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This paper addresses two questions: What is involved in bringing about significant and worthwhile change in teaching practices? How can or should research aid in this process? In order to do so, two related literatures will be explored—teacher change and learning to teach. These literatures will be used to develop a third perspective, which will be grounded in examples from a teacher change research project which is funded by the Office of Educational Research and Improvement (OERI), U.S. Department of Education. This perspective suggests that empirical premises derived from research (Fenstermacher, 1986) be considered as warranted practice, which, in combination with teachers's practical knowledge, become the content of reflective teacher change. It also suggests that practice should be viewed as activity embedded in theory. The paper concludes with suggestions for ways of approaching the introduction of research into teachers' ways of thinking.

I n a recent article in the *Washington Post*, Chester Finn, past Assistant Secretary for Educational Research and Improvement of Practice in the U.S. Department of Education, was reported as complaining about both the quality of educational research, and the fact that teachers do not use it, anyway. "An unbelievable quantity of so-called education research . . . occurs only to benefit the person doing the research," (Finn, cited in Vobejda, 1988, p. 10). Further, Finn suggested that educators themselves resist change: "The field of American education is very, very conservative," (cited in Vobejda, p. 10). These are not uncommon complaints about either educational research or educational practice. What is surprising is that such unsophisticated comments are still news; and that the considerable effort that has gone into demonstrating both the relevance of educational research to the improvement of practice (e.g., Gage, 1985; Good & Weinstein, 1986; Richardson-Koehler, 1987), and the complexities of bringing together the two quite different epistomologies of research and practice (e.g., Fenstermacher, 1986, Schön, 1982) seem not to have altered the nature of public comment.

Unfortunately, the sentiment concerning the resistance of teachers and their unwillingness to use research is shared by many researchers and scholars. Researchers and change agents often express frustration that teachers do not willingly

or quickly accept and implement their suggestions. For example, following a teacher-change effort, Duffy and Roehler (1986) stated:

> Getting teachers to change is difficult. They particularly resist complex, conceptual, longitudinal changes as opposed to change in management routines, or temporary changes . . . . Teacher educators and researchers interested in making substantive change in curricular and instructional practice need to understand this resistance. (p. 55)

And, of course, contributing to the very real schism between researchers and practitioners is the use of the effectiveness research in state and local mandates that prescribe particular curricula, and their methods of instruction and evaluation. Thus control is exercised over teachers with words suggesting a higher authority: *Research says*, and the like.

Practitioners' and policymakers' seeming lack of appreciation of the importance of educational research to practice has led to different ways of considering how research may be used in the improvement of practice. Teacher-effectiveness scholars have moved from the notion that research specifies behaviors for teachers to use in the classroom (i.e., wait time) to the notion of the informed use of behaviors within a context, or a type of Merck Manual of effective teacher behaviors (Brophy, 1976), to the use of research as food for thought (Brophy, 1988; Clark, 1988). Perhaps we should try a different approach: to focus on change in teaching practice, and then try to determine the place of research in supporting or changing practice. The questions to be addressed in this paper, then, are: What is involved in bringing about significant and worthwhile change[1] in teaching practices? How can or should research aid in this process?

I will begin this exploration of change in teaching practice by turning to two quite different literatures—teacher change, and learning to teach. These two research genres are seldom brought together, in part because they have been directed

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at different units of analysis, with quite different purposes. The teacher-change literature has been conducted for purposes of changing the education system at the state, school district, or school level. Thus, this work has examined individual teacher change only in terms of whether teachers have responded to externally mandated change attempts. The purpose of the literature on learning to teach, in contrast, is descriptive in nature: to understand the learning processes of individual teachers. Learning, of course, implies change, but the assumptions encompassed in the teacher-change and the learning-to-teach literatures are quite different. I will first determine whether and how these two literatures address the questions of interest in this paper. I will then use these literatures to develop a third perspective, and ground it in examples from a teacher-change research project being conducted at the University of Arizona.[2]

Two Supporting Literatures

Teacher Change[3]

Much of the literature on teacher change relates to the question of why innovations are not implemented as their developers anticipated. McLaughlin (1987) presented a history of this literature, suggesting that the initial disappointment with the seeming lack of success of various implementation experiments led to the diagnosis of teachers being resistant to change. Lortie's (1975) investigation of the sociology of the teaching occupation and Jackson's (1968) study of classroom life provided an explanation for this resistance. Lortie suggested that teachers are less rational and analytic than other types of college graduates, and Jackson suggested that teachers are conceptually simplistic and intuitive, and do not use scientific or objective measures in assessing student growth. Thus, a change deemed by others on rational grounds as good for teachers may not fit individual teachers's intuitive and nontechnical sense of what they should be doing. In this view, the experts are educational scholars and administrators who have been trained in scientific thought. (See Berlak & Berlak, 1981, and Feiman-Nemser & Floden, 1986, for a critique of this view of teacher thinking.)

A second wave of explanation for the lack of implementation of new programs was somewhat more sympathetic to teachers. No longer were teachers simply recalcitrant because of the nonscientific, nonrational norms of the teaching occupation. The new approaches to explaining why teachers did not willingly adopt the practices developed by experts suggested one or both of two factors. One factor is organizational, the other personal.

A number of scholars lean toward the structure of the organization as accounting, in large part, for teachers' engagement, commitment, and willingness to change or learn, or lack thereof. Little's (1987) work, for example, focused on school conditions such as norms of collegiality and experimentation that propel a faculty toward an improvement orientation. This sense of the organizational structure and environment, Little felt, is more important than the nature of the individual teacher working within the organization. Rosenholtz, Bassler, and Hoover-Dempsey (1986) investigated school organization features as they relate to teachers' stated commitment and their willingness to learn. They found a number of school-level features such as teacher collegiality, instructional coordination, and other factors found in the school effectiveness literature as affecting teachers's perception of their skill acquisition. Huberman and Miles (1984) examined the ways that administrators handle the change process and their effects on how new programs were adopted.

Several researchers, in contrast, focus on the beliefs, knowledge, attitudes, and perceptions of teachers as a group in inhibiting or promoting their adoption of new practices. Doyle and Ponder (1977) suggested that teachers are oriented toward the concrete and practical, and thus are more or less receptive toward change on the basis of three ethics: practicality (does it allow for classroom contingencies?), situation (does it fit my classroom situation?) and cost. Tobin (1987) concluded from a number of studies on the implementation of math programs that teachers' beliefs about how students learn and what they ought to learn had the greatest impact on what teachers did in the classroom and whether they changed. In addition, Guskey (1988) found that efficacious teachers were more likely to implement a new mastery learning program than those who were less efficacious.

Some scholars look to both the organization and the individual to explain the factors that affect the implementation of change. March and Simon's (1958) view of change in organizations provided an effective framework for these approaches to the study of teacher change. They suggested that individual behavior and decision to change within an organization is influenced by (a) cues from the organizational environment, and (b) individual beliefs, attitudes, goals, and knowledge acquired from experience in relation to the change (also see Hargreaves, 1984). Smylie (1988), for example, attempted to determine which aspects of personal characteristics and which of organizational structure account for whether individual teachers change practices. Others try to tie organizational with personal attributes theoretically through concepts such as the incentive system. The latter requires a sense of what motivates teachers in combination with structural conditions that meet those needs. Most of the work in this area suggests that teachers are motivated by student performance and engagement rather than salary incentives and other external rewards (Bryk, 1988; Mitchell, Ortiz, & Mitchell, 1987; Stern & Keislar, 1977). McLaughlin and Yee (1988), for example, found that the quality of a teacher's experience far outweighed the potential for promotion as an incentive.

The change literature has moved, therefore, from viewing teachers as recalcitrant and resistant to change to examining the structure of the organization and personal attributes of teachers that affect whether or not they implement new programs. It is important, however, to note that *change*, research-based or otherwise, is defined in this literature as teachers doing something that others are suggesting they do. Thus, the change is deemed as good or appropriate, and resistance is viewed as bad or inappropriate. Even the recent work that is more sensitive to teachers' norms and beliefs fails to question the reforms themselves (Donmoyer, 1987). Further, the constant changes that teachers make when meeting the changing needs of the students in the classroom or trying out ideas that they hear from other teachers is not recognized in these formulations. A critical feature in this literature is that someone outside the classroom decides what changes teachers will make.

It is, therefore, not surprising that the organization would be turned to as a major barrier in the implementation of im-

posed change. The organization is external to the individual teacher, as is the promoter(s) of the particular change. Focusing on the organization takes the blame off the individual teacher, but suggests that the teacher is a pawn in the system with little power to make autonomous decisions concerning the appropriateness of a given practice for her or his classroom. In fact, *autonomy* is not a term that is commonly used in this literature. If we want teachers to implement a practice, we can hardly suggest that an important element in this type of change is that teachers control the decision to implement or not. To understand the importance of autonomy to the change process, we must turn to a literature that focuses on the individual as the unit of analysis.

Learning to Teach

In both the teacher-change and learning-to-teach literatures, there are fundamental questions about what teachers do, and how and why they do it. However, the framing of the questions and their investigation are quite different in the two literatures. The teacher-change literature focuses on teacher behaviors, and specifically on behaviors identified within a particular program. Thus the questions of what teachers do and whether they change are addressed within an evaluation framework—pre-and postprogram or mandate implementation. The learning-to-teach research, in contrast, focuses more on individual teacher's cognitions, beliefs, and other mental processes than on behaviors. This literature addresses two types of questions: Are there differences in the way teachers think at different stages of their careers? What accounts for how teachers think about what they do? This shift from a focus on teacher behaviors to one on cognitions mirrors the general movement in many fields of education.[4]

The first question has been addressed cross-sectionally and longitudinally. As an example of a cross-sectional study, Carter, Cushing, Sabers, Stein, and Berliner (1988) found that expert, novice, and postulant (i.e., those with subject-matter expertise but no pedagogical training) teachers perceive and process visual classroom information in quite different ways. These studies have provided us with useful information about how experts think and what they do; they also suggest (but are not designed to provide evidence for) a developmental or learning process involved in the acquisition of these ways of thinking.

The question of whether there are differences between preservice students' thinking and perceptions and those of teachers who have begun to practice has been studied longitudinally in order to trace the learning-to-teach process. These studies have examined the development and maintenance of perspectives learned in preservice education (Russell, 1988; Tabachnick & Zeichner, 1984; Zeichner & Tabachnick, 1985), of pedagogical content knowledge (Grossman, 1989; Shulman, 1987), and what preservice students did not learn during their preservice teacher education (Ball & Feiman-Nemser, 1988). Borko and colleagues' (Borko, Lalik, & Tomchin, 1987; Borko & Livingston, 1989) longitudinal studies of preservice student teachers and novice teachers focused on the learning of content area knowledge as it interacts with personality factors and the expectations of the school.

Another set of studies, generally described within the learning-to-teach rubric, seeks to explicate teachers' ways of knowing and their origins. These studies suggest that the focus of a change effort should be teachers' cognitions and thought processes rather than or in addition to behavior. This literature investigates the nature of teachers' practical knowledge (Elbaz, 1983), situational knowledge (Leinhardt, 1988), images (Calderhead, 1988), knowledge-in-action (Schön, 1982), practice-generated theories (Jordell, 1987), and practical arguments (Fenstermacher, 1986), and how such knowledge develops in individual teachers. For all of these investigators, this type of knowledge is different than formal theoretical (or research) knowledge, and interacts with the particular context and classroom situation in which the knowledge is transformed into action (or in Schön's formulation, interacts with the action). These studies employ case-study methodology, the unit being a teacher.

Two related aspects of the teacher's life emerge as being important in the development of this knowledge: experience, and the teacher as person. These two aspects have, in the past, been investigated as norms; that is, shared beliefs about the nature of teaching on the part of the teaching occupation (Doyle & Ponder, 1977; Lortie, 1975). The more recent studies help their readers understand how the norms could have developed.

In this literature, teaching experience is viewed as essential to the learning-to-teach process. As Clandinin and Connelly (1986) formulated the process,

> practical knowledge is gained through experience with the cyclic nature of schooling and classroom life. The experience is known in terms of a narrative which is reconstructed on the basis of additional experience. (p. 380)

In Schön's (1982) conception, the practitioner interacts with a particular situation and brings forth knowledge in action, gained from experience in similar circumstances. Teachers, too, are quite aware of the role of experience; in fact, in their minds, experience may be the only teacher. Richardson-Koehler (1988) suggested that student teachers pick up this understanding within 5 or 6 weeks of commencing student teaching. Thus, the development of various forms of practical knowledge as well as Shulman's (1987) concept of pedagogical content knowledge requires experience. Leinhardt (1988), drawing on her classroom observations and interviews with mathematics teachers, presented a case of how a teacher could have come to understand the nature of third-grade mathematics, and present it the way she did. Leinhardt demonstrated that the structure of the mathematics that the teacher presented in her lessons was related to her past experiences with the topic in the text she used in third grade, in the way in which this content was portrayed in preservice education, and in the assigned texts in her first year of teaching and twentieth years of teaching.

Thus, although Feiman-Nemser and Buchmann (1986) cautioned us that classroom experience may not be the best teacher, for many teachers, isolated as they are in the classroom, it is an extremely potent teacher. However, as Schön (1982), Shulman (1986), and Anning (1988) have pointed out, experience is educative only with reflection. This suggests that the improvement of the teacher-learning process requires acknowledging and building upon teachers' experiences, and promoting reflection on those experiences.

The second important aspect that affects the development of practical knowledge relates to the teacher as person. Bryk (1988) described good teaching as an ''intensely personal ac-

tivity" (p. 275). Experience as a learner and teacher, of course, is a piece of the person, and perhaps the most important element. However, there are other aspects related to who the teachers are, and perhaps more importantly, their perceptions and beliefs about themselves as learners and teachers. The personal nature of teaching has been amply demonstrated in a number of case studies. Clandinin (1986) and Clandinin and Connelly (1986) suggested, through a case study, that teachers's personal narratives or constructions of their personal biographies interact with particular situations to help teachers acquire practical knowledge. Richardson-Koehler and Fenstermacher (1988) demonstrated how a sixth-grade math teacher's beliefs about how children learn to read as well as his classroom practices were strongly tied to his views of himself as a reader and how he learned to read. Hollingsworth (1989) concluded from a longitudinal study of 14 elementary and secondary preservice teachers through the fifth year of their teacher education program that prior beliefs about teaching and learning strongly affected their patterns of intellectual change.

The learning-to-teach literature informs the questions related to change in teaching practice by providing evidence that teachers do change, and by elucidating the powerful and inevitable relationship between experience and personal biography, and what and how one learns to teach. The work that focuses on practical knowledge also provides an important alternative to the emphasis on behavior in the teacher-change literature. However, as a function of the methodology of case study as well as the types of questions being addressed, the learning-to-teach literature leads to an idiosyncratic view of the teachers. That is, the teacher teaches as he or she is. How, then, are we to think about affecting change, other than through a type of individualistic, psychoanalytic approach to teacher education as suggested by Combs (1965)?

A drawback, then, in using this literature to consider change in teaching practice is that it is descriptive; the notion of standards that guide improvement, or a sense of effectiveness, are elusive. In the novice/expert studies, a sense of teaching effectiveness is implied through the view of *expertise*, defined very differently in the various studies. In the case studies of why teachers teach as they do, a value seems to be placed on teacher autonomy and reflection. These studies were not intended to consider the nature of the content of the reflection. However, if we are interested in change that is significant and worthwhile, the content of reflection should relate to standards of appropriate classroom practice. This suggests that the responsibility of a teacher goes beyond the development of his or her own idiosyncratic, albeit coherent, theory of practice toward participation in the development and incorporation of these standards into his or her classroom practices (see also Buchmann, 1986).

This latter issue may be addressed by bringing together the two literatures, teacher change and learning to teach. The next section will draw on both literatures to consider the questions related to the content of teachers's reflection and its relationship to classroom practices, and how that content may be affected by a change process.

Promoting Change in Teaching Practice

The teacher-change literature provides a way of thinking about systemic change, and the importance of the organiza-tion and its norms in the change process. It also acknowledges that teacher change is the necessary condition to systemic change. However, the conceptual framework within which the research is conducted does not include a conception of individual teacher change. Use of this framework in guiding change, therefore, has led to disappointing results (McLaughlin, 1987). The learning-to-teach literature does focus on the individual teacher, and suggests that teachers change on the basis of who the teachers are and what experiences they have had. The teacher-change literature generally specifies and values a particular activity or practice that teachers should engage in, whereas the learning-to-teach literature, being descriptive, generally does not focus on standards against which to consider effectiveness, but values autonomy and teacher reflection. These literatures, by themselves, do not provide the framework necessary for considering ways of bringing about change in teaching practice that is significant and worthwhile. In addressing this issue of significant and worthwhile change, consideration of the following issues and their interrelationships may be helpful.

Who is in control of change? We have found in both literatures that teachers exercise considerable control over the decision of whether and how to implement a change. In addition, because of the situational nature of teaching, there are strong arguments for the notion that teachers should make these decisions (Fenstermacher & Amarel, 1983). Thus, any change process should both acknowledge this control, and help teachers understand and be held accountable for the pedagogical and moral implications of their decisions.

What is the focus of change? The major shift from a focus on change in teachers' behaviors to change in teachers' practical knowledge and cognitions seems very promising. The learning-to-teach literature suggests that classroom actions are of less importance as a focus of change than the practical knowledge that drives or is a part of those classroom actions. Practical knowledge allows a teacher to quickly judge a situation or context and take action on the basis of knowledge gained from similar situations in the past. Reflecting on the action and its results adds to the teacher's practical knowledge. This knowledge forms a set of empirical, value, and situational premises (Fenstermacher, 1986, 1988) that may be examined as justification of actions. Thus a strong focus should be placed on teachers' cognitions and practical knowledge in a teaching change project, and these should be considered in relation to actual or potential classroom activities.

What is significant and worthwhile practice? One of the most difficult issues in addressing the questions of change in teaching practice concerns the content of the change process—that is, what materials, thoughts, theories, or practices would we like to introduce to teachers with the thought that they will be affected by them—and how should they be introduced. Socially determined standards of practice are not considered in the highly individualistic learning-to-teach literature, and the values of autonomy and reflection suggest a laissez-faire approach to practice. However, this literature does provide information on the need for active teacher involvement in any change process. The teacher-change literature, in contrast, has been quite inflexible in its

consideration of the content of change, and provides teachers with little control in adapting, adopting, or ignoring the particular content. Nonetheless there is within the teacher-change literature a sense of standards of effectiveness. Bringing these two approaches together suggests that teachers themselves must be involved in making judgments about what change is worthwhile and significant; but it also suggests that practices and ways of thinking outside an individual teacher's own experiences should be introduced into the dialogue. An important source of such alternative practices is empirical research on teaching and learning.

We may therefore consider two sources of content for a change process: the practical knowledge and value premises held by the teachers, and the empirical premises derived from research. The outcome of a discussion that considers both sources around a particular teaching topic, such as the teaching of science or reading comprehension, could lead to a socially constructed sense of warranted practice that can guide significant and worthwhile change in teaching practice.

The context of change. The teacher-change literature is quite convincing in its consideration of the effects of the nature of the school organization on teacher change. For this reason, individual teacher change should be viewed within the culture and norms of a collective of teachers, administrators, other personnel, and students in a particular school. Further, the collective provides the opportunity for the social construction of value premises and standards of warranted practice.

An Example

One such teacher change program has been developed at the University of Arizona within a 3-year project designed to investigate the question, in a U.S. Department of Education grant announcement, of why teachers do not use the current research on reading. One element of the larger study investigates the change process in some depth by working with Grades 4, 5, and 6 teachers in four schools in a staff development program that contains the features previously described. Because the program is embedded within the larger study, a considerable amount of data has been collected on the teachers, their classrooms, schools, students, and administrators, both before, during, and following the staff development program.[5]

Similar to a number of other recent staff development programs (e.g., Carpenter, Fennema, Peterson, Chiang, & Loef, 1989), this one focuses on teachers' cognitions. In this case, the theoretical framework that is used is Fenstermacher's (1986) concept of practical arguments.[6] Practical arguments consist of a set of value, empirical, and situational premises and end in an action. Fenstermacher suggested that research could be introduced to teachers by encouraging them to examine their own empirical and value premises in relation to those extracted from current research. Such a process, he hypothesized, would allow teachers to alter or strengthen confidence in the truth value of their premises.

The content of this particular program was current research on and the participating teachers's practical knowledge about reading comprehension and its instruction. Premises and instructional practices were extracted from the research literature, and were categorized and filed for easy access. During the individual and group sessions, teacher's practical knowledge was elicited.

Working at the individual level, reading instruction was videotaped in each classroom, and observed by the teacher and the two coprincipal investigators. The teacher was asked to describe what was going on and to provide rationale for an action.[7] In this way, empirical and value premises surfaced and were discussed in relation to other premises about reading instruction based on current research. By the end of each session, a number of alternative practices would emerge that the teacher was interested in testing in the classrooms. The teachers were provided with additional follow-up in the form of articles, classroom modeling, observations, or substitutes such that they could observe in other classrooms.

In order to address the context of change, the staff developers regularly met with all of the participating teachers as a group in each school. The goal of this element of the process was to explore the cultural norms of the school organization that could affect the school's reading program, and to introduce a process that permitted teachers to continue to discuss practices and their justifications[8] among themselves. The participants identified and addressed learning and teaching issues of common interest, and the staff developers and teachers presented reading comprehension theories, research and instructional practices through description, modeling or videotapes.

Providing teachers with control of the process and outcomes of a staff development program is initially difficult. Staff development programs are usually conducted in a top-down, technical manner (Fenstermacher & Berliner, 1985; Griffin, 1986), and teachers are used to this model. In the case of this program, the participants were initially uncomfortable with a program that did not immediately provide exciting ideas to use (or not) in the classroom. All teachers volunteered for the program, and the staff developers worked at encouraging teachers to take control of the process by deciding what issues to address and which practices to try, and to eventually take over the conduct of the meetings, with the staff developers acting as consultants (Hamilton, 1989).

During this process, we learned much about teacher change, about the complex relationship between context and teacher sense of control, and about the use of research as content in this process.

Teacher change. The teachers in our study changed practices all the time, and they often were able to articulate purposeful reasons for doing so. Most changes that we observed would fit into Cuban's (1988) notion of first-order change; that is, changing the number and composition of reading groups, trying a new activity, creating several learning centers for students who have completed their work, and emphasizing writing activities more than the previous year. One teacher was undergoing a more fundamental second-order change by adopting the whole language philosophy, which was slowly affecting her classroom practices.

Changes that were adopted and tried out in the classroom were often dropped if they didn't "work" for that teacher. Working for the teachers in our study meant that the activities did not violate the teacher's beliefs about teaching and learning; they also engaged the students, permitted control over students felt necessary by the teacher, and helped teachers respond to system-level demands such as high test scores. The rationale for an adopted research-based activity

was seldom related to the original scholarly theory. For example, the rationale for asking students to read the comprehension check questions before reading a passage was consistently expressed as making sure the students got the right answers and did better on the tests, rather than theoretical rationale derived from schema theory.

The filtering of a research-based practice through the teacher's personality and/or belief system seemed to alter the practice quite dramatically, such that it could no longer really be viewed as the same practice. For example, we have videotapes of two teachers implementing prereading activities, previewing the pictures in a text to hypothesize what was going on in the story. Teacher A performed in a manner suggested in the literature. Teacher B's performance was quite problematic because she let students know, with her feedback to their responses, that they were making errors in their picture reading.[9] The correct answers were, of course, obtained from the piece of literature that the students had not yet read, but she had. When asked why she did picture previewing, Teacher A stated that she had been told once that you should, and she had always done it. Teacher B said that she was trying to get a concept across; she had a vague sense that it was not working but did not know why. We knew the teachers quite well through their belief interviews, and the full-group staff development sessions. Teacher A was nonintrusive, hesitant about judging her students, and looked for the best in each. Teacher B had a military background, was rule-bound, and viewed the teaching of reading as helping students obtain the correct meaning from text. Thus the brainstorming practice was filtered through the teachers's personalities. In one case, the implementation was quite faithful, in the other, distorted.

Context and control. The nature of the individual school culture seemed to affect the type and level of involvement in the staff development activities. For example, at one school the relationships among teachers were socially collegial and the profile of the school obtained from the organizational survey of its personnel suggested that the climate could be conducive to a successful staff development program (Little, 1981; Rosenholtz et al., 1986). However, perhaps because of the social collegiality and the sense among the teachers that other teachers were teaching differently, they appeared unwilling to discuss practices and rationale within the group.

However, a second school, at which the teachers had very little contact with each other, socially or otherwise, produced a profile that suggested that there would be problems with the staff development program. Nonetheless, the teachers began quite quickly to talk about their teaching and beliefs within the group. In this case, the principal represented a "common enemy," and the staff development symbolized an opportunity for the teachers to release pent-up frustrations about being in a situation in which they were forced to teach in ways they did not approve of. Teachers in this second school moved quickly to take control of the staff development process as compared with teachers in the first.

At both schools, however, the nature of discourse at the group level was quite different than that at the individual level. At the group level, teachers focused on systemic barriers and mandates that caused them to institute practices over which they had no control, and of which at least some of them disapproved. For example, basal readers were used extensively in the two schools. Their use was justified in one

school on the basis of a supposed school-board policy that 80% of reading instruction had to be in the basal readers, and in a second school, on the basis that there were no other books to use. Other explanations for practices focused on the students' families and their lack of support for education; the teachers' emphasis on grading every assignment was explained by the notion that parents and the public demand objective measures of students' performance.

At the individual level, the teachers appeared more willing to talk about their practices and justifications. These justifications ranged from the view of teaching as an extension of self ("I just felt like doing that...it was my mood that day") to elaborate, coherent theories of the learning-to-read process. Although external barriers were mentioned during the individual sessions, particularly those related to parents, they were not emphasized. It appears, then, that the shared language for justifying or explaining a practice at the school level revolved around barriers, mandates, and lack of control, even though the teachers often expressed different personal justifications for the given practice in their individual sessions. The general feeling of lack of control and autonomy may, in part, function to maintain a laissez-faire approach to teaching activities and their justifications within a collective of teachers.

Practice and research. Our experiences suggest that research-based reading practices in the literature are encompassed within scholarly theoretical frameworks that do not always or easily map onto the ways teachers think about the teaching of reading. Few of the teachers in our sample, for example, exhibited a *pure* theory of the learning-to-read process, a pure theory being one of several theoretical orientations expressed in the literature (Harste, 1985; Richardson & Hamilton, 1988). Teachers' considerations were much broader and more contextual than any of the theoretical orientations could account for. Activities in a classroom appeared as a crazy quilt to the observers, full of actions that did not appear coherent according to any one scholarly theoretical orientation. The several self-described whole-language teachers who used basal readers were a good example of this.

This issue was also demonstrated as we pursued our staff development program. The practices that emerged from the massive literature search undertaken at the beginning of the study, and described elsewhere (Anders & Lloyd, in press), were categorized and presented to the teachers along with a short document. The teachers seemed to avoid the task of selecting among the focuses, and when asked why, responded that the written material really did not make sense to them. They needed to know what the issues were for each of the focuses. The issues of interest were perceptions of particular students and types of students, school-level issues such as what the teacher who teaches these kids next year would think of the activity, and school-district-level testing issues. Because these descriptions of practices were decontextualized, they made little sense to the teachers.

Implications for Practice and Research

This analysis of the literature and observation from our research suggest a somewhat different view of teaching practice, change in teaching practice, and the use of research in this process. Research-based practices in the literature, at

least in reading, are activities embedded within theoretical frameworks. A theoretical framework in reading, for example, tells us how reading and learning to read are viewed by the researcher (e.g., Harste, 1985), and therefore how the particular instructional activity contributes to the learning-to-read process. When a teacher employs an activity within a classroom, it too is embedded within the teacher's set of premises, although that framework may not be related to reading and learning to read. It may, for example, be related to classroom management and control or student testing, and to notions of the roles of teachers and students. Thus, the research-based activity and the implemented activity may be called the same thing, and even look somewhat similar, but, in fact, are not the same practices because the activities are embedded in different belief sets, intentions, and theoretical frameworks.

This notion of practice as activity embedded within theory is important in thinking about changing teaching practice. As previously demonstrated, teachers change all the time. Therefore the problem is not one of change or nonchange. It centers on the degree to which teachers engage in the dialogue concerning warranted practice and take control of their classroom activities *and* theoretical justifications (also see Wildman & Niles, 1987); and the degree to which these justifications relate to the socially constructed standards of warranted practice. In our study, the school-level culture in both schools that provided justifications for action based on external forces allowed the teachers to ignore questions related to their own beliefs, understandings, and activities. As long as the district imposed the use of basal readers and their workbooks, for example, the teachers did not have to face up to their internal conflict between the sense that basals provide an easy way to plan for reading and maintain control over students, and the belief that the basals are not the best material for teaching reading.

Taking control of one's justifications involves reflection on practices, that is on activities and their theoretical frameworks, and an ability to articulate them to others in a meaningful way. If the misimplementation of practices such as we saw with comprehension questions is to be avoided, a new classroom activity should be introduced to teachers with an opportunity for them to relate the activity's theoretical framework to their own beliefs and understandings.

Research, then, should provide practitioners not just with findings in the form of activities or behaviors that work, but ways of thinking and empirical premises related to teaching and learning. These ways of thinking can be used to heighten teachers' awareness of their own beliefs, provide content for their reflections, and help them develop their justifications. A behavior, such as wait time, is not food for thought; it is a possible outcome, or one way of implementing several different theories and intentions that may relate to such concerns as: (a) the nature of teachers' manner in conveying respect for children, (b) the cognitive processes of students as they contemplate higher-order questions, (c) power and control issues among students and their teacher, or (d) the social and cognitive importance of classroom conversation. Thus, wait time as a finding needs to be embedded within a theoretical framework of importance to teachers and education. Wait time may then affect teachers' practices as the concept is filtered through their beliefs, intentions, and understandings of context.

Without an understanding of the theoretical framework

and the opportunity to talk about how the premises in the theory agree or disagree with the teachers' own premises, teachers may accept or reject practices on the basis of whether they meet the personality needs of the teacher and other more ecologically created concerns such as classroom management (see Doyle, 1986) and content coverage. Teachers then become trapped by their inability to take control of their practices, and instead resort to explanations based on external pressures. Empowerment is threatened when teachers are asked to make changes in activities without being asked to examine their theoretical frameworks. In fact, teacher empowerment does not occur without reflection and the development of the means to express justifications. Without such empowerment, teachers may become victims of their personal biographies, systemic political demands, and ecological conditions, rather than making use of them in developing and sustaining worthwhile and significant change.

This perspective on change in teaching practice and the use of research in this process suggests an approach to working with teachers that is quite different than that implied by publications such as *What Works* (U.S. Department of Education, 1986). It means that opportunities should be created to allow teachers to interact and have conversations around standards, theory, and classroom activities. It also suggests that a necessary element of the conversation are discussions of alternative conceptions and activities that in combination with some of the teachers's own conceptions form a view of warranted practice. Research becomes one basis for the development of warranted practices with which teachers may experiment in their classrooms. However, such a process must be implemented in an atmosphere of trust. It behooves us, therefore, to approach with extreme care the development of programs that ask teachers to verbalize their beliefs and premises. Otherwise the research–practice connection will continue to be appropriated by those whose purpose is to control teachers and teaching.

Notes

[1]*Significance* refers to educational significance, or change that educationally makes a difference for the students in the classroom. *Worthwhile* suggests that the changes take place in directions that we value.
[2]The Reading Instruction Study is funded by OERI, Department of Education. The Coprincipal investigators are Patricia Anders and Virginia Richardson. Senior Research faculty who have been involved with the study are Candace Bos, Judy Mitchell, Gary Fenstermacher, John Bradley and Sharon Conley. The opinions expressed in this paper do not necessarily reflect the position, policy, or endorsement of the U.S. Department of Education.
[3]An expanded version of the next two sections may be found in Richardson's chapter in Conley and Cooper (in press).
[4]This shift reflects a change in emphasis in educational research and practice and may be observed in the literature on the learning of content areas (e.g., Anderson & Smith, 1987; Confrey, 1987; Langer, 1988), higher-order thinking skills (e.g., Perkins & Salomon, 1989), and in many other areas. This new emphasis suggests that understandings affect behavior and that change in behavior must be accompanied by change in cognitions.
[5]Data include pre- and postethnographic belief interviews of teachers and principals; school-level data including a structured survey of all instructional personnel concerning school organizational conditions, and continual ethnographic observations; classroom observations and videotapes of classrooms; audiotapes of individual practical argument sessions; videotapes of group staff-development sessions; and pre- and

postreading comprehension performance of students. A number of papers have been written that describe the various aspects of the study and are available by writing the author.

⁶The original notion of practical arguments is found in Aristotle's work, and was adapted in recent times for educational purposes by Green (1976), who suggested that the purpose of teaching is "to change the truth value of the premises of the practical argument in the mind of the child, or to complete or modify those premises or to introduce an altogether new premise into the practical argument in the mind of the child" (p. 252). Fenstermacher (1979) adapted this to suggest that the value of research is to change or modify the premises in the minds of teachers.

⁷It is not assumed as in the decision-making research that the rationale indicates what teachers were thinking at the time of the action (see Richardson-Koehler & Fenstermacher, 1988).

⁸Buchmann (1986) described explanations as the motivation for doing something and justification as a statement that allows others to consider the wisdom of a given action. Zeichner & Liston (1985) defined explanation/hypothetical discourse as "attempts to identify causal relationships operating in the educational setting" (p. 163), and justificatory discourse as "concerned with the question of why do this, in this way, with these particular students" (p. 163).

⁹The purpose of this prereading activity as suggested in the literature is to activate and share students' background knowledge, and develop a set of hypotheses or questions that will focus the students in their reading of the passage. It is not expected that the teachers will judge the answers as correct or incorrect at prereading time; in fact, such judgment counteracts the original purpose of the practice.

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