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ABSTRACT

Researchers and teacher educators who study teacher learning have examined how teachers' beliefs influence their thinking about teaching, learning, and subject matter. Paying attention to these beliefs has become an essential feature of studies and programs designed to help teachers understand research. This study takes the emphasis on teachers' beliefs a step further by focusing on teachers' beliefs about educational research. The study outlines the diverse beliefs about research teachers have and illustrates how these beliefs play a role in the ways teachers respond to research. The study also describes a Master's level course designed to introduce teachers to research, and charts longitudinal changes in teachers' beliefs through their participation in the course. The study suggests that a carefully constructed Master's course can contribute to changing teachers' beliefs about research and can help teachers consider research as one viable way that they can learn from and think about their teaching. (Contains 31 references.) (Author/ND)

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NATIONAL CENTER FOR RESEARCH ON TEACHER LEARNING

The National Center for Research on Teacher Learning (NCRTL)[1] was founded at Michigan State University in 1985 with a grant from the Office of Educational Research and Improvement, United States Department of Education.

The NCRTL is committed to research that will contribute to the improvement of teacher education and teacher learning. To further its mission, the NCRTL publishes research reports, issue papers, technical series, conference proceedings, craft papers and special reports on contemporary issues in teacher education. For more information about the NCRTL or to be placed on its mailing list, please write to the Publications Clerk, National Center for Research on Teacher Learning, 116 Erickson Hall, Michigan State University, East Lansing, Michigan 48824-1034.

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[1]Formerly known as the National Center for Research on Teacher Education (1985-1990), the Center was renamed in 1991.

Abstract

Researchers and teacher educators who study teacher learning have examined how teachers' beliefs influence their thinking about teaching, learning, and subject matter. Paying attention to these beliefs has become an essential feature of studies and programs designed to help teachers understand research. This study takes the emphasis on teachers' beliefs a step further by focusing on teachers' beliefs about educational research. The study outlines the diverse beliefs about research teachers have and illustrates how these beliefs play a role in how teachers respond to research. The study also describes a master's level course designed to introduce teachers to research and charts longitudinal changes in teachers' beliefs through their participation in the course. The study suggests that a carefully constructed master's course can contribute to changing teachers' beliefs about research and can help teachers consider research as one viable way that they can learn from and about their teaching.

SUPPORTING TEACHERS' UNDERSTANDING OF EDUCATIONAL RESEARCH IN A MASTER'S LEVEL RESEARCH COURSE[2]

Linda J. Tiezzi
John S. Zeuli

Researchers and teacher educators who focus on teacher learning have examined the ways teachers' beliefs can influence their thinking about teaching, learning, and subject matter (Ball 1991; Collins, Brown, and Holcum 1991; Roth 1993). They have recognized the importance of investigating learning events that both challenge and support teachers' beliefs (Kennedy 1991). Paying attention to teachers' beliefs has also become an essential feature of studies and programs designed to help teachers understand educational research (Fenstermacher 1987; Fenstermacher and Richardson 1993; Richardson 1990; Zeuli 1994). These researchers have understandably focused on teachers' personal autonomy in deciding what to do with research findings (see also, Good 1989; Richardson 1990). For practical and theoretical reasons, research-based prescriptions for teachers are inadequate and potentially miseducative. Since research findings are content-specific and partially shaped by researchers' aims, teachers cannot merely be trained to do certain things in accordance with some research findings (Buchmann and Floden 1994; Floden and Klinzing 1990; Little 1993; Tom and Valli 1990). This study takes the emphasis on teachers' beliefs one step further. It describes teachers' beliefs about educational research and suggests that these beliefs may play a significant role in whether and how teachers respond to research. The study also analyzes how a carefully crafted master's course can contribute to changing teachers' beliefs about research and helping teachers consider research as one viable way they can learn from and about their practice.

[2]This paper was presented at the annual conference of the American Educational Research Association, April 1994, New Orleans, Louisiana. A more comprehensive study of similar topics is now under way at the National Center for Research on Teacher Learning. The project, Learning from Research, investigates the role of knowledge about research as well as the benefits of conducting research one's self on learning to teach.

The aims of this paper are threefold: first, to describe the diverse beliefs teachers hold about educational research and to show how some teachers took a passive, consumer approach to research; second, to describe a master's course, "Introduction to Classroom Research," and chart longitudinal changes in teachers' beliefs about research through their participation in that course; third, to analyze the implications this study has for informing future inquiry on teachers' understanding of research and the circumstances which promote that understanding.

TEACHERS' BELIEFS ABOUT EDUCATIONAL RESEARCH

In this section, we characterize teachers' beliefs about educational research and illustrate how these beliefs influenced their understanding of research.

The Sample

Study subjects represented varying levels of prior involvement with educational research. One group included five teachers who collaborated with researchers for at least one year on projects related to teaching and learning. In general, these projects were initiated and developed by university-based researchers and included a variety of approaches that were of apparent value and interest to teachers, though it should be mentioned that they were not necessarily initiated by collaborating teachers' questions about their own teaching (see Porter 1986). The second group included four teachers with considerably less or no prior experience with research (e.g., never worked on research projects, conducted their own research, or taken any course on educational research). A third group was comprised of four teachers with no prior research experience. Teachers in the third group, however, completed a master's level course designed specifically to introduce classroom teachers to educational research.

In sum, 13 teachers were initially interviewed, four of which were interviewed prior to their enrollment in a master's course on educational research. The sample included seven elementary school, four middle school, and two high school teachers. There were ten females and three males in the sample. Subject area specializations for the middle school and high school teachers varied (see Table 1 for description of the sample).

Focus Areas and Structure of Interview

The focus areas of teachers' beliefs about research included their beliefs about what research is and how it should influence their practice. We were also interested in teachers' approaches to reading research. To find out teachers' beliefs in these areas, teachers were interviewed during two one-hour sessions using a structured open-ended interview protocol. The first one-hour session focused on teachers' beliefs about (a) what research is and (b) how they think research should influence their teaching. The second one-hour session focused on (c) how they understand research when they read it.

What Research Is. To find out teachers' beliefs about what research is, teachers responded to a card-sort task that included abstracts of different types of research studies. They were asked to state whether carefully written and adapted 80-110 word abstracts constituted their idea of educational research (see Zeuli 1994). Teachers' responses were categorized to indicate whether teachers possessed a narrow definition of research (only quantitative studies); a broad definition (teachers included qualitative, historical, philosophical, and quantitative studies in their definition of research); or an unclear definition (i.e., teachers consistently mixed up prescriptive statements about teaching and learning with abstracts of different types of research studies).

The Influence of Research. To find out how teachers thought about the influence of research on their teaching, teachers responded to three one-page vignettes that described different ways research can influence teachers (Zeuli and Tiezzi 1993). Teachers chose one of the three vignettes that most represented their thinking: (1) research should mainly or exclusively provide strategies and techniques to have a direct impact on their teaching; (2) research should have an indirect impact; i.e., the value of research is to help raise questions about their teaching and offer analytic frameworks with which they can better understand their work; (3) research has had no impact on their teaching. (See page 13 for further discussion of the vignettes.)

Table 1: Types of Teachers[a] in the Study

Group 1 Teacher Collaborators	Group 2 Teachers with Less Research Experience	
Bryan Middle School Social Studies	Leisa (MC)[b] Elementary	Nicole Elementary
Cheryl High School English	Karla (MC) Elementary	Ana Marie Elementary
Geoff Middle School Math and Social Studies	Lynda (MC) High School Remedial Math	Nick (BT)[c] Elementary
Fran Elementary	Andrea (MC) Middle School Math	Jessica (BT) Middle School Science
Kathleen Elementary		

[a]Names of all teachers are pseudonyms.
[b]MC = Teacher preenrolled in a master's course on classroom research.
[c]BT = Beginning teacher.

Reading Research. To find out how teachers understand research when they read it, we first asked teachers to describe what they look for when they read research studies and then asked them to read and respond to three research articles and two research findings during the one-hour interview (see Zeuli 1994). Teachers were asked to read the articles prior to the interview session with one exception. Four teachers (Andrea, Lynda, Karla, and Leisa) enrolled in the master's level course on classroom research wrote out their responses to the questions about the three articles because of insufficient time to interview them face to face before the beginning of the course.

The articles were chosen to represent different types of research studies as well as for their brevity and potential interest to teachers. One article, "On Listening to What the Children Say" (Paley 1986), is a nationally recognized teacher's descriptive study of how she responds and listens to children in her own classroom. Another article, Cuban's (1988) "A Fundamental Puzzle of School Reform," draws on historical studies to introduce conceptual distinctions that sort out the types of changes that have occurred in schools' organizational structure over the past century. A third article, "Teaching Critical Thinking in Elementary Social Studies" (Hunkins and Shapiro 1967), is a quasi-

experimental study of 54 fifth graders that investigated whether a case-method approach to teaching critical thinking was superior to a traditional lecture-textbook approach.

All teachers were asked to read the articles and were given the questions they would respond to before being interviewed or writing out responses. For each article they were asked the following questions:

1. What is the main thing the author is trying to say, and how does he or she try to convince you?

2. Is there anything in the article you had trouble understanding?

3. What conclusions, if any, would you draw from the article for your teaching?

For all the articles together, teachers were asked:

4. Did you enjoy any article more than the others? Why or why not?

5. Was any evidence in the articles more or less convincing to you?

6. In light of how you think research should help teachers, does any article succeed more than any other? Why or why not?

Teachers' Prior Beliefs About Research

Teachers' responses to the abstracts and to the vignettes were coded and analyzed in order to gain some sense of how teachers thought research can influence their thinking and what they thought constituted research. This analysis has been described in other publications and will not be detailed further here (see Zeuli 1991; Zeuli and Tiezzi 1993). Our concern here is to illustrate the importance of teachers' beliefs about research in terms of what they pay attention to when they read it.

As Table 2 below suggests, teachers' self-descriptions of how they read research was associated with their beliefs about how research should influence their teaching. With one exception, teachers who said research should have a direct impact described themselves as mainly interested in research findings. They judged a study's merit by whether its findings could be translated into procedures that work in the classroom. Teachers who believed research should expand their understanding of teaching (indirect

influence) were concerned with the concepts and claims an author proposes and how the study's conclusions are supported by evidence.

Also, teachers with either a narrow or broad definition of research (i.e., teachers with clear ideas about what research is) were more likely to say that they were interested in analyzing a study's concepts, claims, and evidence. Teachers with unclear ideas about the nature of research (i.e., they tended to confuse abstracts of prescriptive statements with abstracts of research studies) tended to focus on research findings apart from the body of the research or said they were unsure about how to read research. In sum, judging from teachers' self-descriptions, the manner in which teachers read research was related to their beliefs about what it is and how it should influence their teaching.

The influence of teachers' beliefs was further illustrated when teachers actually read and responded to the three research studies. Teachers who believed research should have a direct impact on their teaching and an unclear view of research had the most difficulty responding to the articles. These teachers had greater difficulty identifying main points and evidence in the articles and/or were unable to further analyze them. They tended to focus almost exclusively on what teaching strategies or methods they could use in their classrooms. Articles were judged less by their tie to evidence and more by whether it "shows you" what skills to use to improve classroom practice. These teachers were also less likely to recognize that research incorporates different conceptions of learning or educational aims (see Zeuli 1994).

Table 2: Teachers' Prior Beliefs About Research and Self-Descriptions of How They Read It

Prior Beliefs	Reading Focus		
	Findings & Applications	*Uncertain Focus*	*Concepts, Claims, and Evidence*
Direct Impact[a] Unclear Definition[b]	Karla (MC)[h] Nicole Lynda (MC)	Andrea (MC) Leisa (MC)	
Direct Impact Narrow Definition[d]	Jessica (BT)[c]		
Direct Impact Broad Definition[e]		Ana Marie	Kathleen (TC)[f]
Indirect Influence[g] Broad Definition			Fran (TC) Nick (BT)
Indirect Influence Narrow Definition			Cheryl (TC) Geoff (TC) Bryan (TC)

[a]The influence of research is only to provide teaching strategies and techniques to improve teaching.

[b]Teachers who mixed prescriptive statements about teaching and learning with various forms of inquiry.

[c]BT = Beginning teacher.

[d]Teachers who believe only quantitative studies (experimental, quasi-experimental, and correlational studies) constitute educational research.

[e]Teachers who believe qualitative (including teacher research), historical, philosophical, and quantitative studies constitute educational research.

[f]TC = Teacher collaborator.

[g]The influence of research is also to raise questions about teaching and to offer analytic frameworks with which teachers can better understand their teaching.

[h]MC = Teachers before taking a master's level course.

A Passive Consumer Approach to Research

Based on teachers' overall responses, it was clear that some teachers took what we label a passive, consumer approach to educational research. This categorization is based on these teachers' beliefs about how research can influence them, their dispositions and abilities to read research, as well as their thinking about what constitutes it. Five teachers, four of whom were teachers enrolled in the master's course (Andrea, Karla, Leisa, and Lynda) had difficulty marking off opinion and assent from authorized conviction. They

could not distinguish between abstracts that represented prescriptive statements about teaching from those that represented different types of educational research.

Dewey (1916, p. 189) speculatively associated the inability to distinguish opinion from authorized conviction with the less effective use of research knowledge to reflect on practice. This association was, in fact, characteristic of teachers with a consumer approach to research since these teachers also had difficulty processing research studies. They seemed to focus primarily on research conclusions they could put to use or offered personal interpretations difficult to ground in the readings. Based on the responses of teachers in this study, the inability to distinguish between opinion and research was associated with a focus on research products and may have contributed to this focus.

How teachers believed research can and should influence their teaching also suggested a passive, consumer approach to research. One group of teachers (Andrea, Karla, Leisa, Lynda, Nicole, and Jessica) wanted to follow and be provided teaching techniques derived from research findings. They said they did not want to read research. Progression from teaching techniques derived from research was linear. Teachers looked to their own experience to test the worth of these techniques without further reference to research. If teachers returned to the research, it meant returning to the research *findings* for further specification on what should have been done or what to do next. They tended less to want research to help them understand *why* certain actions were effective and others not.

Breaking From the Consumer Approach

We do not think that the obverse of teachers having a passive, consumer approach to research is that they acquire a high level of expertise which makes them more like researchers than teachers. Teachers do not need to understand the ins and outs of theoretical sampling, Dewey's metaphysics, complicated statistical tests, or how to judge the authenticity of historical documents to move beyond the consumer approach. Pursuing this arcane, specialized knowledge makes teachers more like researchers than teachers. This expertise may improve teachers' understanding of research but is legitimately beyond their concern.

Highly specialized research knowledge was beyond the ken of teachers in this study who, in fact, went beyond the passive, consumer approach to research. Nonetheless, these teachers (Fran, Nick, Cheryl, Geoff, Ana Marie, and Kathleen) focused on processing research when reading research texts. They did not consider research only to find out procedural recommendations for classroom practice. These teachers more frequently looked for a study's underlying assumptions, were concerned about supporting evidence, and in other important ways were able to appraise research studies. Based on their understanding of the research, they tried to judge whether to believe particular claims included in the study.

In addition, these teachers were able to distinguish between "opinion and authorized conviction" during the card-sort task, another characteristic of teachers moving beyond the consumer approach. However, only two of them (Fran and Nick) recognized a broad range of studies as constituting educational research. The other teachers identified only quantitative studies. Four (Fran, Nick, Cheryl, and Geoff) of the six teachers also thought about the influence of research in ways that broke from the consumer approach. They wanted research to help them explain and understand aspects of their work. They were interested in using research to understand why things happened in their classrooms as well as wanting to understand and to deliberate about valued ends. They did not only want findings from research that informed them of the right techniques to use. They reported that this was too limited. Also limited was the expectation that research is valuable only insofar as it changes their classroom *actions* in some measurable and conclusive way. Research helped them overcome a reliance on conventional modes of thought and helped them see the value of raising questions and, based on evidence and reason, of trying to answer them. Broader pictures emerged that they had never considered, such as the nature of teacher and student interaction, or the importance of considering reasons why classroom events occur as they do.

In sum, there were some teachers who did not have a consumer approach to research. They were able to recognize and willing to take seriously a broad range of research studies that potentially contribute to what they think and do. They had a broad view of how it could influence their teaching, they were willing and able to process the ways evidence is gathered and analyzed, and they were interested in how research

findings or conclusions were warranted in relation *both* to the whole study and to their own classroom practice (Zeuli 1994).

How these teachers broke from the consumer approach varied. Some had been teacher collaborators (Fran, Cheryl, Geoff, Kathleen, and Bryan). Their structured experiences working through the processes of research along with researchers and other teachers may have helped them understand more what research is, how it can influence their practice broadly, and how to analyze it. Every teacher collaborator had invested at least one year working with a university researcher while on sabbatical or leave of absence. This extensive investment of time from the teacher collaborators and financing from the university (see Porter 1986) might indicate that helping teachers break from the consumer approach is prohibitive for school districts and universities to support.

Teacher collaborators offered other explanations besides their work on projects with researchers that could explain their approach to research. One teacher, Fran, described her experiences as a preservice teacher in which she was expected to read and to analyze research related to a teaching problem. Another collaborator, Geoff, mentioned his undergraduate work during which he learned the difference between correlation and cause and how this influenced his thinking when reading particular sorts of research. A teacher collaborator who taught English (Cheryl) stated that she approached research with the same kind of care and attention that she gave to works of literature. Some teachers who were not collaborators offered other ideas, perhaps accounting for the transition from a consumer approach. One beginning teacher, Nick, referred to a graduate course in educational research, though he found it too slanted toward quantitative research. He mentioned also a long-term and sustained interest in literature and ideas as influencing his views. Another veteran teacher, Ana Marie, frustrated with a graduate course she had taken on educational research, turned to a friend.

> And one of the things that I learned in class was how to read it (research) critically. Actually no, I didn't learn it in a class. I was given an unclear assignment by my instructor who gave us research articles to read and to evaluate. And a friend came over to the house and I showed him what I had done all day. And he said, "I don't think this is what she wants." And he then sat down and showed me how to read research in a way to critically evaluate it.

Working as a collaborator seemed to help teachers confront various misconceptions about research. Nonetheless, formal and informal experiences in a variety of contexts may also help and support teachers as they make a transition from a consumer approach to research. Teachers' undergraduate and graduate education as well as in-school staff development may include components that move teachers toward a professional approach. Different contexts may even mutually influence each other to help teachers make the transition.

One formal experience teachers often undergo is a graduate course on educational research. Few studies address teachers' experiences in these courses. One suspects, however, that they often reinforce rather than change teachers' views of research. Graduate course taking in teacher education is often considered desultory (see Sykes 1990, pp. 88-89), and in general, graduate courses are subject to the same criticisms as the teacher education curriculum in general (see Lanier 1986, pp. 527-69). Teacher education is substantively and organizationally in the early stages of helping teachers understand more fully the knowledge base for teaching. In addition, the few comments teachers in this study made about research courses suggest that such courses often confirm teachers' fears and suspicions of research and researchers.

A MASTER'S RESEARCH COURSE FOR PRACTICING TEACHERS

Four teachers interviewed for this study were enrolled in "Introduction to Classroom Research," a master's course for practicing teachers. The course was designed to present an overview of educational research on classroom practice, emphasizing understanding research as one tool for asking questions about classroom practice rather than using research to secure answers. Carefully crafted learning opportunities were constructed within a seminar format. The seminar included small and large group conversations, reflective and analytical writing opportunities, and collaborative research design projects. The ten-week seminar was divided into three parts with a series of framing questions guiding the inquiry for each part of the course. The framing questions, to be examined later in the paper, were purposefully linked together and sequenced for the following purposes: (1) to elicit and broaden teachers' beliefs about educational research; (2) to provide multiple, analytical frames for teachers to examine educational

research; and (3) to help teachers make connections between their own questions and questions posed in educational research.

Investigations of the framing questions were initiated in class. Teachers confronted and examined their personal beliefs through spontaneous, reflective fast-writes followed by dialogue with other class participants. Writing and dialogue were paired to elicit and broaden teachers beliefs. Research articles, articles about research, analytic memos, and collaborative inquiry groups were then used to further support, challenge, and broaden teachers' understandings of educational research. Descriptions of learning activities related to the framing questions within the three sections of the master's class are included in the following section of the paper. (See Appendix for the course syllabus.)

The Beginning Weeks of the Course

During the beginning weeks of the course, teachers first examined three interrelated, framing questions:

1. What is research?
2. How can research influence teachers' thinking and practice?
3. What conceptions of teaching, learning, knowledge, and context guide research?

The questions were intended to: (1) provide teachers with an interrelated and analytical framework for understanding and reading research; (2) help teachers become aware of, acknowledge, and reflect on the significance of the knowledge and experience they bring to educational research; (3) encourage teachers to move beyond a passive, consumer approach to research and explicitly use their knowledge, questions, and beliefs to analyze research rather than focusing only on what knowledge, questions, and answers a researcher included; and (4) help teachers develop a mind set that educational research need not dictate or be considered "the" source of knowledge to guide teaching.

What Is Research? During the first class session, teachers became aware of and examined their own beliefs about the questions. Teachers read, wrote about, and discussed three vignettes which reflected different ways teachers think about what research is, how it can influence practice, and underlying assumptions of teaching and learning (Zeuli and

Tiezzi 1993). Teachers read each vignette carefully and chose the teacher whose views best fit with their own beliefs and experiences. Vignette number one reflected the views of Chris who equated research with practical answers for teachers. Chris, although not totally negative about research, eschewed research unless it provided answers. He believed that teaching experience was the primary, if not sole, guide to learning about teaching. Deryl's views were portrayed in vignette number two. He also perceived research as mainly providing teaching techniques and strategies but was more optimistic that research can help teachers work more efficiently. Vignette number three characterized Kelly's thinking. Kelly felt that research was systematic inquiry which needed to be examined and questioned by teachers. Kelly was strongly attracted to research because it formed conceptual arguments, raised questions about teaching, and had the potential to help her understand more deeply what she does and what she might want to do.

The first framing question and reflections on the vignettes were intended to provide teachers with a kind of story frame to guide their reading of three different research articles for the second class: (1) a descriptive study (Paley 1986), (2) a historical study (Cuban 1988), and (3) a quasi-experimental study (Hunkins and Shapiro 1967). (See pages 4-5 for a description of the three articles.) These three research models were purposefully combined to frame a discussion on teachers' conflicting beliefs and uncertainties about "what counts as research." In addition to the discussion, teachers brainstormed and listed numerous research descriptors on the chalkboard during the second class. Individually and in small groups, teachers created schematic maps to represent their knowledge of educational research. Teachers revisited and edited these schematic maps throughout the course.

In order to challenge and broaden their initial thinking about "what counts as research," teachers read the Cronbach and Suppes (1969) article, "Research for Tomorrow's Schools: Disciplined Inquiry for Education," for the third class session. The article was not portrayed as "the" definitive answer to the question but rather a classic description of research as disciplined inquiry for the purpose of generating concepts and increasing understanding of the issues investigated. Cronbach and Suppes' characterizations were used as templates to help teachers reconsider research status of the Hunkins and Shapiro, Cuban, and Paley articles. This examination also provided a

transition into the second framing question regarding how research can influence a teacher's practice.

How can research influence a teacher's thinking and practice? The next articles were chosen to illuminate teachers' thinking about this second framing question. Each article represented a different perspective on the ways research can influence practice. For example, Berliner's (1987) article, "Knowledge is Power: A Talk to Teachers About a Revolution in the Teaching Profession," describes the ways in which a knowledge base for teaching derived from research not only provides needed answers for classroom teachers but supports the professionalization of teaching. Clark's (1986) article, "Research Into Practice: Cautions and Qualifications," describes how research can serve teachers by providing them with inspiration, information, visions, and support for what they already do well. The final article, Fenstermacher's (1987) "On Understanding the Connections Between Classroom Research and Teacher Change," draws a distinction between the different ways research can influence teachers' practice. The three authors' viewpoints represented various ways research informs practice and also provided further opportunity for teachers to question their own beliefs about "what counts as research."

What conceptions of teaching, learning, knowledge, and context guide research? This final framing question for the first section of the course was designed to help teachers understand the relationship between research agendas and underlying conceptions of teaching, learning, knowledge, and context. Teachers' inquiry into this set of framing questions introduced them to the notion that research represents various human interests and beliefs. The question framed a discussion of three articles that represented different conceptions of teaching and learning.

Helping teachers broaden their beliefs and understandings of research through examination of the first three framing questions drew heavily on the assumption that teachers bring much experience and knowledge about teaching and learning to the research they read. To further teachers' understanding of research, the middle section of the course was constructed to help teachers gain access to additional analytical frames related to understanding research processes within various research models.

The Middle Weeks of the Course

Teachers were introduced to additional analytical frameworks during the middle weeks of the course: (1) the key decision points in social science inquiry, (2) various forms of qualitative and quantitative research, and (3) a research continuum.

What is a research process? The key decision points in social science inquiry were represented as a logical though not linear inquiry process that requires researchers to make decisions at key points during that process. The key decision points were intentionally framed as linking questions in order to further promote teachers' inquiry and to provide an additional framework for teachers to analyze and understand research. The key questions were:

1. What are the problems, dilemmas, and issues and in what social, historical, and political context are they located?
2. What are the questions that arise from an examination of the stated problems, dilemmas, issues, and contexts?
3. What are variables within those questions and how are they defined?
4. What data collection methods are best suited to investigate the questions and variables?
5. What analysis will best describe the data?
6. What implications can be derived from the data analysis?

This analytical framework was also introduced as the format for most research articles.

What are characteristics of the various research models? The questions, methods, and types of findings embodied within three conceptual orientations to social science inquiry were also included in this section of the course: instrumental, interpretive, and critical theory. The goal was twofold: (1) to help teachers understand the connections between the questions, ideas, and inquiry techniques represented in three conceptual orientations and how those orientations informed the key decisions points of inquiry; and (2) to help teachers make connections between the questions, ideas, and inquiry represented in the three conceptual orientations and the questions, ideas, and inquiry originating from their own practice.

What are the differences between various research models? To further teachers' understanding of these three conceptual orientations to research, a research continuum that illustrated where educational research processes might typically be located within the three conceptual orientations was incorporated (see Figure 1). The research continuum illustrated the ways in which various educational research, from experimental to autobiographical, might be located along a continuum of most and least external research controls. The research continuum was paired with the key decision points of social science inquiry to help teachers pose questions about the ways in which researchers conducted research.

Concomitantly, teachers read a variety of research publications such as research articles, reports, case studies, historical studies, and essays. Most classes were organized around various research perspectives on the same issue. For example, in separate class sessions, teachers read research articles from various research orientations on educational equity, teacher-student interactions, mathematics instruction, reading instruction, and classroom management. For each set of readings, teachers considered (1) the key decision points; (2) the ways the research orientation informed the questions, ideas, and findings within each study; (3) the article's location along the research continuum; and (4) concerns, questions, and findings related to their own teaching practice.

The midsection of the course served to broaden teachers' understandings of the ways educational inquiry could influence their practice by introducing three analytical frameworks related to research orientations and processes. This section of the course was designed to move teachers beyond but continue to build on the personal perspective they had confronted and examined during the beginning weeks of the seminar.

The Final Weeks of the Course

Constructing supportive, yet challenging, culminating learning experiences for the seminar was problematic. It seemed that toward the end of a ten-week term, teachers would have just begun to understand various educational research orientations and processes and their own beliefs about those orientations and processes. It was important to consider how teachers could acquire more in-depth knowledge about various research orientations and processes without just including more examples of research models and

	Quantitative Paradigm Instrumental/Positivistic/Empirical Investigating the "degree to which"				**Qualitative Paradigm** Interpretive/Descriptive/Holistic Investigating "the nature of"		
Modes of Inquiry	**Experimental**	**Correlational**	**Descriptive Statistics**	**Historical**	**Descriptive Survey**	**Ethnography**	**Autobiography**
Relational Descriptors	Cause/Effect	Probability	Population	"what was"	"what is"	Contextual	Personal Theory
	Most External Control						**Least External Control**
Method	Predictor & Outcome Variable	Inference Relationship	Profile Central Tendency Mean Mode Median S.D.	Revision Origin Authenticity	Exploration Evaluation	Description Insider's Viewpoint	Personal Self-Analysis
	Control Group Treatment Group Random Sampling Large Population	Closed Questionnaire Structured Interviews		Content Analysis Documents/ Primary & Secondary Pictures/Film/ Video Artifacts	Questionnaire Structured Open-ended Interviews	Participant Observation Field notes Interviews Open-Ended Unstructured	Stories Artifacts Journals

Research models such as case studies, critical theory, and action research can draw on both paradigms.

Figure 1. A Research Continuum.

research topics. It was not the intent of this introductory course to have teachers pursue a specialized knowledge of educational research. It seemed more important to help teachers connect their own personal and professional questions, ideas, and approaches to educational inquiry to the questions, ideas, and approaches to educational inquiry represented in educational research. Therefore, a collaborative research design project was designed to support and challenge teachers' learning about a current educational issue and to further explore and understand the ideas and approaches used within various research processes. The research design project also seemed to parallel the newly evolving understanding of and interest in supporting teachers as researchers.

During the final weeks of the course, small groups engaged in a collaborative research design project. All groups chose a common and current research topic. It was expected that each group would approach the research design differently and represent various perspectives on the topic. Most of the research design activity occurred during class so that group questions about the key decision points could be processed immediately. However, teachers were required to spend some time outside of class and participate in a short, informal presentation during one of the last two classes. Teachers were evaluated and given feedback on the coherency of their design, the match between what they said they would investigate and the methodology chosen, and the clarity with which they described the confusions, dilemmas, and arguments encountered while trying to construct the research design. To support teachers' thinking about teachers as researchers, the final articles read for the class were Cochran-Smith and Lytle's (1990) article, "Research on Teaching and Teacher Research: The Issues That Divide," and Duckworth's (1986) article, "Teaching as Research."

To further promote and evaluate teachers' understandings of research, the final written assignment for the master's class was a comparative analysis of three research articles (see Appendix for the comparative analysis assignment). Teachers chose two research articles from the course syllabus and were given one new article to analyze. The new article was not research but rather practical suggestions for teachers based on process-product research. Primarily, teachers constructed arguments about the ways the articles did or did not qualify as research. In addition, teachers wrote about the ways

their analyses of the three articles differed from their first written assignment of the term when they analyzed the Cuban, Paley, and Hunkins and Shapiro articles.

Teachers in the Study Taking the Master's Course

Despite the traditional problems associated with graduate courses in teacher education, this course seemed appropriate to investigate teachers' beliefs about research. It provided an opportunity to judge whether a less time-consuming and intense experience than, for example, becoming a teacher collaborator or perhaps an engagement in some other sort of teacher research could influence teachers thinking about research in important ways.[3]

Four teachers who were part of the larger study enrolled in and successfully completed the master's level course previously described. The four teachers (Andrea, Lynda, Karla, and Leisa) were all in the final phases of completing their master's degree requirements in education. They were interviewed prior to entering the course, once during it, and again between two and three weeks after the course ended. The same interview format and content was used during teach interview, except that teachers were also asked after the course ended how, if at all, their ideas about research had changed during the course. Changes in teachers' ability to read research were judged by teachers' responses on a final project for which they analyzed three articles. (See Appendix for a description of the final analytical writing assignment.) One article was a chapter on motivation from Cummings' (1980) book, *Teaching Makes a Difference*, in which teachers are provided practical techniques on how to motivate learners. Other articles included different types of research studies. All four teachers were also interviewed one full year after taking the course to determine what, if anything, the course contributed to experiences with research they may have had during the school year.

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[3]The course syllabus, its goals, readings, activities, and requirements are included in the Appendix. The second author's role in the course was limited to selecting different types of research studies to include in the readings, such as philosophical and historical studies. He also helped develop teachers' final project in which they were expected to read and to analyze different types of research studies. He did not attend any classes, discuss with the instructor teachers' responses, evaluate any work produced by teachers which was reflected in their final grade, or have any other formal affiliation with the course. The first author was the class instructor. Teachers were selected to be interviewed based on calling teachers on the course list and asking them to participate in the study.

We had no idea whether teachers in the master's class who participated in the study would initially have a professional or consumer approach to research. The four teachers (Andrea, Lynda, Karla, and Leisa), however, were clearly aligned with the consumer approach. They had an unclear conception of what research was, wanted it to impact their teaching directly, and were generally uninterested in reading it (see pp. 5-8). For this paper, we will describe the four teachers' thinking as revealed in the interviews about: (1) important changes in their thinking when prior ideas about research were confronted and (2) additional evidence that changes in thinking about research had occurred other than teachers' self-descriptions.

Teachers' overall responses, of course, must be treated cautiously. Responses were provided within the context of taking and completing a course whose direction is likely clear to them at some point. Teachers' thinking may have changed briefly but not have been internalized. Likewise, teachers' receptiveness to different ideas about research may reflect more the instructor's personality and teaching style and have less to do with teachers' genuine acceptance of these ideas. Also, teachers' responses during a final project may reflect their interest in getting a good grade and not reflect changes in their thinking. To balance these points, practitioners may resist course content that is more conceptually oriented and less tied to immediate concerns. There was no incentive for teachers to hide this resistance during interview sessions. Also, teachers' responses to their final project were indicative of changes in their ability to evaluate research critically. Whether they accomplished this for a good grade is beside the point. It is significant, nonetheless, if teachers provide evidence that they have improved their ability to understand research. With these points in mind, we return to the questions about whether teachers described important changes in their thinking about research and any evidence for these changes.

Changes in Teachers' Beliefs. Analysis of teachers' responses confirmed their initial categorization as research consumers and also showed the ways in which the teachers found the course liberating. However, two teachers (Andrea and Lynda) continued to have problems analyzing research when the course ended, judging by their work on the course's final project. One teacher (Andrea) also continued to struggle with distinguishing between authorized conviction and opinion. While her view of research

broadened to include historical and philosophical studies, she also now included prescriptive statements as research. Her conception of research had become too broad, and thus, it was still unclear to her what constituted research.

This claim is supported when Andrea analyzed Cummings' highly prescriptive chapter on motivation. She categorized this article as research even though "it did not list background issues, a central question, or specific variables, instrumentation, or analysis" (p. 51). Furthermore, she judged whether the Cummings' piece is convincing without regard to evidence in the article, but based solely on personal experience.

> Cummings' article is convincing because we all are more motivated to do a task if we know we may be successful at it.

In the final analytic memo, she also neglected to analyze evidence in Anyon's (1981) article on social class and school knowledge, judging (or misjudging) it only on her observations as a teacher and student.

These responses suggest that this teacher made little transition to a professional approach to research during the course. One area of progress she did make was the realization that it is sometimes useful to read research well. Discussion with colleagues about research also started to become increasingly valuable.

> I was just thinking about an article we read in class. And I looked at it and I thought that's the way it should be and kids really perform well in that structure. And we started discussing it in class and a lot of people said it was awful and I'm thinking—I teach like that, quite structured . . . I guess I didn't read that article so in depth. I just read it as, yeh, this is what I do in my classroom . . . But when listening to other people talk about it, criticizing it, it made me see that there were a lot of points I had missed in it, that I hadn't really looked into. So, research [sic] should provide the findings and make them useful, but in another sense, it depends on how you internalize them—what meaning did you get from the research?

The comments suggest that she recognizes her approach to research can be limited and sees some value in discussing research. But, the transition beyond a consumer approach is not internalized. She does not understand what it is, how to read it well, and still wants research to impact her teaching directly by providing teaching techniques.

Another teacher offered a stark contrast. Reflecting on her thinking prior to taking the master's course, Leisa states that before the course she looked mainly for

research prescriptions and wanted a "quick-fix." She reported that her views were attributed partly to time constraints and partly to administrators' presentations of research. During the interview immediately following the course, she realizes how her approach to research may have been improved.

> I had enough to read on my own and didn't have time to go figure out all the terminology . . . I got so sick and tired of hearing, "research has shown . . ." Maybe if I was shown what research they were using, instead of being given a small reference to their research or their bibliography sheet at the end of the research that they read. It wasn't enough information. It was like it didn't matter what you're saying—"research has shown," and that was the end of the discussion.

Leisa's comments indicate some transition from a consumer approach. Focusing only on research findings is limited. It is increasingly important to take time to read research and to reflect on how researchers came to conclusions. The preclass emphasis on using strategies drawn from research remains constant, but the focus is now extended. Teachers could use research "to reflect on their practices in the past or in the future, or on maybe an issue that's not dealing with just their classroom, but in a broader aspect like staff relations or curriculum design."

Leisa also left the class with greater ability to distinguish between warranted conviction and opinion. Based on the responses to abstracts on the card-sort task, she now recognized a broad conception of what constitutes research. This is also shown on the class's final project when she analyzed two research articles and Cummings' motivation chapter.

> The methodologies selected by the other writers seem appropriate and useful to study the initial concerns of each study. Cummings does not systematically collect data regarding her concern nor does she share the basis for her recommendations. She provides no evidence that is convincing to the reader.

Her analysis of the articles indicates movement beyond the consumer approach but not without remaining problems. She hints that researchers should translate research results into implications for teachers, and she still feels uncomfortable with quantitative research. There was, nonetheless, marked improvement in the ability to recognize and to

evaluate authors' research assumptions, methods, and evidence. Describing improvements in the ability to evaluate research, she states that

> my first analysis (of articles) was written in a fragmented and more tentative style. I was not confident that my viewpoints were valid and I was not sure what was important to notice. I was not used to reading between the lines of an article to try to see what the author was trying to get me to believe. I was also not used to criticizing an article even though I often did not accept what was written.

Another teacher (Karla) confirms an initial consumer approach to research when, after the course ends, she reflects on her beliefs prior to taking it. She recalls that, before the course, researchers were "dictators" who offered foolproof "remedies" like one finds on "Rolaids" packets. Reading was done in order to be told what to do. Research

> was meant only for prescription. And at that time I really didn't want to think how it would fit in [sic]. Just tell me what to do, and I'll do it, and it will work.

Karla wanted and still wants strategies derived from research. Her focus has expanded, though. Research can also provide broader "perspectives" on teaching. Consequently, reading research studies now takes on greater importance.

> The teacher needs to read it (research) first in order to be aware of what the research says and formulate her own opinions about the research. I don't think that a teacher needs to depend on another person because something is lost in the translation, and the research takes on a whole new meaning.

The belief that teachers need to read research is joined with a greater ability to read it. While able to analyze research studies with greater acuity, she also feels able to identity why teaching prescriptions are not research.

> Cummings does not examine relationships or variables in the article. Nor is there any mention of research design or data collection. She does not identify the context, so is the reader to assume that the context is anywhere/all places? . . . Even though she throws in a quote from Glaser, the article reads like a remedy on a package of Rolaids.

Prescriptions formerly seen as authoritative are now disparaged when richer research descriptions are expunged.[4] Karla refers to research findings on school retention found in the school mailbox. Before, she says, "whatever position it took, I would have believed it." Now, she intends to read and to study the findings. Research no longer seems like the "gospel." There now exists both less apprehension to raise questions about research and more confidence to think about its influence on practice in diverse ways.

Lynda's transition during the course focused mainly on her feeling greater autonomy in relation to research findings. Having a negative view of research prior to taking the course, her views took an unexpected change.

> I read this article by Ann Marie Palincsar, and she just said: here's what I looked at, you look at it, and see what you think. And I kinda liked that freedom. You see, I didn't understand that before—that I wanted this freedom.

The freedom Lynda wants is related to making decisions for herself about research answers. Before answers alone were wanted. Now, she wants to study the research in order to make her own decisions. The value of reading research has taken on greater importance, though she is primarily interested in research influencing teaching techniques. Besides acquiring a disposition to read research, the ability to read it has also improved somewhat. She recognized that Cummings' article is "one person's opinion with little evidence" and that Cummings tries to convince readers through appealing to readers' "common sense or shared identity as an educational practitioner." However, she also analyzed a philosophical study in a similar way, suggesting a more limited ability to evaluate research studies.

Table 3 below summarizes these 4 teachers' beliefs about research after taking the course. Three teachers described themselves as interested in the concepts, claims and evidence when reading research. The transition from the consumer approach to research understanding had clearly been reached for two teachers who took the master's course (Karla and Leisa). One other teacher (Lynda) had made some movement into this

[4]Though Karla expanded her understanding of research, she did, like Andrea, have problems excluding prescriptive studies as research during the card-sort task. Unlike Andrea, Karla was able to explain why Cummings' chapter on motivation was not research.

middle ground, but had primarily emphasized her new found freedom to reflect on research findings.

Table 3. Teachers' Beliefs About Research and Self-Descriptions of How They Read It After Taking the Master's Level Course

Beliefs About Research[a]	Reading Focus		
	Findings & Applications	*Uncertain Focus*	*Concepts, Claims, and Evidence*
Direct Impact Unclear Definition	Andrea		
Direct Impact Narrow Definition			Lynda
Direct Impact Broad Definition			Leisa
Indirect Influence Broad Definition			
Indirect Influence Narrow Definition			
Indirect Influence Unclear Definition			Karla

[a]See Table 2 for meaning of particular beliefs.

These teachers, in general, described the new understandings as valuable and provided some evidence that the had, in fact, acquired them. In varying degrees, they have begun to break from a consumer to research. Prior to entering the course, their questions about research revolved around whether strategies drawn from research findings worked in their classroom. Only the most rudimentary and expedient questions about research were possible. Research findings were often seen as certain and applicable in every context. They did not want to read research and did not read it well. Now, they are more willing to consider different types of research studies. They think strategies derived from research may be helpful, but they want research also to offer new perspectives and help them understand their practice. They now find it important to read research and to raise questions about the study's context, assumptions, and evidence.

However, understanding research is not necessarily tied to changes in teaching practices. Karla stated,

> Research needs to be read. I think there's a lot of good research out there that can be used, but I don't think that we necessarily need to change what we're doing just because it's good research or a good research practice.

Overall, when these teachers looked at research, they were able to read it more critically. A middle ground between arcane, specialized research knowledge and a simplistic consumer view of research knowledge had been established. One year after completing the master's course, all four teachers were interviewed to find out what, if anything, from the course contributed to their experiences with research during the school year. Only one teacher, Karla, had any experience with research over a year's period. She read research independently with two other teachers interested in introducing a whole language approach to reading for first graders. Karla stated that she "appreciated reading the research and the rationale for practical ideas, and how any practical ideas were related to the research." She stated that before the course she would not have wanted to read the research and now valued reading research and then discussing it with other teachers.

Three other teachers (Andrea, Lynda, and Leisa) described themselves as having no experiences with research over a year's period. One teacher (Andrea) was mainly relieved the course had ended and did not mention any other value of the course. Another teacher (Lynda) appreciated that she no longer had a negative view of research but could not identify specific knowledge and skills still valuable to her. One other teacher (Leisa) still found valuable the idea that research is not only useful for tackling a problem directly but can help her "broaden her understanding of what's happening and help check out preconceptions." Leisa also recalled that she had "a bad attitude" toward research and now has more confidence in dealing with it. She still emphasized that her school administrators did not encourage any discussion of research thought to influence her and other teachers' practices.

DISCUSSION

We think that data gathered from the teachers in the master's class strengthen the case that teachers can benefit when breaking from the consumer approach. Significantly, teachers are not required to participate in extensive long-term research projects (as with teacher collaborators) that may have prohibitive costs to teachers and school districts. This particular master's course occurred within a ten-week time frame, and the data indicate that three of the four teachers improved their understanding of educational research. Nonetheless, teachers' less intensive experiences with research (as with the master's course) must be supported in diverse contexts both in teachers' continuing education and in professional development opportunities. Creating those contexts is an important agenda for teacher educators.

In general, three teachers in this study began to understand their own beliefs about research, the ways in which research can influence practice, and various research processes. However, the course was not without limitations. The course seemed limited in terms of helping teachers make connections between questions originating from their practice and questions posed in educational research. An introductory educational research course should lay the groundwork so that teachers are able to identify and inquire into what intrigues them about teaching and learning in schools.

Table 4. Questions of Practice

Teacher as Inquirer	Educational Researcher
1. What do I know, think, believe about educational inquiry?	1. What is educational inquiry?
2. What questions do I ask related to teaching and learning in schools?	2. What questions are being asked in research on teaching and learning in schools?
3. What models of educational inquiry seem most suited to the questions I have?	3. What are the prominent models of educational inquiry that can be used to systematically study questions of practice?
4. How will my questions, arguments, and inquiry be influenced by my conceptions of knowledge, teaching, learning, and context?	4. How are questions, arguments, and models of inquiry influenced by conceptions of knowledge, teaching, learning, and context?
5. How can engaging in inquiry inform my teaching practice?	5. How can thinking about the inquiry of others inform my teaching practice?

In subsequent master's courses planned by the two authors of this paper, the notion of intrigue and inquiry has been strengthened. A new course framework for the educational research course has been constructed around teachers' intrigue and inquiry. (See Table 4.) In this framework, developed around questions of practice for teacher/researchers, learning about educational research is explicitly and consistently connected to questions which arise from a teacher's practice throughout the course.

Other master's courses should build on and strengthen teachers' interests and help teachers systematically inquire into them. This requires carefully developed master's level programs. It is well known that master's level teacher education programs at many colleges and universities are inadequate to help teachers broaden their understanding of educational research. While there are numerous reasons for this, one is that many master's programs are little more than a series of unconnected courses. Like successful undergraduate and doctoral teacher education programs, master's programs need to be organized around a conceptual framework that genuinely supports teachers' intrigue and inquiry. Themes such as "teacher as reflective practitioner" and "teacher as researcher" hold promise as conceptual frames to support teachers as they inquire and learn about their teaching practice.

Additionally, master's programs must be carefully sequenced. An educational research course designed to help teachers understand the importance of learning from and through educational inquiry should be placed at the beginning of a master's program. All four teachers interviewed for this study were almost finished with their master's program and had not taken an educational research course. One has to question how they approached and understood educational research throughout their other master's courses. It is little wonder that a large majority of teachers have such narrow conceptions of educational research. In part, it is because teachers have not been helped to understand what research is, how research might influence their thinking, what guides research, how research is conducted, and the ways their own questions about teaching and learning are worthy of inquiry. An understanding of educational research has to start at the beginning of a master's program and be carefully articulated throughout to provide teachers with the tools they need to connect with research.

Universities, however, do not bear the sole responsibility for helping teachers develop broader understandings of educational inquiry. Local school districts must also be more thoughtful about constructing educative professional development opportunities to help teachers gain an understanding of research. Most professional development opportunities for teachers continue to "deliver information" and expect teachers to implement research findings within very short periods of time. Teachers should not be subordinated to research findings but rather supported as they attempt to make connections between new information on teaching and learning and their classroom practice.

The benefits of teachers understanding research can be significant. When a zone of understanding has been achieved, teachers are more willing to raise questions about and consider research. They develop the background knowledge necessary to know what questions to ask, understand why it is important to ask them, and have greater capability to evaluate responses. Insofar as these characteristics are associated with research helping to educate teachers, teachers' conversations that refer to and draw on research serve to educate them. When teachers occupy a different kind of middle ground, between the consumer approach and highly specialized knowledge about educational research, they are less subject to the extremes one teacher in the master's course articulated.

> Teachers are right in the middle between two extremes. They are usually not sophisticated enough to read the research and interpret it for themselves but are often at the mercy of people who may have a profit motive for encouraging teachers to do what they say. (Leisa)

Creating appropriate context to support teachers' understanding of research requires more than action. It requires thoughtful and consistent inquiry. We suggest that those involved in master's level programs and professional development opportunities investigate the learning opportunities which best support teachers' understanding of research.

APPENDIX

DESCRIPTION OF MASTER'S LEVEL COURSE ON CLASSROOM RESEARCH

and

TEACHERS' COMPARATIVE ANALYSIS OF THREE ARTICLES

DESCRIPTION OF MASTER'S LEVEL COURSE ON CLASSROOM RESEARCH

TE 829—A Seminar in Curriculum and Teaching:
Introduction to Classroom Research
Spring 1990—Michigan State University
Department of Teacher Education

Course Description:

This course is designed to present an overview of educational inquiry about classroom practice with an emphasis on understanding research as one tool for asking questions about classroom practice rather than using research as providing answers or a set of prescriptions for practitioners. This course is **not** intended to teach you how to conduct research but rather to give you an opportunity to think critically about how research can inform educators about teacher practice, student learning, and curricular issues within the school context. You should gain an understanding of the research questions, methods and findings embodied within three conceptual orientations to social science inquiry: instrumental, interpretive, and critical theory. In addition, you will learn how to read and critique various forms of research publications, such as: research articles, reports, case studies, historical studies, and essays. You should also come to understand that research represents various human interests and beliefs, that research is every evolving, and that research takes place within a social, historical, and political context. Finally, you will learn how to become a wise practitioner in relation to classroom research as you begin to make connections between the questions, ideas, and techniques represented in that research and the questions, ideas, and techniques that originate from your own teaching and/or administrative practice.

Readings: A packet of readings will be available. A complete reading list is attached to the syllabus. Readings for each session are indicated in the course schedule.

Course Requirements and Grading:

Participation: Since the course will be run as a seminar, your participation in discussions is important, not only for your own learning but also the learning of others. This requires careful analysis of the assigned readings (approximately three per week) as you think about the content of the readings, make connections to your own practice, and consider how you will participate in the class discussions. The quality of your participation in the seminar will comprise 20 percent of your final grade.

Analytic Memos: You will write three analytic memos, approximately three to four pages in length. Each memo will be based on one reading for a particular week and chosen by the instructor. This assignment requires that you succinctly discuss various key points of a research article. In addition, an opportunity for reflection will be built into the assignment so that you are able to keep track of your own questions and concerns as well as respond to those questions and concerns of educational researchers. The format for the assignment will be distributed in class. The analytic memos will be worth 30 percent of your final grade (10% each).

Group Projects: There will be an activity designed for small groups of participants which reflect the ideas and methods used within the various research traditions.

Participants will choose an educational issue for which they might like to pursue a line of inquiry and develop plans for a potential research project. This activity will be initiated in class, will require some time outside of class, and will require a short, informal presentation in class. The quality of this project and your presentation will determine 20 percent of your final grade.

Final Project: The final paper will build on the baseline data you provided during the first class when you responded to questions regarding your conceptions of research. The focus of your paper will be the evolution of your conceptions of research. The final paper will determine 30 percent of your final grade.

Course Schedule

Session #1—March 28: Getting Started
Response to and analysis of vignettes which portray the various ways teachers see the influence of research. Overview of course content and policies.
Readings (to be done in class): L. Cuban, *A Fundamental Puzzle of School Reform*; Hunkins and Shapiro, *Teaching Critical Thinking in Social Studies*

Session #2—April 4: What Is Research?
Discussion and analysis of assigned articles. Build a semantic map of our personal conceptions of research. Discussion of what research is.
Readings: L. J. Cronback and P. Suppes, *Research for Tomorrow's Schools: Disciplined Inquiry for Education*; Vivian Paley, *On Listening to What Children Say*.
Written assignment due: Analysis of research articles (using questions in Interview Protocol; see Section VI, questions 3-9 in the protocol).

Session #3—April 11: Why Research?
Discussion different perspectives on how research may influence teachers' thinking and practice.
Readings: D. Berliner, *Knowledge Is Power*; C. Clark, *Research in the Service of Teaching*; G. Fenstermacher, *On Understanding the Connections Between Classroom Research and Teacher Change*.

Session #4—April 18: What Guides Research?
The relationship between underlying conceptions of teaching and learning and research agendas.
Readings: S. Rowland, *The Enquiring Classroom*; D. Phillips, *What Do the Researchers and Practitioners Have to Offer Each other?*; K. Zumwalt, *Research on Teaching: Policy Implications for Teacher Education*.
Written assignment due: Reflective Writing

Session #5—April 25: Introduction to the Processes of Educational Inquiry and Issues of Educational Equity
Examining the logic of social science inquiry. An overview of the research continuum. Analyzing examples of research on educational equity.

Readings: J. Anyon, *Social Class and School Knowledge*; J. Coleman, *The Concept of Equality of Educational Opportunity*; J. Oakes, *Twenty-Five Schools*.

Session #6—May 2: Introduction to Research Traditions and Research on Student-Teacher Interactions
Introduction to prominent research traditions. Examine differing perspectives on teacher-student interactions.
Readings: K. Au and C. Jordan, *Teaching Reading to Hawaiian Children*; L. Cuban, *How Teachers Taught*, Chapters 1 and 3; A. Palincsar, *The Role of Dialogue in Providing Scaffolded Instruction*.

Session #7—May 9: Continuing to Analyze Research From the Various Research Traditions and Research on Teaching Mathematics
Readings: S. H. Erlwanger, *Benny's Conceptions of Rules and Answers*; Good, Grouws, and Ebemeier, *Building a Treatment Program*; M. Lampert, *Mathematics Learning in Context*.

Session #8—May 16: Research on Classroom Management
Readings: C. Cummings, *Management*; C. Evertson and E. Emmer, *Effective Management at the Beginning of the School Year in Junior High*; M. Lampert, *How Do Teachers Manage to Teach?*

Session #9—May 23: Evolution of Research
Research as an evolving process.
Readings: L. Anderson et al., *Making Seatwork Work*; G. Duffy et al., *How Teachers' Instructional Talk Influences Students' Understanding of Lesson Content*; L. Roehler et al., *Teacher Explanation During Reading Instruction*.

Session #10—May 30: Teachers as Researchers
Readings: M. Cochran-Smith and S. Lytle, *Research on Teaching and Teacher Research: The Issues That Divide*; E. Duckworth, *Teaching as Research*.

Session #11—June 6: Final Exam Week
Teachers Work on Comparative Analysis of Three Articles (see below)

A COMPARATIVE ANALYSIS OF THREE ARTICLES

Final Project: TE 829, Spring 1990

- For this final project you will select two research articles from the syllabus that represent two different kinds of research. You may select from these articles: D. Phillips, J. Anyon, L. Cuban, A. Palincsar, S. Erlwanger, L. Anderson, M. Lampert (mathematics article).

- In addition, you will be given one new article to use in your comparative analysis: C. Cummings, "Motivation," Chapter 8 in *Teaching Makes a Difference* (1983).

  Please respond to the following questions in a way that represents a coherent argument rather than responding to one question at a time for each article.

  1. In light of what you think research is, do the articles seem like research to you? Why or why not?
  2. Briefly state the main thing the author seems to be trying to convey. In other words, what is the main message and/or what do you think the intentions of the message are?
  3. What does the author do to convince you that the message has merit?
  4. Are there different types of research evidence used in the articles that you chose? Explain.
  5. Was any message/evidence more convincing to you? Why or why not?
  6. In light of how *you* think research should help teachers, does any article succeed more than any other? Why or why not?
  7. In what ways does your analyses of these three articles differ from your first written assignment of the term when you analyzed the Cuban, Paley, and Hunkins and Shapiro articles?

- Your paper will be evaluated on (1) the logical flow and cogency of your argument; (2) your use of a *few* well-chosen and specific examples and sources of evidence from the readings and class to support your arguments; (3) your use of standard spelling, grammar, and syntax.

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