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Bridging the Research-Practice Gap: Research Translation and/or Research Transformation

The issue of the "research-practice gap"—the problematic relationship between research in education and educational practice—has been widely reported in the literature. This critical literature review explores some of the causes and features of the gap and suggests some possible approaches for addressing it. These solutions involve changes in the practices of both researchers and practitioners.

Les travaux en éducation évoquent souvent la question d'un écart entre la recherche et la pratique en salle de classe. Ce compte-rendu critique de la littérature du domaine porte sur certaines causes et caractéristiques de cet écart, et propose quelques approches possibles pour y remédier. Les solutions offertes impliquent des changements dans la pratique, tant chez les chercheurs que les praticiens.

Research is the keystone of most universities. It drives much of the work of the faculty and is a major determinant of the respect and rewards faculty members are afforded by their peers and institutions. Such research often draws heavily on the practices of schools, teachers, and students and is generally believed to inform the educational decisions made by governments, schools, and teachers. It is one of the modes of influence, beyond producing teachers, that universities exert in school classrooms. Significant research attention and comment, however, addresses the assumption that a research-practice gap exists: the notion that teachers rarely directly implement the educational research produced by universities and seemingly do not value it.

   Does educational research have a role in improving practice? There is no shortage of literature on the topic of translating educational research into the classroom. The issue, however, is not as simple as producing research results with the belief that they will be used in practice. In this article we present a critical literature review that addresses the issue of the implementation of research in education. Specifically, we begin with a description of two cultures

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in education and with discussion of the common notion that these cultures are just too different to be able to work effectively with each other.

Literature that explores some possible causes for the research-practice gap is considered next. Much literature describes the value of research for practice; however, there are also a number of reported reasons why it may not be used more. Many researchers describe theory as being fundamentally necessary for practice even to occur, whereas others believe that research must be applicable to practice in order to be useful. We conclude with discussion of some effective research translation initiatives: how the research-practice gap has been bridged including description of some of the collaborative efforts occurring between schools and universities.

Two Cultures

Kincheloe (2004) has explored the relationship between teaching and research in the context of "reform" efforts in education. He ascribes part of the issue to cultural differences in the broader educational research community that rise to the level of two separate cultural milieus:

> As if all of these problems in the bizarre, complex, and misunderstood world of teacher education did not make the improvement of teaching hard enough, teacher educators and teachers have had to deal with the existence of two competing cultures in the education profession. Even casual involvement with teacher education will reveal the existence of both a "craft culture" and a "research culture." (p. 21)

For research to be produced by researchers and used by practitioners, it seems plausible that the research must in some way address the fundamental pressures by which each group is driven. This is not so say that research must be immediately and directly applicable to practice in order to have value to the profession. Research in education is increasingly diverse in terms of its interests, methods, and applicability, and we certainly do not see such research as a single homogeneous block.

The distinction between scientific and technological research in the physical sciences is one model for thinking about various kinds of educational research and their relationship to practice. Scientific research is aimed at extending our understanding of the physical world around us and generating explanations, theories, and predictions about how it will behave. Technological research (or research and development) is aimed at developing products or systems to meet particular human needs and wants or to extend human capabilities. The relationship between science and technology is dynamic, complex, and nonlinear in the sense that sometimes technological research applies knowledge gained from scientific research, but perhaps equally often new technologies make possible new scientific research, or scientific research is applied to determine explanations for technological problem solutions.

It is also important to note that much basic research becomes relevant to practice only after a considerable span of time, if ever, but the existence of educational research that is not (because it is not intended to be) immediately applicable to classroom practice is not the problem we are addressing here. The issue we address is the theory-practice gap: the perception that research that is

intended to inform practice is for some reason or set of reasons not being effective in doing so.

Kincheloe (2004) reflects that preservice teachers who are attempting to bridge the worlds of the university and the classroom can become victims of these competing cultures:

> Teacher education students are, of course, the most victimized players in the two-culture profession. As they find themselves ensnared in the middle of the conflict, they often encounter conflict between what they were told to do in their university courses and the demands of the school district in which they are teaching. (p. 22)

Kincheloe goes on to discuss how knowledge production, curriculum development, epistemologies of practice, and even cultural contexts may be lost when these two cultures are not bridged.

Ginsburg and Gorostiaga (2001) share the belief that two cultures exist in education. They label these cultures Theorist/Researcher and Policy Maker/Practitioner groups. Drawing from a number of sources, Ginsberg and Gorostiaga detail the stereotypical description that is attributed to each culture, while stipulating that these stereotypes are most useful as a starting point for discussion. In their opinion the stereotypes do not yield an accurate reflection of the respective worlds of teachers and researchers because they represent each group as homogeneous and do not reflect the extent to which the groups overlap and interact (see Table 1).

Certainly it would be difficult to claim that any particular professor or teacher is accurately represented by the entirety of each list, but these characterizations provide a valuable starting point for determining why the worlds of researchers and teachers seem to be difficult to combine to support the development of collaborative teams in which goals are chosen and work is done together rather than as separate entities.

Clark (1988) also characterizes the relationship that exists between the two cultures, but he chose to focus specifically on the establishment of the cultures. He claims that this begins in the university before prospective teachers even enter classes of their own. Clark's focus is on the differences that exist between research on teaching and teacher education. He suggests that there are three possible characterizations of the relationship between teaching and research in education:

1. Researchers pursue their own narrow and parochial interests, publish in obscure language in obscure journals, and avoid all discussion of practical implications of their work. For their part, teacher educators see this kind of research as irrelevant and impossible to understand, and continue to use unexamined habits and traditional ways preparing teachers.
2. Teacher effectiveness researchers see the role of research as to discover those behaviours, skills, patterns, and strategies that lead to improved student learning and achievement. The principal role of the teacher educator in this relationship is that of trainer of students in the skills and strategies empirically endorsed by the research community. This is essentially a top-down model in which researchers and the knowledge they produce govern the content and practice of teacher preparation.

Table 1
Stereotypical Characterizations of Researcher/Practitioner Cultures
(Ginsburg & Gorostiaga, 2001, pp. 177-178)

Theorist and Researcher Culture:
- Subscribe to a view of knowledge as objective, factual, dispassionate truth.
- Engage in scholarship in isolation from policy makers and practitioners, who have the "obligation … to understand the importance of and to apply correctly, the findings so meticulously generated."
- Good science will trickle down to the level of practice and inform practitioners on what to do and what not to do.
- Select topics based on long-term concerns among scholarly colleagues.
- Undertake projects that take a relatively long time to complete.
- Use specialized terminology.
- Too concerned about theoretical paradigm labels (classificatory mystification), and as a result, few comparative lessons can be drawn to assist decision makers in educational planning.

Policy Maker and Practitioner Culture:
- Not interested in the minor details that may be intellectually interesting to researchers.
- Value research that:
    - addresses particular questions on their agenda;
    - generates conclusions that are compatible with their beliefs, ideologies and preferred practices;
    - that is written in an understandable way for non-experts;
    - is provided in a timely fashion;
    - takes political and economic constraints into consideration;
- Knowledge is partial, biased, incomplete, self-serving and politically compromised.
- Obtain information from non-researcher groups (like admin, politicians, media, etc.), and make use of other sources of knowledge other than research. Thus the influence of research is limited because it is refractory to the culture of practitioners.

3. … member[s] of the research community behave as consultants to the community of teacher educators. The best consultants are those who leave something interesting and provocative to think about as the clients continue to wrestle with the complexities of the local problematic situation. (pp. 5-6)

This is an issue that has arisen in other professional fields as well as in education. Polkinghorne (1992), for example, has identified a similar gap in the practice of psychology between the research done by academics and the psychology of practice. He proposes empowering and valuing the psychology of practice and the development of strategies for sharing "the professional community's experience of what has been beneficial" (p. 162) with other practitioners. Polkinghorne goes so far as to claim that academic research in psychology has essentially made itself irrelevant to practice. We would not make this claim in education despite the extensive literature on the disjunction between research and practice, but would suggest that strategies for addressing the gap will not be simple and will not all be focused on changes on the part of practitioners.

Causes of the Research-Practice Gap
If we stipulate that the *two cultures* description is at least a useful way in to a discussion of the use (or otherwise) of research by practitioners in education,

two questions arise: "Where did the two cultures originate? Why does a gap continue to exist between researchers and practitioners when the existence of such a gap is so well documented and bemoaned by both groups?"

Osher and Snow (1997) suggest that the research-practice disconnect can be attributed to both cultural factors (divergent knowledge communities that are organized around discrete values, rituals, and institutions) and structural factors (characteristics of practitioners that hinder knowledge exchange, as well as characteristic ways individuals [both researchers and practitioners] produce and employ knowledge).

> While knowledge use is always local, knowledge "transfer" is frequently conceptualized, described, implemented, and even evaluated in a "top-down" manner that views knowledge as produced by researchers and disseminated to practitioners, who then apply the research. Such an approach does not capture the concerns and experiences of the end users of research-based information. (p. 258)

Warby, Greene, Higgins, and Lovitt (1999) explored how researchers and practitioners each explain the research-practice barrier. Researchers apparently see the gap as driven by the strictures of doing research. Specifically, researchers believe that they must address a research problem rather than its practical application (Carnine, 1997; Strike, 1979), and that they do not and should not draw their work from convenient, unverified sources that may be in vogue—something they suggest their practitioner counterparts are more likely to do (Billups & Rauth, 1987; Casanova, 1989; Kauffman, 1996).

By contrast, Warby et al. (1999) present practitioners as seeing the origins of the research-practice barrier as being driven by the immediacy of their classrooms. Specifically, practitioners believe they have no time (Cox, Kahn, & French, 1985) to access the limited research available (Fleming, 1988), and even when they do, they state that the research is written indecipherably (Billups & Rauth, 1987; Jacquez, 1989; Schiller, Caroll, & Pankake, 1989) and perceive it as irrelevant to their classrooms (Griffin & Barnes, 1986; Waxman, Freiberg, & Knight, 1986). In addition, many teachers become discouraged when the outcomes of using research result in unexpectedly variable outcomes (Frankel, 1973).

Other authors also describe the research-practice gap as being attributable to the various agendas or pressures that teachers and researchers create and are subjected to. This can lead to default assumptions about the "other side" that can tend to create or exacerbate barriers rather than diminish them. There are a number of perspectives on what should be the complementary roles of researchers and practitioners.

There is an increasing presence in the literature, however, of a philosophy in which it is acknowledged that there is a gap between research and practice, but that the gap is artificial (or perhaps inevitable) and driven by an erroneous perspective on the nature of research. Good (1989) addresses the notion that quality research is about broadening understanding—including theoretical understanding—rather than about providing predigested tips and tricks for practitioners to implement.

> It must be kept in mind that the role of research is not to provide simple solutions for educators. The task of research is to broaden—not to narrow—teachers' conceptions of practice. Hence, the value of research cannot depend on its ability to control practice but rather is related to the ability of research to help teachers comprehend classroom instructional problems and to respond to problems they confront. (p. 80)

This is a compelling and important perspective. Teachers tend to resist the provision of teacher-proof externally mandated curricula and to defend their professional judgment and autonomy. This means that they are likely to resist external prescriptions for their practice. At the same time, however, they often have little patience for theory and for discussions that challenge them to rethink their practice in fundamental ways, and do request "practical" and directly applicable results from research. Waxman et al. (1986), however, suggest that teachers are willing to use research, but that much current educational research is not addressing questions that are important to them. This leads teachers to resort to solving the issues they encounter on a trial-and-error basis.

Perhaps the issue of most concern is exemplified by reports that teachers are willing to use research to bridge the gap, but that the gap remains simply because they do not have the means, mechanisms, or time to access the research that they know is out there but cannot easily access (Howe, 1988). Wilson and Corbett (2000) describe this situation.

> While the kind of research available is of some concern, it is much more worrisome that research remains so inaccessible to [teachers]. On one hand, practitioners encounter inconsistent and limited support for acquiring knowledge.… On the other hand, research—even that with direct, practical implications—is not often disseminated in the places that practitioners prefer to frequent, namely interactive group settings. (p. 15)

The available research on this issue suggests that for a variety of reasons, some of them quite intractable, there continue to be gaps both between researchers and practitioners and between research findings and classroom practice. We believe that this hurts both researchers and practitioners.

Is Theory Necessary for Practice?

Do educational practitioners need researchers? Certainly educational researchers need teachers and classrooms directly or indirectly, or they would lose the sites of their research. How specifically, though, does a classroom teacher—or his or her practice or his or her students' learning—benefit from an article published in an academic journal or a presentation made to a group of academics at a national conference?

Warby et al. (1999) suggest some practical reasons teachers need research. First, it allows them to be up to date in identifying useful classroom applications; and second, research provides a foundation for educators to justify using the strategies and/or curriculum materials that they use. There must be value beyond some sort of inherent occupational obligation that teachers feel toward their profession for such a large number of teachers (Waxman et al., 1986) to be so excited about receiving and using research findings.

There is a need for teachers' use of research to be supported in a number of ways in order to meet a need that they already perceive for bringing relevant

educational research to bear in their practice. Carnine (1999) describes a campaign required to shift the educational profession, and suggests that important aspects of that process are:

- Research must be practical and readily usable to solve problems, that is, it must be not too expensive, not too difficult, and not too complicated.
- Critical research must be accessible by teachers and be written in a form that is easily understandable and not written for research audiences (although the research may start out that way).

Carnine (1997) emphasizes the idea that for it to be valuable to the teacher, the research must be applicable. It must be trustworthy (the confidence that practitioners can have in research findings; how practitioners know which findings deserve their trust), usable (the practicality of the research-based practices for those who attempt to put them into practice), and accessible (a measure of the extent to which the findings are both available and readable by those that would wish to use them). In this context *trustworthy* does not mean *true at all places and all times*. Rather, it means that the research must show how it was constructed from the "empirical materials" (Denzin & Lincoln, 1994) of classroom practice and must appear credible and plausible to teachers in relation to real classroom situations.

It would appear that for practitioners to value research it must seem applicable to their classrooms, but as Wilson and Corbett (2000) ask,

> whose responsibility is it to translate research into practical implications? Practitioners are at times idiosyncratic, wanting information to be targeted specifically for their realm of [teaching] with their categories of students and for their mix of working conditions. (p. 15)

That is to say, there is work to be done by both researchers in how they write and disseminate their findings and by practitioners in how they apply these findings to their particular contexts. No one else knows a particular teaching context as well as the teacher who teaches in it, and it is unrealistic for practitioners to demand such context-sensitive forms of applicability from researchers. Interpretive work remains to be done by practitioners.

Norris and Kvernbekk (1997) suggest an implicit problem when considering how to translate theory into practice and explain how the requests of practitioners for theories to be more directly applicable to their classrooms may not by the nature of theory be possible.

> Theories are flexible and useable because they are general; otherwise, they could be applied to only one instance. However, it is this very strength of theories that can lead to their being viewed negatively by teachers, who see theories as ignoring [the realities of life in classrooms]. (p. 995)

However, many attempts are made to address the gap between theory and practice. The more sophisticated attempts recognize the features of both practice and research discussed above and include strategies to address the interactions between these factors. The following section details some of the literature that address these attempts.

Potential Approaches to Bridging the Gap

Given all the difficulties described above in translating research into practical application, it may seem that the worlds of researchers and practitioners are doomed to remain separate and distinct. Acknowledging that it is difficult, however, does not preclude attempting to bridge the gap. Knowing some of the reasons for the research-practice gap serves to suggest how the separate cultures in education may be combined, or at least serves to help create a common ground in which they might meet.

Carnine (1999) suggests that the key is to change the nature of research. Make practical, easily understood application a requirement of any research funding so that the practitioners can both access and understand the research that is out there. Osher and Snow (1997), however, suggest that the key to bridging the gap is to involve the practitioners collaboratively at all stages of the research process (identification, conceptualization, implementation, evaluation, synthesis, and communication of information).

Acting on the recommendations of the National Council of Teachers of Mathematics (NCTM), Berman and Friederwitzer (1981) attempted a more collaborative approach as they attempted to implement metric program research. From this they compiled an extensive list of what they considered to be the keys to successful translation of research into practice. Most notable among this list were:

- Based on teachers' expressed needs.
- Includes teacher input early in the program.
- Have immediate applicability for the classroom.
- Include supervisory personnel as well as other teachers doing the implementation in cohort groups.
- Meetings and implementation needs to be on site.
- Process should be continually evaluated by administrators as well as participants with modifications made collaboratively.
- Any extra time required beyond the classroom should be during the school day with the participants released from regular teaching.

Clearly this approach to research begins with the practitioners and requires the involvement of the entire school (students, teachers, and administration) with the research.

Hallinan (1996) suggests that what is necessary is the creation of formal "research translation" positions in school districts and other contexts where practitioners are expected to use research in their practice. Wilson and Corbett (2000), for example, call for the creation of a position in which

> someone knowledgeable about research and skilled in communicating to others has to be in a position to reach key gatekeepers and, through them, practitioners. Because neither practitioners nor researchers seem to be well positioned to translate research into practice, this sort of boundary-spanning, context savvy role clearly is called for if dissemination is to be truly effective. (p. 16)

Howe (1988) would also like to see a research translator role created, but stipulates that the key is to create this position from within the school staff, or at least to draw the translator from the teaching pool. He suggests that teachers have credibility with their colleagues that is impossible for others to attain.

It is worth noting, however, that not all attempts at bridging the research-practice gap have at their heart the interests of all parties asked to be involved. Ginsburg and Gorostiaga (2001) warn that the motivations of the individuals involved must always be questioned before proceeding with any translation initiative. Time and money commitments, power relationships of the institutions and people involved, as well as hidden motivations of groups that present one aspect but intend another, must all be considered before undertaking collective research and praxis.

Nonetheless, Ginsburg and Gorostiaga (2001) discuss a number of approaches to enhancing the communication between researchers and practitioners.

- *Translation/mediation.* Creating a role whose function is the translation of research from the researcher to the teacher. A person who understands and appreciates research findings and can package them in a form that educators can use to improve their schools.
- *Education.* Educating individuals to better communicate their ideas and work, as well as to increase their awareness of the members of the other culture. It is worth noting that both the first and second approaches leave the two cultures autonomous from each other and do not pursue the idea of dialogue as a mutual exchange and appreciation of information.
- *Role expansion.* Encouraging members of each community to enter the other culture for a time. For example, researchers could teach part of the week or during sabbaticals, and teachers/administrators could do research as a part of their duties. This encourages appreciation and awareness, but ironically does little directly for communication (although presumably it does help those involved "learn a new language").
- *Decision-oriented research.* Also called applied research or clinical partnerships, this is when the researcher and practitioner are partnered to produce a product that the teacher both uses and informs as the research is done. The whole premise is to use the client orientation as the foundation for the research. It diminishes the autonomy of the researcher and requires more work on the part of the teacher, but the result is a product the teacher understands and is directed toward using.
- *Collaborative action research.* Joint communication, reflection, and action between the teacher and researcher. This approach uses the natural tendency of educators toward inquiry to drive the merging of research and practice.
- *Collective research and praxis.* Both researchers and practitioners are regarded as agents of inquiry as well as objects of inquiry; both are engaged in action and reflection.

In the final section of this article we outline some specific conclusions from efforts that have been developed in particular contexts using one or more of these approaches in an effort to bridge the research-practice gap and explore how successful these initiatives have been.

Collaborative Efforts Between Schools and Universities
What constitutes a successful collaboration between researchers and practitioners, between universities and schools is a much-debated issue.

> With some embarrassment, we report that this history [of university-school partnerships] has been fraught with failures, that school and college teachers have resorted to blaming each other for those failures, and that, more often than not, college teachers attempted to dominate their colleagues in schools. (Schultz, Laine, & Savage, cited in Smith, 1992, p. 243)

Yet there have been cases in which the people involved at both the school and university levels reported that they benefited from the partnership with the other; from the collaboration between the two cultures. Smith (1992) studied award-winning collaborative efforts between schools and universities in the years 1977-1989, attempting to distill from them the keys to successful collaboration as evidenced not only by winning the award but also by the longevity of the collaborative effort. She relates the key elements are:

- Collaboration was both practical and clinical, with both cognitive (learning facts, generalizations, and concepts about teaching) and affective (acquiring social and interpersonal skills) components.
- Joint governing group, composed of reps from university and schools, to help develop common goals, share responsibility and commitment, and to foster communication between the groups.
- Attempts to relate theory to practice and programmatic responses to new requirements or needs. (p. 245)

Smith also emphasises the importance for collaborative research projects of parity between participants, recognition of the importance of schools as teachers' workplaces, and attention to the needs and interests of all the participants throughout the process.

Teachers are interested in and willing to form collaborative groups with university researchers to test classroom ideas derived from research (Howe, 1988). It would seem that the key is to respect the demands that each culture faces and try to find the aspects that each group shares and build from this. Perhaps teacher education programs, which already serve a bridging function between universities and schools, could serve as the beginning of a relationship that also extends into the joint creation and use of research.

Approaches to Closing the Gap
In brief, then, solutions to the research-practice gap fall into four broad categories.

1. *Fix the practitioners*, that is, rather than simply express bemusement at the "failure" of practitioners to implement research findings in their practice, actively give practitioners (a) access to research findings, (b) skills in reading research reports (including vocabulary and concepts that enable them to evaluate findings), and (c) skills in adapting and implementing research findings in their specific context. Many practitioners do gain some of these skills and forms of access as they undertake graduate study, but there may be other strategies that will also improve access to and use of research by practitioners.

2. *Fix the researchers*. Under this prescription, researchers are held more responsible for serving the needs of the profession (while recognizing that forms of educational research without direct applicability are also valid and valuable). Rather than simply reporting their results in academic

journals and at academic conferences, researchers are encouraged to write articles in "teacher language" for teachers' journals and to present to teachers at conferences. Abstract, generalized findings are considered necessary, but not sufficient: researchers are also expected to have skills in applying their research in particular concrete educational contexts.

3. *Fix the research*. A third approach is to suggest that varied forms of research be pursued in education. Rather than seeking generalized, decontextualized knowledge, research focused on seeking (rich, complex, concrete) descriptions of and prescriptions for practice is advocated. The increasing role of the many forms of qualitative research in educational research has already gone some way in the direction of deemphasizing the quantitatively defined standards of validity and reliability and replacing them with standards of verisimilitude (plausibility to practitioners) and utility (usefulness to practitioners). Action research approaches could also be considered as one form of fixed research.

4. *Create research translation roles*. On the assumption that change on the part of either researchers or practitioners is likely to be difficult (because their existing patterns of knowledge, skills, and interests are not arbitrary, but are in fact well adapted to their respective roles and strongly supported by existing systems of rewards and constraints), this approach calls for the creation of an entirely new role, the *research translator*. Such people would be adept at speaking the language of both practitioners and researchers and would be able to translate research findings into a form that is comprehensible, plausible, and appears potentially fruitful to practitioners, as well as to convey the interests and concerns of practitioners to researchers. The research translation role is one that seems to have the potential to offer significant benefits; however, questions remain about how such translators would be recruited and supported.

We believe that continued attention to this difficult and challenging problem is a worthwhile—indeed crucial—effort to make if research in education is not to become as irrelevant to practice in education as Polkinghorne (1992) claims that psychological research has become to psychological practice. Successful approaches may well involve any of these perspectives or (more probably) some blend of them. There are also new and interesting proposals such as Olivero and Sutherland's (2004) advocacy of the use of *videopapers* as a means of creating and sharing educational research with practitioners.

It seems plausible that the creation of research translation roles is likely to be in many ways the simplest approach to begin quickly, although we recognize that this is a solution that has been suggested before, as early as Dewey (1960, first published 1938), and the fact that it is not widely used suggests that there are significant difficulties with enacting this approach. In most educational distinctions it is currently difficult to see who would have responsibility for recruiting, training, and paying such translators: the universities are often focused more tightly on research in itself than on collaborations with teachers, and school divisions are often on tight budgets or too small to distribute the salary of a research translator across a number of schools. The role would also require a particular type of person and skill set that may be difficult to find. It is possible that rather than the development of specific job descriptions, what is

required is more active attention to research translation on the part of university education faculty (many of whom have also worked as classroom teachers).

Already interesting work is being done in all four of the broad categories of approaches we describe above and there is compelling evidence that successful collaborations can occur under the appropriate conditions. The development of more collaborative, inclusive models of the nature and practice of research in education, complemented by a commitment on the part of both researchers and practitioners actively to seek productive ways to collaborate in order to serve student learning, seems likely to lead to fundamental changes in both research and teaching—and finally to begin to close the research-practice gap.

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