The primary responsibility of practitioners is that of improved student performance. How improved student performance is defined will be dependent upon the type of practitioner working with the student (i.e., teacher, counselor, speech/language therapist). Given choices, humans generally engage in behaviors that require lower effort and less resources (Friman & Poling, 1995). As common to all humans, practitioners in schools seek to improve student performance in ways that do not require inordinate effort or inordinate amounts of time and resources. Thus, practitioners' needs are for practices that are effective and efficient.

When problems arise in the classroom with student performance, teachers and other practitioners will likely seek assistance to remedy the problem and put student improvement

back on track. The exact steps that practitioners typically take to seek assistance for solving problems is not well researched. Like other practices, it may be expected that teachers will seek solutions to student problems that do not require substantial effort, time, or resources. It appears that when first confronted with a problem, practitioners are likely to seek assistance from colleagues or individuals in an authoritative position or valued as “experts.” Seeking advice from colleagues or experts may be a relatively low cost and low effort step compared to directly seeking practical information from the research literature. In essence, the colleague, consultant, or expert can distill the research to information of practical import for the practitioner. Consultation and collaboration are processes that are encouraged and valued in education. The degree to which consultation or expert opinion is effective in solving problems is probably related to the degree to which the consultation process or expert opinion is based on empirical evidence. Currently, there is an implicit trust that the consultant or expert is knowledgeable about current research applicable to the presenting problem. Unfortunately, many colleagues, consultants, or experts may not be knowledgeable about current research and advice may largely be based on previous experiences in similar situations. Additional research regarding the knowledge base on which typical collegial consultation and expert advice are provided is needed.

If the problem seems intractable or the expert guides the practitioner to a helpful research source, then the practitioner may look to the research literature for assistance with solving problems. If research is not read regularly, but only when problems arise or experts do not provide adequate solutions, then it may be said that research is used reactively, not proactively. The degree to which the practitioner is able to translate the research read to solving the problem at hand may reinforce research seeking behavior. The term evidence-based practice suggests that all practitioners will use practices based on evidence regularly, not just when problems arise or

when expert opinion is not helpful. There is a need to develop sources of research for practitioners that provide information that help practitioners solve problems (i.e., effective) that are easily accessible (i.e., low effort) and do not involve an abundance of time and resources (i.e., efficient). The presumed reinforcement for practitioners consulting research is reduced time, resources, and/or effort and effective intervention and prevention strategies that improve student outcomes..

Roles and Responsibilities of Practitioners in Translating Research to Practice

The roles of practitioners do not change in translating research to practice, they are still consumers of research. Practitioners typically do not read primary research sources, however, and expecting them to read primary research sources is probably not realistic or helpful in leading to evidence-based practice. Instead, there should be expectations that practitioners become consumers of effectiveness and research to practice studies. It can not be expected that practitioners will engage in evidence-based practice if they are not provided with evidence they can use. Practitioners will need to take responsibility for critically evaluating research. Largely, critical evaluation will involve evaluating the degree to which research conditions match the practitioner's practice conditions. Three considerations for practitioners in evaluating the match between research and practice are student characteristics, setting characteristics, and practitioner characteristics.

Student characteristics. Two areas of consideration for practitioners when evaluating research are the problem addressed by the research study and the population for whom the research intervention was successful. Research typically focuses on restricted and well-defined problems. In practice, however, children often present with co-morbid problems or other confounding factors such as family concerns, health issues, mental health problems, multiple

academic deficits, social skill deficits, etc. Problems may vary in type and in co-morbidity. Problems may vary in terms of topography, frequency, rate, duration, and intensity. Problems may also vary in terms of function or cause. Practitioners need to ask themselves whether the problem addressed in research matches the student problem that they need to address in practice. Likewise, research may use samples from populations of convenience, such as college undergraduates, or the research recruitment process may inadvertently restrict the sample to Caucasian, middle- and upper- income children and families. Practitioners need to consider the population of students with whom they work in terms of age, gender, developmental level, ethnicity, culture, etc., and the match with the sample of children used in research. Practitioners' ability to match characteristics between research and practice will be facilitated by researchers' increased emphasis on these variables when writing articles for practitioner consumption.

Setting characteristics. As noted earlier, practitioners typically seek and need practices that do not require inordinate amounts of time or resources. Practitioners need to evaluate research studies to determine the specific type of materials, funding, personnel, and even room size and teacher-student ratio required to effectively implement the practice. These resources need to be compared with existing resources in the school and classroom to determine the degree to which the practice “fits” the typical classroom environment. Related to this point, time is often a precious commodity for many practitioners in the schools. Therefore, practitioners should carefully evaluate the practices used in research to determine how much time will be necessary to implement the practice.

Practitioner characteristics. The implementation of practices in research is often supported by clearly written protocols or manuals, the provision of on-going supervision and consultation regarding implementing the practice, and extensive training of the individuals

implementing the practice by professionals with expertise on the practice. These forms of support are not always, or even typically, available in many school and classroom settings. Practitioners need to read the procedures carefully and evaluate whether they have the skills to implement the practice with fidelity. If a practitioner determines that he or she does not have the skills to implement the practice then it is important that he or she identify a colleague or other professional with expertise on the practice with whom they can consult and/or from whom they can learn the relevant skills. In addition to determining whether they have the skills, the practitioner needs to give some consideration to whether this is a practice that fits with how they typically practice and whether it is something they would continue to implement if successful. In a sense, this means the practitioner must judge his or her own motivation and personality characteristics with the expectations of the practice as demonstrated in research.

Other Practitioner Responsibilities

Practitioners are responsible for implementing evidence-based practices (e.g., American Psychological Association, 2005; No Child Left Behind Act, 2002; Odem et al., 2005). As such, they must evaluate how the evidence or research matches their respective practice. As part of implementation, practitioners in evidence-based practice are also responsible for monitoring student progress and making decisions based on progress monitoring data (e.g., National Association of School Psychologists, 1997). On-going data collection for progress monitoring and data-based decision making may seem like relatively straight-forward responsibilities, but they seem to be frequently neglected in teacher preparation programs and other education related practitioner training programs. In addition to neglect in graduate training, the literature on evidence-based practice has not given much attention to practice-based data collection as part of progress monitoring and decision making in evidence-based practice (Edwards, Dattilio, &

Bromley, 2004; Hawkins & Hursh, 1992). If a practice is not working, it needs to be changed or discontinued. On the other hand, if a practice is effective then it might be expected that it will be sustained over time. Sustaining a practice over time, however, will be dependent to some degree by the match or fit with the classroom or school environment and practitioner characteristics. Many readers can probably think of multiple examples where effective interventions were not sustained over time due to a variety of reasons. Research on the sustainability of practices has been limited and needs to be encouraged by practitioners and researchers.

What Needs to Change for Practitioners

If practitioners are to be held accountable for evidence-based practices, then it is necessary to provide them ready access to the research and data that supports practices and to information that facilitates the translation of research to practice. Currently, there are literally thousands of journals and multiple thousands of websites that purport to give important, if not empirical, information to practitioners in schools. It is very difficult for practitioners to access information that is based on quality research findings. In addition, the quality of various sources of information varies and it may be difficult for practitioners to discern which source to trust to provide quality research information about evidence based practices. There appears to be a need to centralize the sources of information about evidence-based practices so that practitioners know where find them. In addition, these sources should be trusted by practitioners to provide high quality and useful information. The U.S. Department of Education's What Works Clearinghouse website is one example of a possible source of information for practitioners (U.S. Department of Education, 2006). The Campbell Collaboration website is a potential other source of information (The Campbell Collaboration, 2006). Professional and scientific organizations need to step up

and assist with providing their practitioner members with the information on evidence-based practices directly or at least provide links and referrals to pre-screened and trusted websites.

The type of information that is provided to practitioners must change. Currently, most research is *efficacy* research published in scholarly journals for consumption by other researchers. To engage in evidence-based practice, practitioners must also have access to data and information that describes in detail how a practice found efficacious in research can be effectively applied in practice. There needs to be specific information about practice procedures that allow practitioners to evaluate the match between their students, environment and professional skills. In addition, information about effective data collection, progress monitoring and data-based decision making associated with the evidence-based practice will assist with facilitating the translation of the research to practice and may assist with sustaining the practice over time.

Training at all levels of professional development will need to incorporate teaching practitioners to be informed, critical *consumers* of research. Training in undergraduate and graduate programs needs to include teaching future practitioners how to evaluate the match between research and practice, not just critically evaluating primary or basic research studies. In-service and professional development workshops and presentations should include information about the link between research and the practice being taught and provide specific guidelines for implementation. Training at all levels should also include teaching data collection, progress monitoring, and data-based decision making skills.

Next Steps for Practitioners

Although it is important that practitioners actively seek and apply information they read, it is difficult to expect substantial changes in practitioner behavior without prior changes in the

contingencies that impact their behavior. For practitioners to translate research to practice for the goal of engaging in evidence-based practice, it is important that they be provided with improved access to research to practice information. In addition, they need to be provided with opportunities on the job to learn about evidence-based practices and current research. These opportunities may occur as part of weekly or monthly meetings in which research, research to practice, and evidence-based practice are discussed. Accountability for attendance at meetings, active participation, presentation of research and evidence-based practices, implementation of evidence-based practices in classrooms and improved student performance is necessary for practitioner involvement in translating research to practice in schools. These types of accountability expectations and opportunities for meetings will largely come about because of changes in administrative expectations. Administrative roles and responsibilities will be very briefly discussed below, but first the role and responsibilities of trainers in translating research to practice will be briefly presented.

Roles and Responsibilities of Trainers

Training has been implicated throughout the foregoing discussion as a variable that needs to be addressed for researchers and for practitioners to more effectively assume responsibilities related to translating research to practice. Trainers are typically university-based faculty whose role is to train future practitioners and researchers. Many trainers in university settings also have dual roles as researchers. Some trainers also have practitioner roles, but these tend to be practicum supervisors whose primary role is practice. Trainers are responsible for teaching the production and consumption of research. In short, trainers are typically in a prime position to model the translation of research to practice. However, given the dual role that many trainers have as researchers, the extant contingencies support conducting and publishing efficacy

research not effectiveness research or research to practice studies. Subsequently, the production of efficacy research tends to be emphasized in training programs. Similarly, practitioners receive some training in reading and evaluating efficacy research, but not in translating research to practice. Some research suggests that evidence-based practices are not typically taught in graduate level programs (Shernoff, Kratochwill, & Stoiber, 2003). A question arises, however, over what trainers should teach. Can we really identify and teach every evidence-based practice as a protocol or manual? Should the emphasis in training should be on scientific principles of learning and decision making? These are not novel questions for training, but are questions that need to be discussed in the context of evidence-based practice and the needs of future researchers and practitioners in translating research to practice. In short, trainers need to make a concerted effort to expand the training of research activities for future researchers and practitioners to include effectiveness research, research to practice studies, the dissemination of research to practitioners, and consumption of research to practice by practitioners to include evaluating the research to practice match, data collection for progress monitoring and data-based decision making. Much more discussion of appropriate training to facilitate the translation of research to practice is needed within the field of education and other related professional training. As the old saying goes, "Easier said than done."

Role and Responsibilities of Administrators and Policy Makers

Administrators and policy makers comprise a very diverse group of individuals with vastly different roles and responsibilities. However, there is a primary responsibility common to all administrators and policy makers and that is resource allocation. Administrators and policy makers essentially set the rules for who gets what and when. There has been an increased emphasis over the last decade or more for accountability in education, medicine and psychology

(e.g., No Child Left Behind Act, Insurance Reimbursement and Medicaid/Medicare Guidelines). In essence, administrators and policy makers are asking, and are being asked, whether resources are going to practices that are effective.

In their respective roles and with the primary responsibility of resource allocation, administrators and policy makers have control of contingencies to encourage the translation of research to practice and evidence-based practice through how they allocate resources. Administrators, such as principals, can increase opportunities for evidence-based practice by encouraging and modeling active collaboration with researchers. Principals and other school administrators can increase in-service training and meeting opportunities for practitioners with a focus on evidence-based practice. Likewise, as administrators are held accountable for practitioner performance and student improvement, it is important that they seek to implement evidence-based models of accountability (e.g., Wandersman, Imm, Chinman, & Kaftarian, 2000).

Conclusions

Translating research to practice is a defining characteristic of evidence-based practice. Establishing a culture of evidence-based practices in schools requires that all interested parties actively participate in translating research to practice. This article has touched on many of the issues related to translating research to practice and evidence-based practice in education. Although evidence-based practice is a term that has become more frequently used this last decade or so, the idea of practice based research is certainly not new. For example, a symposium comprised of top researchers and educators was held in 1961 at the University of Oregon. The topic of the symposium was the dissemination and implementation of research in practice in education (Goldhammer & Elam, 1962). Likewise, in psychology, the scientist-practitioner

model is largely based on the idea that practice should be based on science (Baker & Benjamin, 2000).

There are at least three differences between what has been presented in the past regarding research-based practice and evidence-based practice as it is discussed more recently in the literature. First, there is a broad consensus across many disciplines that practitioners are not relying on evidence to make decisions and that more needs to be done to facilitate the translation of research to practice. Second, there is now computer and internet technology that allows for faster and more efficient communication among professionals. This technology may assist with facilitating the dissemination of research for practice purposes. And third, accountability is now a greater part of practice across disciplines (medicine, psychology and education) and there are real pressures in terms of resource allocation in demonstrating that children are improving.

In and of itself, all the discussion that is taking place regarding evidence-based education will have little, if any, impact on education. Action is needed. Action requires actors. What will be different tomorrow in implementing evidence-based practice in education will be determined by the responsibilities we assume as individuals in our respective roles as researchers, practitioners, trainers, and administrators. It is important to identify the desired actions that need to take place for evidence-based practice to occur. Actions will be needed by a diverse group of researchers, practitioners, trainers, and administrators and policy makers. An analysis of current behavior and contingencies begins to assist with identifying what needs to change for a culture of evidence-based practice in education to occur. This article provides a starting point to such an analysis. It is hoped that much more analysis and action will take place in the future.

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