CRITICAL FACTORS INFLUENCING THE SELECTION OF CURRICULAR MATERIALS IN MISSOURI PUBLIC SCHOOLS

Patty Poppe Polster, B.S., M.S.

A Dissertation Presented to the Faculty of Graduate
Education of Saint Louis University in Partial
Fulfillment of the Requirements for the
Degree of Doctor of Philosophy

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Abstract

School district leaders are faced with numerous decisions in the administration of America's schools. One crucial decision that must be made is the selection of elementary reading or math curricular materials. The curricular materials purchased for classroom use are often influential in determining instructional practices and often guide the course of instruction throughout the school year.

In addition to instituting rigorous accountability standards for school districts, the No Child Left Behind (NCLB) legislation enacted in 2002 also called on school district administrators to base educational decisions on scientifically based research. Numerous obstacles exist, however, to the utilization of scientifically based research (as defined in NCLB) in the selection of curricular materials. This research was undertaken in an effort to systematically examine the curricular materials selection process in a purposive sample of Missouri school districts, in the hopes of providing descriptive data regarding practices, policies/procedures, and evidence utilized in decision-making. An attempt was also made to examine variation in practices by specific variables.

COMMITTEE IN CHARGE OF CANDIDACY:

Professor Ronald Rebore, Sr.,
Chairperson and Advisor

Professor Michael Grady

Associate Professor Dennis Lea

DEDICATION

This dissertation is dedicated to all of those professionals before me who have devoted themselves to improving educational outcomes for children. Their work has been an inspiration.

ACKNOWLEDGEMENTS

I would have never made it to this point had it not been for the support of my husband, children, and parents. In addition to our three amazing children, my husband Jeff has given me the time, encouragement, support, and resources I needed in order to pursue my passions. I will never be able to thank him enough. Our children have supported and inspired my efforts with their patience, generosity, and laughter. I hope that I will find a way to do the same for them as they shape and pursue their dreams and ambitions in the years to come. My parents always expected that I would be successful in school and go on to college. I didn't realize at the time how important that was in shaping who I have become.

I also owe a great debt to the faculty of the Department of Educational Leadership and Higher Education at St. Louis University. The opportunity to work as a graduate assistant in the department has allowed me to learn so much and has given me a greater appreciation for the work of our faculty. Dr. Ron Rebore and Dr. Dennis Lea, through their confidence in me, have instilled a sense of self-confidence that I lacked. I am indebted to them for such a special gift. I also deeply appreciate the feedback that I have received from Dr. Mike Grady, and from those who read earlier versions of my proposal, especially Dr. Doug Rush.

Most importantly, I need to thank all of the professionals who were willing to share their time and experience with me. I have spoken with so many amazing individuals in the context of my research and I am inspired by their dedication and generosity.

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Background of the Research

According to the Missouri Department of Elementary and Secondary Education (2010a), less than half of 3rd and 8th grade students assessed in Missouri scored proficient or better (advanced) in the areas of communication arts and math from 2006 to 2008. As Table 1 indicates, the same was true of 2009, with the exception of 8th grade communication arts scores just barely exceeding 50% proficient or advanced.

Table 1:

Missouri Assessment Program Results, 3rd and 8th grade math and communication arts (CA) proficiency (Missouri Department of Elementary and Secondary Education, 2010a)

% prof/adv	3rd grade CA	8th grade CA	3rd grade Math	8th grade Math
2006	43.3%	42.5%	43.9%	40.6%
2007	43.6%	42.5%	45.8%	41.6%
2008	40.8%	43.4%	44.3%	44.3%
2009	41.0%	50.2%	45.0%	47.0%

This author, as a former teacher and teacher-trainer, as a parent, and as a school board member has heard numerous educators lament the high standards for proficiency set by the state of Missouri. Complaints about the rigor of Missouri's exam are compounded by the fact that, thanks to the No Child Left Behind (NCLB) Act (2002), school districts (and their leadership) are held more accountable for educational outcomes than ever before. Several school districts across the state of Missouri are facing sanctions at the time of this writing (2010a) due to their failure

to meet Adequate Yearly Progress (AYP) requirements established by the federal government through NCLB. Yet it seems to this researcher, that school leaders throughout the state continue to select curricular materials that are similar to one another in orientation, instructional approaches, and theoretical underpinnings.

Statement of Problem

The 2008 Revision of the Educational Leadership and Policy Standards: ISLLC 2008 (Council of Chief State School Officers, 2008) calls on education leaders to "(sustain) a school culture and instructional program conducive to student learning" (p. 14). They further suggest that educational leaders, "create a comprehensive, rigorous, and coherent curricular program…maximize time spent on quality instruction" (p. 14). Several authors (Carnine, 1992; Hess, 2008; Odden, Goetz, & Picus, 2007) however, have expressed concerns as to the quality of the educational research literature base from which educational leaders might draw support or evidence for instructional decision-making and curricular selection. In an essay titled "Expanding the notion of teachers' rights: access to tools that work," Carnine (1992) points out that knowledge base and 'tools' available in other professionals have often been extensively tested; in education, however, it is the students that are tested, leaving the tools of the teaching trade (textbooks, curricular frameworks, computer programs, instructional practices, etc.) virtually untested.

The curriculum enacted by a school district might be seen as one of the most critical factors influencing student achievement. Glatthorn, Boschee and Whitehead (2006) offer the following definition of curriculum:

> The curriculum is the plans made for guiding learning in the schools, usually represented in retrievable documents of several levels of generality, and the actualization of those plans in the classroom, as experienced by the learners and as recorded by an observer (p. 5)

In most districts a critical factor in the implementation of the curriculum is the instructional approach and corresponding material selected for classroom teacher and student use. All school districts engage in some version of a curricular materials selection process. However, instructional materials and practices are often implemented without the benefit of any empirical evidence of their effectiveness (Carnine & Gersten, 2000; National Research Council, 2004; Whitehurst, 2004). Carnine and Gersten provide the following illustrative example:

> The mathematics textbooks currently in use in California provide another excellent example of the negligible role of experimental field research in selection of curricula. Within the last 4 years, the mathematics textbooks of one small publisher were designed to align completely with the "whats" and "hows" required by the Curriculum Commission (California Sate Department of Education, 1985). The program received a score of 96, outperforming all other texts by 16 points. As a result, it captured about 60% of all California sales in the first year.
>
> Officials interested in their curriculum asked the publisher for research related to effectiveness. The publisher shared the results of the evaluation with the first author. It involved a sample of a mere 18 students. Of these 18 students, 7 were excluded from final data analysis. Among the 11 remaining students, 61% made gains or had *no change*, whereas 39% experienced a loss. Therefore, the average gain of the students was 19 percentile points and the average loss was 22 percentile points. When questioned about this, the California Department of Education explained that "the SBE (State Board of Education) has *never* asserted that any specific score correlates with the quality or potential success of a particular program (G. Thomas, California Department of Education, personal communication, 1999). (Carnine & Gersten, 2000, p. 140)

Carnine and Gersten go on to point out "There needs to be a direct linkage between criteria used to evaluate curricula – or approaches to teaching – and learning

outcomes. And for this purpose, controlled quantitative experimental studies are key" (p. 140).

In 2002, a committee was assembled under the auspices of the National Research Council to evaluate the quality of the evaluations of curriculum materials supported by the National Science Foundation (NSF). The NSF, between 1990 and 2007, has spent an estimated $93 million on the development, revision and dissemination of mathematics materials. In an executive summary of the report, the authors state:

> we concluded that the corpus of evaluation studies as a whole across the 19 programs studied does not permit one to determine the effectiveness of individual programs with a high degree of certainty, due to the restricted number of studies for any particular curriculum, limitations in the array of methods used, and the uneven quality of the studies. (National Research Council, 2004, p. 3)

The authors go on to state, "Currently, too many deliberations on mathematics curricular choices lack a careful and thorough review of the evaluations of mathematics curricula" (p. 13). Indeed, a February, 2011 review of the What Works Clearinghouse website on elementary math curricular programs found that only two programs were found to have "positive or potentially positive effects for at least one improvement outcome."

While the adequacy of empirical evidence available is one challenge facing school district administrators in the utilization of research in curricular selection, another challenge may be overcoming current practice. Corcoran (2003) conducted a study of decision-making practice related to selection of reform design or curriculum across three urban districts. He reported, "In the end, patterns of decision-making based on philosophical commitments, political necessities, and the

attractiveness or popularity of ideas prevailed over efforts to attend to evidence in all three districts" (p. 2). Sarason (1982) wrote extensively on the particular resistance to change found in most educational settings.

Though many authors have lamented the absence of research utilization in school district-level decision-making (Carnine, 2000; Corcoran, Fuhrman, & Belcher, 2001; Fusarelli, 2008; Whitehurst, 2004), few recent, descriptive studies exist.

Purpose of the Research

The purpose of this study is to provide descriptive data and qualitative analysis regarding policies, influences and specific sources of evidence that Missouri school district administrators report having utilized in their most recent elementary reading or math curricular adoption. Sources of evidence and influences will be categorized with frequencies reported. Additionally, because of concerns regarding ambiguity of terms used in the field, an attempt will be made to qualitatively analyze participants' understanding of the term "research." Central office administrators' perceptions and practices related to the utilization of research in curricular materials selection will also be examined.

Research Questions

The following questions serve as the impetus for this study:

1. How are elementary reading or math curricular materials selected in Missouri school districts?
2. What factors (district-level policy/procedure, research, ideology, state mandate) influence the curricular selection process?

3. What factors support/impede the utilization of research in curricular decision-making?

Definition of Terms

For the purposes of this study, elementary reading or math "curricular materials" will be defined as any materials purchased in the cycle budgeted for elementary reading or math (generally every five to six years). This may include textbooks, workbooks, leveled books, manipulatives, etc. Participants will be asked about "evidence" that was utilized to support or inform the decision-making process and may interpret this term in various ways. One objective of this study will be to explore the types of things that are defined by participants as evidence.

The No Child Left Behind (NCLB) Act (2002) provides the following definition of "Scientifically Based Research:"

A) means research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs and;
B) includes research that –
    i. employs systematic, empirical methods that draw on observation or experiment;
    ii. involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn;
    iii. relies on measurements or observational methods that provide reliable and valid data across evaluators and observers, across multiple measurements and observations, and across studies by the same or different investigators;
    iv. is evaluated using experimental or quasi-experimental designs in which individuals, entities, programs, or activities are assigned to different conditions and with appropriate controls to evaluate the effects of the condition of interest, with a preference for random-assignment experiments, or other designs to the extent that those designs contain within-condition or across-condition controls;

v. ensures that experimental studies are presented in sufficient detail and clarity to allow for replication or, at a minimum, offer the opportunity to build systematically on their findings; and
vi. has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review. (P.L. 107-110-Jan. 8, 2002, 115 STAT 1965)

For the purposes of data analysis in this study, *research* was defined by the researcher as an empirical study, incorporating an experimental or quasi-experimental design, published in a peer-reviewed journal; or a review / evaluation of empirical studies compiled by an academic institution (such as the Florida Center for Reading Research) or an agency authorized by a governmental office (such as the What Works Clearinghouse).

CHAPTER 2: REVIEW OF LITERATURE

Introduction

Researchers have conducted very few studies in the past ten years to examine the utilization of research in curricular materials selection. In 2002 (nearly ten years ago) the No Child Left Behind (NCLB) Act (2002) was enacted. Among many other things, it mandated the use of research in educational decision-making. Yet there is considerable contemporary literature lamenting its continued absence (Carnine, 2000; Corcoran, et al., 2001; Fusarelli, 2008; Whitehurst, 2004). The literature that is available points to issues related to educational research as a possible culprit for the absence of research utilization. The following aspects of educational research have been identified as most relevant to the purposes and topic of this study: historical background, critical events, trends/issues, purposes and methodology, and utilization.

Educational Research

Historical background

In her book, *An Elusive Science: The Troubling History of Educational Research*, educational historian, Ellen Condliffe Lagemann (2000) explains some of the reasons that educational research has never been held in high regard. She puts it this way: "Since the earliest days of university sponsorship, education research has been demeaned by scholars in other fields, ignored by practitioners, and alternatively spoofed and criticized by politicians, policy makers, and members of the public at large" (p. 232).

Tracing the origins of what she sometimes refers to as *educational scholarship* back to the late 19th century, Lagemann attributes the low status of the emerging field to issues of gender and social class as well as the "fact that it was intended to be an applied science" (p. 233).

The field emerged at a time when teaching was seen to be a "woman's work" that did not require a great deal of advanced preparation; therefore, scholars in the field did not command the same social currency that those in more established and respected fields garnered. Lagemann (2000) states that, "the very term educational research seemed to be an oxymoron to many notable university leaders" (p. 232). As Lagemann describes it, the field emerged as a "toehold in academe" (p. 24) for those pursuing the budding field of psychology. She attributes the emergence of psychology as a distinct field to a significant shift in the field of philosophy (brought about by the "post-Darwinian" conceptions of science), which led to greater specialization, and eventually the separation of psychology from philosophy. Psychology was seen to offer a more scientific approach to the study of education than the approach offered by philosophy.

Lagemann (2000) goes on to explain three additional factors that she sees as having been an impediment to progress in educational research. The first of these is that the specialization of the field has led to isolation. Lagemann states, "In multiple ways, a lack of regular and easy channels for conversing with scholars in other fields, sharing methods, and discussing problems has constrained the development of education research" (p. 233). She also regards the frequent pursuit of educational research from outside of the context of practice as a factor leading to isolation of the

field. Secondly, Lagemann seems to perceive the turn of the field toward quantitative endeavors (which she attributes to the influence of behavioral science) as having been detrimental. She suggests that Dewey's philosophical approach was better suited to educational research endeavors than efforts to quantify the many factors influencing educational outcomes. Lastly, Lagemann summarizes the observation of David Cohen (in regard to Project Follow Through) in this way: "power in education (is) so decentralized that the controls necessary for experimentation (are) virtually impossible to maintain" (p. 227).

In a separate work, Lagemann (1999) identifies additional hurdles that the field of educational research has yet to overcome. They include: internal debates, broad subject matter addressed, the extent to which the public is involved (having all attended school themselves), and the absence of clear standards within the field. Lagemann states that, "Charges and countercharges among people engaged in educational research reduce the credibility of the enterprise and make it difficult to find common ground" (p. 8), and goes on to state:

> In other fields, community-wide standards for research that have been established through professional training have frequently been reinforced and maintained by professional publications and associations. Once again, in education that has not been the case. From the first years of the twentieth century, journals devoted to education research have multiplied in number, focus, audience, and the criteria used to determine which research deserves publication. In consequence, professional research journals in education have done little to create norms around which a community might coalesce…Even within the American Educational Research Association, there is little sense of community and few common standards to distinguish good from bad research, or significant from trivial. (p. 11)

Walters, Lareau, and Ranis (2009) point out that the range of professionals from various fields outside of schools of education may also be contributing to the

difficulty in reaching consensus regarding the methods, standards and/or purposes of educational research.

Creemers (2008) does not seem to view a shift toward what might be categorized as more quantitative approaches as having been detrimental in the history of educational research. In a review of the American Educational Research Association's Handbooks of Research on Teaching series, Creemers (2008) suggests that from the first edition (published in 1963) to the current (fourth) edition (published in 2001), educational research has come full circle. He states,

> The most important message of the first handbook was the plea for empirical evidence for theories about teaching, which concentrates on process-product relations. In education, this implies the relation between processes in teaching and the outcomes of student's learning (p. 474)
> I have the impression that in 40 years we have made a full circle…It might be, and I for one hope so, that in EER (*Educational Effectiveness Research*) the original interest in processes in the classroom (especially teaching), schools, and systems has taken over from the research on teaching. (p. 476-477)

According to educational researcher, N. L. Gage (1991), some critics of educational research claimed that its results were, at times, obvious. He outlines and addresses several critiques, which he reports began in 1949. Gage (1996) also confronts a frequent critique of a certain approach to educational research – positivism. He suggests the term "affirmativism" as an alternative to positivism. "An attitude that affirms the value of the generalizations and theory thus far achieved and the value of the search for more" (p. 15).

Additional events or issues that may constitute educational research history will comprise the next few sections of this chapter. At this point it seems appropriate to turn to a critical event, which may have substantially impacted the history of educational research.

Critical Events

Though it was originally conceived as a social action project that would ameliorate achievement discrepancies between economically disadvantaged children and their more affluent peers, *Project Follow Through* (PFT) may still be seen as among the biggest, most ambitious educational experiments ever conducted. The study involved hundreds of thousands of children and cost nearly fifty million dollars (House & Hutchins, 1977). It is significant in the history of educational research for many reasons: its size and scope, its purpose, and the reaction of the educational community to its outcomes. According to Richard Elmore (1977),

> the feature which distinguishes Follow Through from virtually all other social programs is the fact that it was intended to provide systematic empirical evidence on the relative effectiveness of program variations – evidence that would be used to shape federal educational policy. (p. 4)

Though Watkins (1997) initially describes the origination of Project Follow Through in the same way, she eventually concludes:

> One striking observation emerging out of the history of Project Follow Through is that none of the parties contributing to this history had a genuine empirical curiosity about which methods were effective…The administrators of Follow Through naively expected all models to be equally effective…What this reveals is that Follow Through administrators, their advisors, consultants, evaluators, and in many cases the sponsors themselves, did not look at teaching method as a technology that has degrees of potential quality. This position derives from the premise that learning is a function of the learner, not an outcome of instruction…They failed to see that the function of educational research is to determine what types of student-teacher interactions, or methods, result in learning. (p. 84)

The response to Project Follow Through is of particular relevance to educational researchers, and is the focus of Watkins's (1997) work. The literature related to PFT that followed the study seem to indicate that PFT may have played a role in the swinging of the educational research pendulum from quantitative emphases toward

more qualitative endeavors. While a discussion of the results of PFT is not appropriate in the context of the current study, a review of the criticisms that followed PFT is pertinent to the history of educational research in terms of the purposes and methodologies. Current administrators may have perceptions or opinions of educational research; that may impact the likelihood of utilization.

Purposes and Methodologies

It is interesting to note that there seem to be significant similarities between the criticisms leveled against Project Follow Through (PFT) and the current complaints regarding the No Child Left Behind (NCLB) Act (2002). The criticisms leveled against both PFT and NCLB involve the following commonalities: positivism as a research paradigm, standardized testing as a measure of educational effectiveness, federal "intrusion" in the provision of public education, and questions surrounding the role of instructional factors and/or curricular materials as related to educational outcomes. Also, given that one of the goals of PFT was to establish "What Works" in educating children, one can't help but be reminded of the What Works Clearinghouse.

In one critique of the Project Follow Through evaluation, the authors (Glass and Camilli, 1981) assert "The deficiencies of quantitative, experimental evaluation approaches like those continually pressed on the federal government…are thorough and irreparable" (p. 3). They go on to state "Teachers do not heed the statistical findings of experiments when deciding how best to educate children…They decide such matters on the basis of complicated public and private understandings, beliefs, motives and wishes" (p. 2-3).

The previous example, combined with similar criticisms of Project Follow Through (House & Hutchins, 1977), may have played a pivotal role in shifting educational research approaches away from quantitative methodologies and effectiveness research and toward more qualitative approaches (as was alluded to by Creemers, 2008), which may afford greater and more diverse opportunities. In fact, these criticisms might be seen as an impediment to the establishment of any particular standards at all.

The establishment of standards or guidelines to define educational research and limit what might be seen as appropriate purposes and/or outcomes could potentially restrict the universe of possibilities for publication. For many in the world of higher education, the phrase "publish or perish" is a familiar one. Therefore, any action that could have the effect of limiting professional opportunities in the field is likely to be met with resistance by the field. It is possible that the generally negative sentiment surrounding both PFT and NCLB (and their paradigmatic similarities) has influenced the preparation of teachers and administrators in schools of education and may have had an impact on the utilization of research in educational decision-making. Preparatory programs impact practice not only by focusing on the methodologies of one paradigm over another, thereby creating the possibility of an ideological preference, but also by the excluding methodologies related to one paradigm which may result in professionals who lack the skills to then adopt that paradigm.

Trends and Influences

Walters, Lareau, and Ranis (2009) begin their book, *Education Research on Trial*, with these words:

> Education research is a scientific field in crisis. The foundation of the current crisis is a long-time perception that too much of the work of educational researchers fails to meet minimum standards of scientific rigor…(critics) recently launched charges that education research has failed to provide a solid evidence base for the improvement of educational practice, in part because educational researchers have been preoccupied with the wrong questions and in part because much of their research has been based on the wrong research methods. (first page, no number)

Whether the observations of these authors prove to be accurate or not, in the relatively recent span of this author's career, there appears to have developed increasing interest, involvement, and pressure from outside of the field of educational research to improve practices within the field. (In fact, this observation served as an impetus to this researcher's decision to pursue graduate study of educational leadership.) Efforts by individuals from outside of the educational research community (e.g. National Research Council, National Reading Panel, National Math Advisory Panel) seem to have fueled debates regarding methodologies and purposes of educational research.

The final report of the National Mathematics Advisory Panel (2008) included a chapter on research policies. In that chapter, the authors stated:

> Systematic reviews of research on mathematics education by the task groups and subcommittees of the Panel yielded thousands of studies on important topics, but only a small proportion met standards for rigor for the causal questions the Panel was attempting to answer. The dearth of relevant rigorous research in the field is a concern…in educational research over the past two decades, the pendulum has swung sharply away from quantitative analyses that permit inferences from samples to populations…debates about issues of national importance, which mainly concern cause and effect, have

> devolved into matters of personal opinion rather than scientific evidence. (p. 63)

Soon thereafter, the primary journal of the American Educational Research Association, *Educational Researcher,* put a special issue together to address the National Mathematics Advisory Panel Report (December, 2008). The majority of contributing authors criticized the quantitative approach taken by the panel in the selection of research to be included for analysis (Borko & Whitcomb, 2008; Cobb & Jackson, 2008; Thompson, 2008; Boaler, 2008; Lobato, 2008; Greeno & Collins, 2008). Only one of the authors contributing to the special issue (Sloane, 2008) expressed an appreciation for the approach taken by the Panel in seeking research designs that would allow for causal inference.

Though it was preceded by a great deal of federal legislation related to the provision of public education (such as the Elementary and Secondary Education Act of 1965, the Education of all Handicapped Children Act of 1975, and the Individuals with Disabilities Act of 1974), the No Child Left Behind (NCLB) Act (2002) may have had more impact on the field of educational research than anything that preceded it. The legislation uses the phrase "scientifically based research" (SBR) forty-eight times and mandates the use of SBR in educational decision-making. Not long after the passage of NCLB, the National Research Council (NRC) (2005) released a report titled *Advancing Scientific Research in Education*. In the report, the authors refer to a previous, similar book published in 2002 and explain that the previous book was:

> an attempt to articulate what is meant by quality with respect to scientific research in education. That book offered six principles that underlie all fields of scientific endeavor, including scientific research in education…
> - Pose significant questions that can be investigated empirically.

- Link research to relevant theory.
- Use methods that permit direct investigation of the question.
- Provide a coherent and explicit chain of reasoning.
- Replicate and generalize across studies.
- Disclose research to encourage professional scrutiny and critique

(National Research Council, 2005, p. 20)

Feuer, Towne, and Shavelson (2002) report that the publication of a book in 2002 from the NRC was not the first time that the federal government has asked the National Academies or NRC for input regarding educational research. They state:

> In *A Proposed Organization for Research in Education* (1958), NRC recommended establishing a research organization for advancement and improvement of education; *Fundamental Research and the Process of Education* (NRC, 1977) called for basic research into educational processes; and *Research and Education Reform: Roles for the Office of Educational Research and Improvement* (NRC, 1992) laid the groundwork for a complete overhaul of the federal educational research agency. (p. 4)

Feuer, Towne, and Shavelson (2002) acknowledge the concerns of some educational researchers that have been brought about by recent federal efforts (NCLB) to specifically define research. They state: "For many, the key question is whether legislators or scientists should ultimately decide issues of research method" (p. 5). The authors also mention the distinction between education scholarship and scientific educational research and point out that recent legislative efforts have increased the incentives for both the educational community to seek out support from the research community, and for the research community to provide more informative research related to "strategies proven effective in boosting student achievement" (p. 6).

As has been noted previously, one considerable impediment to the advancement of educational research has been the lack of agreement on standards

of quality and rigor regarding methodology. Feuer, Towne, and Shavelson (2002) acknowledge that involvement of numerous fields of study all examining different aspects of the educational enterprise can lead to "many legitimate research frameworks, methods…and norms of inquiry" (p. 7). This circumstance, however, does not change the fact that the field cannot move forward until some consensus has been reached.

Feuer, Towne, and Shavelson (2002) explain that methodology should be formulated around the question being asked. "No method is good, bad, scientific, or unscientific in itself: Rather, it is the appropriate application of method to a particular problem that enables judgments about scientific quality" (Feuer, Towne, and Shavelson, 2002, p. 8). They point out, however, "some methods are better than others for particular purposes" (p. 7) and "the current policy focus is unmistakably on establishing programmatic effects" (p. 8). The authors state:

> When well-specified causal hypotheses can be formulated and randomization to treatment and control conditions is ethical and feasible, a randomized experiment is the best method for estimating effects…Although we strongly oppose blunt federal mandates that reduce scientific inquiry to one method applied inappropriately to every type of research question, we also believe that the field should use this tool in studies in education more often than is current practice…The bottom line is that experimentation has been shown to be feasible in education and related fields (e.g., Bogatz & Ball, 1972; Fuchs, Fuchs, & Kazdan, 1999; see also Boruch, DeMoya, & Snyder, in press; Orr, 199; Muray, 1998) and is still the single best methodological route to ferreting out systematic relations between actions and outcomes. (p. 8)

The authors go on to suggest that within the field of educational research, some consensus must be reached regarding "how scientific claims are warranted" (p. 9), stating: "Now is the time for the field to move beyond particularized views and focus

on building a shared core of norms and practices that emphasize scientific principles" (p. 12).

Over the past several decades, school administrators have borne witness to a great deal of debate regarding the most effective means of educating our nation's children (Chall, 2000; National Mathematics Advisory Panel, 2008; Tobias & Duffy, 2009). Carnine (2000) suggests that this troubled history may indicate that education is not yet a mature profession. His analysis includes the following:

> According to Theodore M. Porter…an immature profession is characterized by expertise based on the subjective judgments of the individual professional, trust based on personal contact rather than quantification, and autonomy allowed by expertise and trust, which staves off standardized procedures based on research findings…A mature profession by contrast, is characterized by a shift from judgments of individual experts to judgments constrained by quantified data that can be inspected by a broad audience, less emphasis on personal trust and more on objectivity, and a greater role for standardized measures and procedures informed by scientific investigations. (p. 9)

Historically, educational decision-making and policy-making have been largely based on ideology and fads (Corcoran, 2003; Weiss, 1983; Hempenstall, 2007). According to former Institute of Educational Science director, Russ "Grover" Whitehurst, the

> world of education, unlike defense, health care, or industrial production, does not rest on a strong research base. In no other field are personal experience and ideology, so frequently relied on to make policy choices, and in no other field is the research base so inadequate and so little used. (as cited in Hess, 2008, p. 9)

Educational historian Diane Ravitch (1998), in reflecting on an experience involving medical professionals, makes a similar observation, "In our society, we rightly insist

upon valid medical research…I wonder: Why don't we insist with equal vehemence on well-tested, validated education research?" (p. 34).

Carnine (2000) explains that "intense and sustained outside pressure" (p. 9) will likely be necessary in order for education to become a more mature profession and begin relying on more objective forms of evidence. That kind of pressure may have arrived with the passage of the No Child Left Behind (NCLB) Act (2002). NCLB mandated (among other things) the utilization of scientifically based research in educational decision-making. Some excerpts from the NCLB (2002) legislation include:

- "promoting school-wide reform and ensuring the access of children to effective, scientifically based instructional strategies and challenging academic content" (p. 115 STAT. 1440)
- "incorporate strategies based on scientifically based research that will strengthen the core academic subjects in the school" (p. 115 STAT. 1480)
- "shall include assistance in identifying and implementing professional development, instructional strategies, and methods of instruction that are based on scientifically based research and that have proven effective in addressing the specific instructional issues…" (p. 115 STAT. 1482)
- "Institute and fully implement a new curriculum, including providing appropriate professional development for all relevant staff, that is based on scientifically based research and offers substantial promise of improving educational achievement for low-achieving students…" (p. 115 STAT. 1484)

Research Utilization

Many authors have lamented the underutilization of research in educational decision-making (Carnine, 2000; Corcoran, et al., 2001; Fusarelli, 2008; Whitehurst, 2004), while others have observed that relatively little scientific research exists regarding actual professional practice among school district administrators (Fusarelli, 2008, Nelson, Leffler, & Hansen, 2009). Regarding the use or non-use of

research in decision-making, it may be that some authors are basing their opinions on observations of student achievement outcomes. Alternatively, some authors may be basing their opinions on what they see as a misalignment between observed instructional practices and their understanding of which instructional practices are supported by scientific research. In their book on evidence use in public services (including education) Nutley, Walter and Davies (2007) suggest, "the current lack of evidence about the impact of research on policy and practice outcome reflects more an absence of evidence rather than evidence of absence" (p. 3).

At the time of this writing, NCLB is past due for reauthorization. Policymakers are re-considering the strong language related to scientifically based research (Viadero, 2009). A previous, unpublished study by this author (Polster, 2008) found that a majority of Missouri and Illinois school district administrators surveyed reported that NCLB had a positive impact on decision-making practices in their district. Specifically, twenty-nine of the thirty-seven randomly selected Missouri administrators surveyed reported a generally positive impact. Twenty-one of the twenty-six randomly selected Illinois administrators surveyed reported a generally positive impact. The following are quotes from participants in response to the question, "What impact, if any, has NCLB and the legislation following it related to research had on decision making practices within your district?"

- "We're much more cautious in implementing programming. We look at our data as well as the research base – we do our homework now;"
- "It's the only good thing to come out of NCLB. Things weren't research-based, you had fads that everyone was trying, but now if it's not research-based we're not trying it;"
- "People are more in tuned to the need to use evidence-based programs, although there's a shortage of evidence;" and

- "We're more deliberate in examining programs now." (Polster, 2008)

While conducting the study, the researcher found that school district administrators often referred to their use or analysis of assessment data as "research."

As has been previously mentioned, little research exists as to actual research utilization by school district administrators in educational decision-making (Fusarelli, 2008; Nelson, et al., 2009), particularly since the enactment of the No Child Left Behind (NCLB) Act (2002). More has been written about the utilization of research by policy-makers (Weiss, 1983). The most recent study of the topic (Nelson, et al., 2009), like much that precedes it, involved a survey of "influential leaders" (p. 3), such as the Council of Chief State School Officers (CCSSO), deputy state superintendents, congressional staff members, as well as some school district level staff (teachers to superintendents). The researchers utilized focus groups as well as some face-to-face interviews, and participants were provided either cash or an honorarium for their involvement. A convenience sample of 65 participants was utilized. Results were qualitatively analyzed to identify themes and subthemes of responses to the questions. The authors (Nelson, et al., 2009) reported that overall, their participants utilized a wide array of information sources in decision-making (such as local data, personal experience, information from peers, etc.) and that research evidence was generally viewed with skepticism. The findings of this study (like those of the researcher's 2008 unpublished study) also indicate that the word "research" can be understood in a number of ways.

Biddle and Saha (2003) conducted a survey of principals in an effort to determine:

- …how they used, and what they thought about, resources that provide information about research
- …how they viewed research knowledge
- …examples of research knowledge they considered valuable
- …what they knew about 20 research topics they had selected
- …examples of how their schools used research knowledge.

(p. 73)

The authors report: "our results suggest that most school leaders view research knowledge positively, are regularly exposed to information about research…and actively help their school use that knowledge" (p. 76).

Coburn, Honig & Stein (2009) present a comprehensive review of the literature related to the use of "evidence" in decision-making by school district administrators. They identify a number of barriers to the use of research in decision-making, which include: absence of studies related to the particular decision at hand, inability to find or access relevant studies, and different understandings of what constitutes research. The authors also examine the literature in terms of the potential roles that different forms of evidence play in the decision-making process. The roles of evidence discussed by these authors include: an instrumental role, a conceptual role, a symbolic role, a sanctioning role, and no role at all.

Weiss (1979) addresses the topic of research utilization and identifies seven meanings associated with the concept: the knowledge driven model, problem-solving model, interactive model, political model, tactical model, and the enlightenment model. Weiss explains the knowledge driven model in terms of the following sequence: (a) basic research, (b) applied research, (c) development, and (d) application. This form of research utilization is most often found in the physical

sciences. An important assumption underlying this model is that "the sheer fact that knowledge exists presses it toward development and use" (p. 427). There are those in field of education who would suggest that this is not the model most often applied in the field of education (Lindsley, 1992).

Obstacles

One possible obstacle to the utilization of research in decision-making is the debate regarding the very nature and purposes of educational research (Berliner, 2002; Feuer, et al., 2002; Hess, 2008; National Research Council, 2005) as well as debates as to "which research counts" in educational decision-making (Viadero, 2008; Mosher, Fuhrman, & Cohen, 2007; Slavin, 2003). Though the American Educational Research Association (AERA) has established "Standards for Reporting on Empirical Social Science Research in AERA Publications" (2006), disagreement remains as to evaluation standards for research quality throughout the field of education. According to Whitehurst (2004), "The opposition to applied research in education comes from the research community" (p. 12). He explains that educational researchers who are not trained in "the technologies of systematic empiricism" (p. 6) as well as education professionals "whose practices are grounded in pre-empirical professional wisdom" (p. 6-7) may feel threatened by the imposition of standards such as those mandated by the No Child Left Behind (NCLB) Act (2002).

This absence of clear and coherent standards and agreement within the field leads to another important factor contributing to the difficulty in moving the field of educational administration in the direction mandated by NCLB: the absence of a

common lexicon. Terms such as research, evidence, research-based, evidence-based, effectiveness, efficacy, data based, best practice, evidence-based practice, evidence-based education, and scientifically based research are often used by professionals, publishers and authors interchangeably. Two of these terms are particularly important to differentiate – research and evidence. *Research* may be used to refer to a systematic investigation, which is then reviewed by a group of peers; while *evidence* can include research as well as the analysis of local data in the form of state or internal assessment results (or numerous other forms of school district data). As was mentioned previously, the researcher found in a previous study (Polster, 2008) that school district administrators often referred to the analysis of their students' academic achievement data as *research* when asked about the use of research in decision-making.

A third factor, which is related to the larger culture as well as the profession of educational administration, is an aversion to empirical approaches to answering questions (Gore, 2007; Jacoby, 2008; Mooney & Kirschenbaum, 2009). In terms of the larger culture, it is interesting to note that the prevailing opinion among scientists has been that George W. Bush was an "anti-science" president (Mooney and Kirschenbaum, 2009), yet as the champion of NCLB, Bush can be credited with bringing science to the forefront in educational decision-making. In fact, George W. Bush appointed one of the more vocal advocates of research utilization in educational decision-making, Doug Carnine, to a position within the department of education. Carnine has written extensively about the need for educational decision-

making to be based on scientific research. In discussing the absence of research utilization in educational decision-making, he explains:

> Throughout the century, there have been only brief periods of time when the public and profession have viewed controlled experimental field research on teaching and learning as essential. Campbell and Stanley (1963) discussed how these cycles of intense interest and then profound apathy toward controlled research, on societal and educational issues have recurred since the 1920s. Both Campbell and Stanley as well as Kennedy (1997) noted that when experimental studies fail to demonstrate effects for popular innovative practices, the professional community often retreats from these painful experiences and gravitates toward more subjective, qualitative types of inquiry. (Carnine, 2000, p. 138)

Fusarelli (2008) provides a possible alternative rationale for the seemingly apathetic attitude of many school administrators toward scientific research:

> School leaders are faced with a confounding mass of often-conflicting research. A veteran superintendent remarked, "I've been in education for 35 years. Honestly, nobody really knows what's going on in the area…Today you read reports about this and this, next day you read reports about just the opposite. There is no consistency…" Christopher Cross, former assistant secretary for the Office of Educational Research and Improvement, calls this the "Cross' corollary, that is, for every study in education research, there are an equal or greater number of opposing studies. (p. 181)

Manna and Petrilli (2008) add the following: "Complicating matters further is that "research" comes in many forms, including randomized field trials, quasi-experimental designs, and more exploratory case-oriented work. Findings appear in peer-reviewed journals, government documents, think tank reports…all operating with different quality standards" (p. 65). Viadero (2009) has asserted that the What Works Clearinghouse (WWC) is an attempt to remediate these problematic aspects of educational research, however, it remains to be seen whether or not the WWC has had such an impact.

A prominent author in instructional leadership, Elaine McEwan Adkins (2009), has asserted, "Since educators cannot know with certainty which students will have serious reading difficulties until they actually intervene, they have a moral imperative to teach all children using research-based instructional materials and methods" (p. xvi). Watkins (1997) makes a similar suggestion adding that we must also address the reluctance of many professionals to utilize empirical information when it is available (even if the findings seem to conflict with popular educational ideology). She states:

> Meaningful school reform will not be achieved until we acknowledge that how well students learn is a function of how they are taught. We must identify barriers to the adoption and implementation of effective instructional practices. The neglect of empirical evidence and the resistance to effective methods encountered at virtually every level of the educational system is an important area of study. Our efforts and resources might be well spent investigating the conditions that are conducive to the adoption of empirically validated practices, the conditions necessary to ensure the fidelity of their implementation, and the contingencies that would ensure their sustained implementation in the absence of external support. (p. iv)

CHAPTER THREE: RESEARCH PROCEDURES

Introduction

Chapter Three provides an overview of the research methodology, as well as a brief description of the participants, the procedures used, the theoretical framework for the study, data analysis techniques, and limitations of the research design. A summary of the chapter is presented at the end.

Research Methodology

This study utilized both qualitative and quantitative research methods in order to best address the research questions identified at the outset. The objective of this research was to present a descriptive account of a specific decision-making process in a stratified sample of Missouri school districts. The specific decision-making process examined was the selection of elementary reading or math curricular materials (textbooks, workbooks, manipulatives, leveled books, etc.) for purchase at the school district level. In many school districts, this type of purchase is budgeted to occur every five or six years. The research questions were:

1. How are elementary reading or math curricular materials selected in Missouri school districts?
2. What factors (district-level policy/procedure, research, ideology, state mandate) influence the curricular selection process?
3. What factors support/impede the utilization of research in curricular decision-making?

In the course of the design process, the researcher experienced firsthand some of the difficulties with the definition of terms and research standards that

were described in the previous chapter's literature review. The myriad research paradigms, approaches, methodologies, and methods have been categorized and described in many different ways by different authors (Borg and Gall, 1989; Creswell, 1994; Creswell, 2009; De Vaus, 2002; Glaser, 1978; Kvale, 1996; Marshall & Rossman, 1999; Merriam, 1998; Shkedi, 2005; Stangor, 2007; Yin, 1996, 2009). The most frequent approach has been to categorize methodologies/methods as either quantitative or qualitative. As was discussed in the previous chapter, preferences in the field of educational research for one approach over another seem to have changed much like the swinging of a (very slow) pendulum over the course of the past century. The two approaches have been represented as dichotomous at times, with advocates of one approach sometimes assailing the other approach as somehow less valid.

While the literature review largely presented the difficulty as a conflict between quantitative and qualitative paradigms, however, educational researchers have increasingly begun to recognize that in practice the question need not be an either/or proposition. De Vaus (2002) distinguishes between the two stages of the research process, data collection and data analysis, and argues that each stage must be considered and described independently. He explains that a study need not be entirely qualitative or entirely quantitative.

Creswell (2009) identifies mixed methodology as a third type of design, and defines mixed methods research as "an approach to inquiry that combines or associates both qualitative and quantitative forms. It involves: philosophical assumptions; the use of qualitative and quantitative approaches; and the mixing of

both approaches in a study" (p. 4). Creswell (2009) goes on to explain that research design involves the intersection of three components: philosophical worldview, strategies of inquiry, and specific methods. A philosophical worldview might also be called a paradigm. The researcher brought a pragmatic paradigm (or worldview) to the planning and execution of this study. According to Creswell (2009), "pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis" (p. 11).

The strategy of inquiry utilized can best be described as mixed methods. Creswell (2009) identifies three possible strategies for the implementation of mixed methods research: sequential, concurrent, and transformative. The researcher implemented a sequential mixed methods design by utilizing a case study approach in the collection of data as well as in analysis, and then utilizing survey logic in analyzing results. This strategy accommodated the two different types of research questions identified at the outset of the study.

The main research question, in its simplest form, was really a question of "how" – "How are these (curricular materials selection) decisions being made in school districts?" According to Yin (1994), the case study is the best approach for questions of "how" or "why" in the context of contemporary events over which the researcher has no control. The following two research questions, however, ask "what factors…?". In order to answer these questions, an analysis approach reflecting the logic of survey analysis described by de Vaus (2002) was required. (This is explained further in the Data Analysis section of this chapter.)

A stratified sample (Borg & Gall, 1989) of participants was created in order to allow for the comparison and contrasting of different demographic variables identified by the researcher as potentially related to the research questions. Some authors (Coburn, et al., 2009; Fusarelli, 2008) have suggested that the availability of resources (in the way of staff and/or access to electronic information) may impact the utilization of research in decision-making, while others (Coburn, et al., 2009; Weiss, 1983) have suggested that organizational factors may play a role.

The case study is most often seen as a form of qualitative research, though results can include quantitative data. Merriam (1998) outlines key components of qualitative research. The following are a few of the characteristics identified and incorporated in this study: the researcher is the primary data collection tool, fieldwork is involved, and the product of the work is descriptive (Merriam, 1998). The researcher chose to utilize interviews because the research questions addressed past events, which could not be replicated. Also, interviews are the method of obtaining information identified by Marshall and Rossman (1999) when the information type is institutionalized norms and statuses.

The mixed methods research approach was selected, in part, due to the dearth of descriptive research available regarding decision-making practices in school districts. Since there is insufficient research available on which a structured survey might be built, a qualitative data collection approach was utilized. The use of qualitative methodology facilitated the collection of richer data through the establishment of rapport, use of open-ended questions, as well as flexibility in asking follow-up questions and/or clarifying terms (Merriam, 1998). The

quantitative analysis of data, using the survey logic allowed for the close examination of variation in variables across cases (Borg & Gall, 1989; De Vaus, 2002).

Research Participants

Eleven individuals participated in this study. They were employees of public school districts throughout the state of Missouri. They all held administrative or quasi-administrative roles. They all reported that they had facilitated the last elementary reading or math curricular materials adoption process in their school district. Table 2 is a listing of the roles of the participants within their school districts along with the frequency of each role among study participants.

Table 2:

Frequency of roles of participants

Role	*Frequency*
Assistant Superintendent	2
Principal	5
Principal/Superintendent	1
Curriculum Coordinator	2
Curriculum Director	1

An effort was made to recruit participants from different geographic regions throughout the state. Table 3 presents descriptive data related to participant geographic location. Participants were grouped according to which Missouri Regional Professional Development Center (RPDC) they were served by. There are eleven RPDCs in Missouri. As each interview was conducted, the RPDC region of the participant was assigned a group letter. For example, the RPDC of the first interview is represented as RPDC Group A, the RPDC of the second interview participant is

represented as RPDC Group B, etc. Participants were interviewed from six of the eleven different RPDCs in Missouri. Table 3 presents frequency data.

Table 3:

Number of participants from different RPDC locations in Missouri

RPDC Group	Number of Participants
A	2
B	1
C	1
D	1
E	5
F	1

Procedures Used

Sampling Method

A stratified sampling method combined with random sampling was used in order to strengthen generalizability of findings. The following process was used to identify / select the sample:

- All districts in Missouri were identified using data from the Missouri Department of Elementary and Secondary Education website (2010b)
- Districts were sorted by size, and broken into five groups (see Table 4)
- Each "size group" was sorted by per pupil expenditure (Charter schools and districts with 0 students listed under enrollment were eliminated.)
- The districts in the lowest- and highest-spending quartile for per pupil expenditure were identified (creating two sub-groups for expenditure within each size group) and then randomly assigned numbers to determine calling order

- Calls were initially made to districts in each subgroup (10 subgroups total) based on the number randomly assigned them. For instance, the first two or three districts in each subgroup were called, and messages generally had to be left. However, after the first six or seven interviews had been scheduled, an attempt was made to make calls based on geographic location – bypassing some of the districts listed first, in an effort to recruit participants from areas of the state where participants had not yet been recruited.

Table 4:

Description of sample population and stratification categories

(2009)	Group 1	Group 2	Group 3	Group 4	Group 5
Average enrollment	1 – 250	251 - 1,000	1,001 - 5,000	5,001 - 10,000	10,001+
Number in lowest/highest quartile	35	75	17	4	5
Lowest spending range (# participants)	$6,760 - $9,051 (0)	$6,175 - $7,452 (2)	$6,523 – 7,443 (1)	$6,938 - $8,241 (0)	$7,576 - $8,998 (1)
Highest spending range (# participants)	$11,645 - $22,073 (1)	$8,776 - $14,206 (2)	$8,985 - $17,216 (1)	$10,301 – $13,328 (1)	$10,721 - $15,635 (1)

Table 4 provides descriptive information related to the stratified population sampling. As was described, the population was sorted first by size (Group 1, Group 2, etc.) and then by per pupil expenditure (lowest / highest spending). The number in parentheses represents the number of participants from each subgroup (with spending being a subgroup under size).

Recruitment

Participants identified through the procedure described in the previous section were called using publicly available contact information from the *Missouri School District Directory* (Missouri Department of Elementary and Secondary Education, 2010d). If an assistant superintendent for curriculum and instruction was listed, that number was called, otherwise the superintendent's number was called. The person who answered the phone was asked who was in charge of the district's last elementary reading or math curricular materials adoption, and the researcher asked to speak to that person.

Once the appropriate personnel were identified, the individuals were recruited by phone when available or a message was left. When recruited by phone, subjects were told a little bit about the study and if they expressed an interest in participating, the recruitment statement was read or provided by e-mail based on participant preference. If subjects still wanted to participate after reviewing the recruitment statement, an interview time was scheduled. Participants were also invited through the recruitment statement to share any relevant artifacts of the process with the researcher.

Interview Method

A face-to-face, semi-structured interview format was utilized in all cases except one. In one instance, the interview was conducted by phone in order to avoid excessive travel time and expense. A face-to-face interview methodology is thought to build rapport and facilitate meaningful responses to the questions through follow-up questions or clarification (Merriam, 1998). Patton (1990) identified three

types of interviews: the informal conversational interview, the general interview guide approach, and the standardized open-ended interview. A general interview guide approach was utilized in this study. Eight questions were developed by the researcher to be utilized in the semi-structured interviews (see Appendix A).

The interview was semi-structured. All participants were asked a standard set of eight questions, but each participant was also asked additional questions unique to their responses. Eight of the participants were asked at the conclusion of the interview whether there was anything the researcher had not asked about that they would like to add. The base set of questions was not always asked in the same order, but the phrasing was consistent across all participants. After the first three interviews, the researcher began offering participants a copy of the questions at the beginning of the interview so that they could see the questions as they were asked.

Participants were instructed to answer the questions based upon the most recent elementary reading or math curricular materials adoption process. They chose which adoption to keep in mind as they answered the questions so that they would be thinking of one specific process as the interview proceeded.

All interviews were recorded for later transcription. Participants selected the time and location of the interviews. All (except the one by phone) were conducted at the district offices of the participants during school hours. All interviews were completed over the course of approximately two months in late 2010. No interview lasted more than 45 minutes, and the average length of all of the interviews was approximately 26 minutes. The shortest interview was the one conducted by phone, which lasted 12 minutes.

Validity

The interview questions were rated for face validity by two experts. One expert was an assistant superintendent of curriculum and instruction; the second was a curricular materials sales representative. A third expert did not return the rating scale. The experts were asked to rate the relevance of the interview questions to stated research questions, and to rate the clarity of the interview questions. All questions were rated highly relevant and clear; however one word was added in two of the interview questions, per expert recommendation, in order to improve clarity and consistency.

An attempt was made to enhance the external validity of the study by stratifying the population and semi-randomly selecting participants. (The sampling method is described in a previous section of this chapter.) Stake (1995) describes an instrumental case study as one that aims at some sort of generalization and thus employs selection methods based on the potential to create a somewhat representative sample.

Theoretical Framework

Yin (1994) states that "theory development prior to the collection of any case study data is an essential step in doing case studies" (p. 28). Figure 1 is an illustration of the decision-making process theorized by the researcher. The researcher asserted that organizational context, evidence, and participant attitudes all play a role in the decision-making process involving the selection of curricular materials for elementary reading or math.

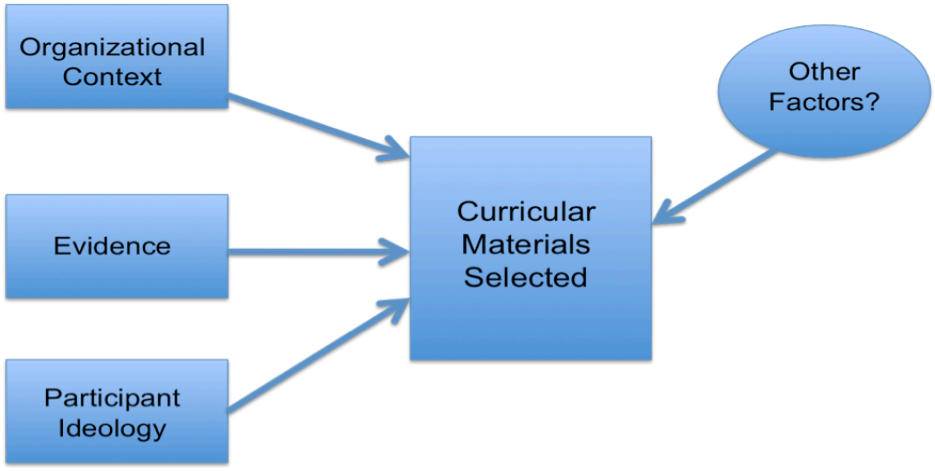

Figure 1. Factors thought to influence the selection of elementary reading or math curricular materials.

Organizational context would include such influences as board policies, district guidelines, curricular guidelines, budget, expense of products, district leadership ideology, etc. *Evidence cited* would include references by the participant to books, articles, achievement data, etc. *Participant Ideology* would include pedagogical beliefs (about teaching and learning) as well as paradigmatic views (about educational research). It is important to note that the researcher assumed that there would be other factors related to the decision-making process that had not been identified in advance of data collection. This assumption is represented by *Unknown Factors*.

Data Analysis

Units of Analysis

The units of analysis in this study were individual school districts. As was described in the section on sampling methodology, districts were stratified and then selected; first randomly, and later based on geographic location. One individual

from each school district was interviewed. (Participants were described previously in this chapter in the section titled "Participants.")

Transcription

The audio recording of each interview was transcribed verbatim by the researcher. The researcher's questions and comments were transcribed along with the participants' responses in order to assess the consistency of the interview process and to identify leading questions by the researcher. No identifying information was included on the transcription. Transcriptions were labeled with a number indicating the sequence in which the interviews were conducted. Once all interviews had been completed, each transcription was randomly assigned a number, which is referred to in the data analysis as a "case number."

Theme Identification

The entire transcription of each participant's interview was examined after approximately every two or three interviews were conducted. After the first three interviews had been conducted, transcribed, and reviewed, the researcher went back through each interview and underlined key words. This process was repeated with all interviews with every two or three interviews conducted. Key words or phrases were categorized as follows:

- Relevance to research questions;
- Relevance to constructs identified in the theoretical framework;
- Words the participant seemed to use often; and/or
- Words that seemed to be repeated across participants.

This process resulted in at least one additional question being asked and likely influenced follow-up questions in later interviews.

Sorting Data

Once the interviews had all been transcribed, the researcher sorted the transcribed data according to the initial eight questions of the semi-structured interview. The questions were not asked in the same order in every interview and in some cases the participants provided information related to one question in the process of responding to another question. An attempt was made to sort all participant comments based upon the most relevant interview question. The interview questions, though, also could be seen as corresponding to one of the three research questions. The data were then further categorized according to the relevant research question. This process allowed the researcher to engage in cross-case synthesis (Yin, 2009).

Cross-Case Synthesis

Given the dearth of literature available regarding curricular selection practices at the school district level, there is little precedent available for reference to guide data analysis. Content analysis of recorded interview responses as well as any documents provided was conducted and themes were identified. In addition to the cross-case analysis by research question, interview question, and themes, the researcher also created a summary table (Appendix B), which included both participant descriptive data and a summary of participant response data. Some of the participant descriptive data was objective (group size, expenditure category, RPDC group) and some of it was subjective in that it was based on observations

and/or categorizations by the researcher. The researcher then examined the data for possible trends.

Artifact Analysis/Triangulation

Eight of the eleven participants provided some type of document (artifact) for analysis. The artifacts were analyzed in the context of the participants' interview responses and their relevance to research questions, interview questions, and theme analysis. The content of the artifacts was included in cross-case syntheses.

The researcher had hoped to collect minutes of committee meetings as an additional resource to be utilized in triangulation of evidence; unfortunately, however, no meeting minutes were collected as artifacts.

Limitations

A significant limitation of the research will be the inability to generalize findings to a larger population. Additionally, sources of error must be considered. Borg and Gall (1989) categorize sources of error into three groups: those related to the predispositions of the respondent, those related to the predispositions of the interviewer, and those related to the procedures used in the study. Response effect, defined by Borg and Gall (1989) as "the difference between the answer given by the respondent and the true answer" (p. 448), can be seen as a limitation in this study. Efforts to triangulate data can address this limitation; however, minutes of the curricular selection committee meeting were not available in this study to evaluate the response effect. Other sources of error that are particularly relevant to this research design include: participant cooperation, self-promotion (Stangor, 2007), and researcher bias (Borg & Gall, 1989; Merriam, 1998). The subjective nature of

categorization and analysis of responses by the researcher can be seen as limitations as well. An additional limitation may be self-selection of respondents, in that those administrators who were uncomfortable with their curriculum selection process may have chosen not to participate in this study.

Summary of the Methodology

The research methodology employed in this study can be described as mixed methods research. A collective case study approach was utilized in data collection and initial data analysis. Survey logic was then employed in order to examine cross-case variation on particular variables. This chapter briefly described the research participants, procedures used, the theoretical framework, data analysis strategies, and limitations of the research design.

CHAPTER FOUR: RESULTS

Introduction

Chapter four will present findings in the form of a cross-case synthesis, followed by specific information from each case. Findings incorporate data from interviews as well as document analysis and are presented in relation to research questions (*Process, Factors, and Research*) as well as constructs identified in the theoretical framework (*organizational context, evidence cited, and participant ideology*). A summary of the chapter will be presented at the end.

Theoretical Framework

The researcher framed the three research questions and corresponding interview questions around the theoretical framework described in chapter three. In establishing a theoretical framework, the researcher assumed that organizational context, evidence, and participant ideology all might play a role in the selection of curricular materials for elementary reading or math.

"Organizational context" includes such influences as board policies, district guidelines, curricular guidelines, budget, expense of products, etc. This construct is addressed in the next section (Research Questions) under *Process*. "Evidence cited" includes references by the participant to books, articles, achievement data, etc. This construct is addressed in the next section (Research Questions) under *Factors*. "Participant Ideology" includes pedagogical beliefs (about teaching and learning philosophy) as well as paradigmatic views (about educational research). This construct is discussed briefly in the next section (Research Questions) under both *Factors* and *Research*.

Research Questions

Process

The first research question was "How are elementary reading or math curricular materials selected in Missouri school districts?" There were eight questions identified at the start of the study for the semi-structured interview. Four of those can be seen as related to this first research question:

- Please describe the curricular materials selection process in the most recent elementary reading or math adoption from start to finish.
- Do you have any guidelines, procedures, or policy in writing that guided the curricular materials selection process in your district?
- What would you say were the most influential factors that led to the selection that was made?
- What kinds of evidence were considered in the decision-making process?

Only responses to the first two interview questions will be presented in this section, however, as they are most closely related to the theoretical construct of *organizational context*. The last two questions are more strongly related to the second research question (and the construct of *evidence cited*) and will be discussed in that section. Most of the artifacts collected are related to this first research question and will be discussed here.

Cross-case Synthesis

Overall, it seemed to be difficult for many of the study participants to succinctly describe the most recent elementary reading or math curricular materials adoption process. The researcher began each interview by clarifying whether the

participant would be answering interview questions with the most recent elementary reading or elementary math materials adoption in mind. Once that was clear, the researcher always asked participants to "describe the curricular materials selection process in the most recent adoption from start to finish." After the first three interviews, however, the researcher often added prompts such as, "please include things like the timeline, people involved, etc."

In most cases it was very difficult for participants to identify exactly when and how the process began. Similarly, the majority of participants did not report a specific number of meetings. When asked specifically about the number of meetings, no participant was able to definitively respond. In some smaller districts, the participant (an administrator who reported having facilitated the most recent selection process) had not attended all meetings related to the selection of materials. All eleven participants mentioned involving teachers in the selection process. Most mentioned including a Title I or special education teacher as well. Six of the eleven participants mentioned using assessment data in the selection process (this will be discussed further in the section titled *Factors*).

Table 4 provides a summary of findings related to organizational supports for the process of curricular materials selection. Of the eleven participants, only five reported that they had any district "policy, procedures, or guidelines available in writing that guided the curricular materials selection process." In all five cases, the policy or procedure was shared as an artifact. One additional district utilized federal guidelines because the selection of materials was part of a grant application process. The federal guidelines as well as three of the district-created artifacts

included a checklist-style document to be used in reviewing materials. Procedures from another district referenced a checklist to be used in textbook selection, but the checklist was not collected. Two participants mentioned that they would have liked to have some guidelines available.

Table 5

Organizational Supports to the Curricular Materials Selection Process

Participant Size Group	Checklist for Materials Selection?	Process Defined?	High or Low Spending Group
1	Y	Y	high
2	N	N	low
2	N	N	high
2	Y	Y	high
2	N	N	low
3	Y	N	low
3	N	N	high
4	Y	Y	high
5	N	N	low
5	N[a]	N	high
5	Y	Y	low

[a] the district utilized a checklist created for a federal grant application

When data were sorted and examined by district size, the researcher found that only two of the four largest districts represented had any district-level policy, procedure or guidelines available to guide the selection process. Of the five districts that had district-level policy, procedures or guidelines, three were in the high-spending group (per pupil expenditure) and two were in the low-spending group. (For more information related to population sampling, see description of *Sampling Method* in Chapter 3).

Seven of the eleven participants described a process that took place over the course of one school year. Another two participants reported that the process lasted two years or less. One participant described a process in which district staff

members are continuously engaged in monitoring, evaluating, and researching the implementation of curricular programming throughout the entire five-year adoption cycle. Two of the participants implemented systematic pilots of one or more programs under consideration and utilized the assessment results in the selection process.

Overall, the participants who provided artifacts in the form of policies or procedures were better able to describe the process. It was not possible to determine whether the participants' ability to describe the process was related to how long ago the selection process had taken place because all participants did not provide this information. None of the participants provided meeting minutes from the curriculum selection committee meetings. Three participants were asked specifically about meeting minutes and reported that no minutes were available.

Specific Examples

The participants' responses to the first interview item have been distilled down to the essential words related to the actual process. All words are their own; however, many words, phrases, and sentences unrelated to the selection process have been omitted.

(Case 1 – Size Group 3) "We had some concerns with math scores (on the MAP)…we started the process of looking three years ago…we just did different kinds of…conversation-type things…we probably had two or three preliminary meetings…we had samples in the buildings for people to look at…(scheduled one big all-elementary-staff meeting)…we sent everybody to a different room to have their discussions…we narrowed it down from three to two and we voted."

(Including the pilot time as part of selection process, it lasted approximately four years.)

(Case 3 – Size Group 5) "The first thing was just start contacting company reps…accumulate materials…it took two full years…I held a series of meetings with teachers where we'd talk about what the needs were…I met with parents…the team had a group of people that they would go back and forth and say what we've been working on and get feedback."

(Case 5 – Size Group 1) "Our process is sitting down with the teachers to first see what the strengths and weaknesses of the students are…pretty much all the teachers sat down and did this…unless something jumps out at me that's really wrong, I'm going to support the teachers, what they want."
(Selection process lasted less than one school year, but the purchase of materials was incremental due to budgetary constraints.)

(Case 7 – Size Group 2) "We're on a five-year curricular cycle…the study year…we call year one…with the implementation the next year…each of those five years…there is research that has gone on in what I would call year three, four, and five…implementing the current curriculum, but always monitoring and evaluating…I would say the last three years prior to year one the process has been going…"

(Case 9 – Size Group 4) "I was told by central office, 'you're doing math'…we got two people for every grade level and at least two from every building…we always want to write the curriculum and then select materials…we surveyed parents, teachers, students, reviewed those results…brought in companies…we had

this (referring to checklist) as our rubric before we started looking at things and then graded them…(used) the teachers' feedback and the MAP scores…"
(Selection process lasted less than one school year.)

(Case 10 – Size Group 2) "First I put together a committee and we had at least one math teacher from each grade level…I contacted three different reps…we looked at all of the different materials together…selected down to two…we looked at how they aligned with GLEs…before we did that we got on and looked at the research on those programs, because they rate them…we came to a consensus…"
(Selection process lasted less than one school year.)

Factors

The second research question was "What factors influence the curricular selection process?" There were eight questions identified at the start of the study for the semi-structured interview. Six of those can be seen as related to this second research question:

- Please describe the curricular materials selection process in the most recent elementary reading or math adoption from start to finish.
- Do you have any guidelines, procedures, or policy in writing that guided the curricular materials selection process in your district?
- What would you say were the most influential factors that led to the selection that was made?
- What kinds of evidence were considered in the decision-making process?
- Would you say that any particular philosophy or learning theory strongly influenced the selection process or limited the materials considered?

- What are your thoughts about the value of research in curricular materials selection?

Responses to the first two interview questions were discussed in the previous section. Responses to the last question will be discussed in the next section on research. Therefore, the responses to the third, fourth, and fifth interview questions will primarily be discussed in this section. They are most closely related to the theoretical framework construct of *evidence cited*.

Cross-case Synthesis

In order to examine data related to this research question, themes were identified within participant responses to the interview questions related to "most influential factors" and "evidence considered." Fifteen categories were identified and a frequency table was created. Table 6 presents the frequency of participant response categories related to influential factors and evidence considered.

Table 6:

Frequency of participant response categories related to influential factors and evidence considered

Response Categories	Most Influential Factors	Evidence Considered
Assessment data / Achievement scores	4	6
Curric./GLEs/Nat Standards	3	3
Teacher needs	3	3
Programmatic components	2	3
Local district information	3	1
Sales rep-related	0	3
Student needs	1	3
Checklist/tool	2	0
Student/parent input	2	0
District philosophy	2	0
Vertical alignment	1	1
Research	0	1
Appearance of materials	1	0
Best practice	0	1
Opinion of other professionals	0	1

Assessment data was the most frequent response to both questions. Interestingly, however, some participants seemed to be referring to the scores of other local districts, while others were referring to the scores of their students. For example, three of the participants mentioned having examined MAP (Missouri Assessment Program) test results in surrounding districts with similar demographics. They then called some of those districts to find out what curricular materials they were using. Four participants reported that they utilized the assessment results of students in their own district to identify weaknesses in the instructional program and then used that information to inform the selection of new curricular materials. Of the eleven participants, a total of six mentioned student assessment data in response to the questions regarding influential factors and/or

evidence considered. Of the six participants that mentioned assessment data, none were from the three largest districts represented.

Participant response data was examined in relation to district size, per pupil expenditure, and geographic location (See Appendix B Table B1). However, due to the disproportionate number of participants from one particular geographic region, analysis by geographic location must be seen as extremely preliminary.

Although none of the participants specifically mentioned the political context in which educational decision-making takes place, five of the eleven participants referred to this in one way or another at some point in their interview. One participant referred to complaints about current programming that board members had received. Another referred to the near "riot" that they had in a nearby district when a particular program was recommended for implementation.

When asked whether any particular learning theory or philosophy had influenced the selection process or limited the materials that were considered, two of the participants answered no. Seven of the participants indicated a type of learning theory of philosophy that was categorized by the researcher as constructivist in nature. The responses of those participants were as follows: student-led, learning centers, learning styles, hands-on, multiple intelligences, constructivist, balanced literacy. The responses of the remaining two participants were: "evidence-based," and a broad reference to the constraints of the federal guidelines (because this selection process was part of a grant application).

In approximately half of the cases, the participants told the researcher all of the materials that were considered. In seven cases, the name of the materials

ultimately selected was identified. None of the participants mentioned any program that would be classified as Direct Instruction. Direct Instruction can be seen as a teaching methodology that would fall on the opposite end of the "pedagogical spectrum" from constructivist instructional approaches. The researcher had intended to categorize the materials selected as either: traditional, constructivist, or undetermined. However, it was decided that such an analysis would fall outside of the parameters if this study. The topic will be revisited briefly, however, in Chapter Five.

Specific Examples

(Case 3 – Size Group 5) "The selection was guided strictly by our curriculum. We looked at what we were writing and what our curriculum was and we picked materials that went with it…in this district we are very strong in using what is best practice. Best practice in communication arts is constructivist…"

(Case 4 – Size Group 2) "I think that a lot of the choices that were made were the attractiveness of the book and how they (teachers) saw that a child would envision that book…we collected information from adjoining school districts that were our size…we collected a lot of information through the back door – sometimes that's the most powerful…"

(Case 6 – Size Group 5) "the main characteristic about (program we chose) was that we already had (older version of same program) and the teachers liked the series. So, the easiest way to transition was for us to use something very similar to what they had…the biggest evidence was that it was the transition between the two

(old and new series). It was like going from an old car to a new one in the sense that you still had all of the things that you liked about that old car in the new one."

(Case 8 – Size Group 3) "…looking at the schools that had implemented and been using the program for a couple of years to see how it affected their test scores…working with other professionals and just listening to the reps as they came in…and the material that they provided about the program…"

(Case 11 – Size Group 5) "…some very long discussions about what is essential learning for our students and, using a balanced literacy framework, how do we get to that essential learning?...and then to be able to say, these materials will help us address the GLEs was one of the guiding factors…We did not want to swing back to a literature anthology that would set our teachers up to all children reading exactly the same story and answering a list of comprehension questions…more of a basal look – we did not want to go that route."

Research

The third research question was "What factors support/impede the utilization of research in curricular decision-making?" The third construct identified in the theoretical framework was *ideology*. There were eight questions identified at the start of the study for the semi-structured interview. Three of those can be seen as specifically related to this third research question and/or the third construct:

- Is there any information that you would have found useful in the curricular materials selection process, but that you did not have access to?

- What are your thoughts about the value of research in curricular materials selection?
- What resources do you know of to support the use of research in curricular materials selection?

Some participant responses to the previously discussed interview questions regarding influencing factors and sources of evidence were related to research. Those will be discussed in this section as well.

Data analysis related to this research question involved the greatest amount of interpretation by the researcher. This may be due to the fact that the word "research" seems to have several different meanings to the participants. When participants were asked about the value of research in curricular materials selection, they often spoke of their own use of assessment data or the work they had done in investigating what materials other districts were using. In the question, the word research is used as a noun. In their responses, participants used the word as a verb.

For the purposes of this study, it was necessary for the researcher to determine a working definition of the word research. **Research** was defined by the researcher as an empirical study, incorporating an experimental or quasi-experimental design, published in a peer-reviewed journal; or a review / evaluation of empirical studies compiled by an academic institution (such as the Florida Center for Reading Research) or an agency authorized by a governmental office (such as the What Works Clearinghouse).

Cross-case Synthesis

Participants were asked, "What are your thoughts about the value of research in curricular materials selection?" and then asked, "What resources do you know of to support the use of research in curricular materials selection?" Also, because the interview was semi-structured, each participant was asked various follow-up questions. Using the totality of the interview data, the researcher labeled each participant's views on research as one or more of the following:

- High value – meaning that the participant's response seemed to indicate that they valued research as defined by the researcher in the previous section
- Skeptical – meaning that the participant's response indicated some reservations regarding the use of research
- Local – meaning that the participant's response indicated a preference for research that had been conducted locally (this may include references to pilot data)
- Miscommunication – meaning that the participant's response indicated an understanding of the word research that was significantly different from the researcher's understanding of the word research (as described in the previous section)

Two of the participant responses were categorized as high value. Four of the participants' responses were categorized as skeptical. Five of the participants' responses were categorized as miscommunication. Two of the participants' responses were categorized as local. (Two of the participant responses fit into two categories.)

Many of the participant responses indicated an understanding of the word research that was different from the definition created by the researcher. Three participants referred to the use of local assessment data as research. One participant referred to what the researcher would classify as literature: work done by professionals that is not empirical in nature and does not match the definition of research provided in the previous section. For this reason, it was possible for a participant's response to include words indicating that they valued research, yet still be categorized as skeptical or miscommunication.

Using the definition of research described previously, the researcher analyzed participant responses and made a determination as to whether or not there was "evidence of research use." The researcher found evidence of research use in three of the eleven cases. Of these three, two of the cases had been categorized as "high value" in relation to the question regarding the value of research. All three were among the six that mentioned assessment data in answering the questions relating to influential factors and/or kinds of evidence (which were discussed in the previous section). All three of these participants also had one or more organizational supports in place to guide the selection process (policy, procedures, guidelines, and/or checklist). The responses of these three participants to the question regarding whether any particular learning theory or philosophy had influenced the decision were as follows: "no," "evidence-based or empirical philosophy," and "hands-on" (which was classified by the researcher as constructivist in nature).

Specific Examples

(Case 1 – Size Group 3) "I think research is good, but I still like the idea of coupling research with a pilot…research is important but I think sometimes research can say whatever you want it to say…you know, I can go to the Clearinghouse…the WWC and look…some of the things we've used although they weren't on the list – we still felt like they were good, and I've seen them come on the list since." (categorized as local and skeptical)

(Case 2 – Size Group 2) "And so the value of research is very important, but that research comes all the way down to the local level. What are other schools our size, in our league doing? Why is (local district name) doing better in math than we are? So the research is even county-based…And so the research is very important because you can use your own local research and you can go nationwide and you can look at the research out there…We rely on their (local RPDC) ability to help us research…they will tell us what all the area schools are doing, so it'll bring it back down to that local research." (categorized as local and miscommunication)

(Case 3 – Size Group 5) "I felt confident that I knew what was out there and that we could make good choices because I had researched and looked at all the options." (categorized as miscommunication)

(Case 4 – Size Group 2) "There are some areas that I value the research, but not at this level…as far as the research on whether something has worked or not worked, there's so many variables there that are difficult to control…I think that finding schools that have used similar materials and then visiting with them about

their success or lack of success gives you about as much intuition into whether something will be successful or not." (categorized as skeptical)

(Case 5 – Size Group 1) "We would research – maybe we have someone who's had success in their reading and their scores are good…it's more investigative rather than research maybe." (categorized as miscommunication)

(Case 6 – Size Group 5) "It's valuable, but it can be easily skewed…at that time every company was saying 'we're research-based'…the bottom line is that the teachers were the ones who determined whether it was considered research-based" (categorized as skeptical)

(Case 8 – Size Group 3) "I think it's very important…you need to know what you need to accomplish and then to see the research that you have will help with your goal. You need to look at statistics from other schools…" (categorized as miscommunication)

(Case 9 – Size Group 4) "Huge! And I think WWC is a great resource because it takes the emotion out of it…it's important for me to go with something that has been tested…from a third party that has no affiliation to products or people or anything like that." (categorized as high value)

(Case 10 – Size Group 2) "I think it's very important to look at the research…and you have to look at a variety of research…because some people have reasons for putting stuff out there" (categorized as skeptic)

(Case 11 – Size Group 5) "I ask publishers for their white papers on materials they're going to send us and we ask our committees to look through those white papers and determine where is the research base for these materials? What

researchers have they pulled from? What is our understanding of those people's research? And does it really match the philosophy that we're trying to embed in our instruction?...not all people understand who to pay attention to and who not to…I think that our classroom teachers fall back a lot on Fountas and Pinnell as kind of those leading researchers in reading" (categorized as miscommunication)

Summary of Results

Findings were presented in relation to research questions and the theoretical framework. Appendix B (Table B1)provides an overall summary of the data. Participants identified numerous influential factors and forms of evidence that impacted the curricular materials selection process in their districts. Participants' understanding of the word research often differed from that of the researcher; therefore, a working definition of the word research was formulated for the purpose of data analysis. Three of the eleven districts demonstrated evidence of research use (as defined by the researcher) in the curricular materials selection process.

CHAPTER FIVE: CONCLUSIONS

Assumptions and Limitations

Several limitations to this study have been identified. Perhaps the most significant limitation is participant recall. The researcher had assumed that the minutes from the selection committee meetings would be available for triangulation in at least some cases, however no meeting minutes were collected. Therefore, description of the process was informed strictly by participant interview. Participants' ability to recall and describe the curricular materials selection process seemed to be better in cases where there were some organizational supports in place (such as policies, procedures, guidelines, checklists, etc.). Even those cases would have been strengthened by the triangulation of data.

Another significant limitation of the study was the disproportionate representation of geographic locations of participants. Geographic location was a factor in participant recruitment based on the assumption that certain curricular materials decision-making practices may be found to be regional – that is, related to the geographic region of the participant. However, the geographic distribution did not allow for this type of analysis. Five of the eleven participants were from the same geographic area. Only one other geographic area had more than one participant. Geographic location of participants was included in the data summary (Appendix B), but the researcher did not offer any observations with regard to geographic location because of the disproportionate representation. This situation might be seen as a tradeoff because the research design did aim for diverse geographic representation in order to enhance generalizability of findings.

As with any research design, findings are based, to some extent, on the biases and interpretations of the researcher who designed and implemented the study. This may be seen as a threat to the validity of the findings. Where possible, the researcher attempted to offer objective, descriptive data so that readers might have the opportunity to reach their own conclusions.

The semantic issue related to the word *research* was also a concern. Applying the researcher's definition of the word to the data analysis and in the reporting of findings may be seen as another limitation. It may be argued that the researcher's definition was too restrictive. The decision to use the definition called for in the NCLB legislation can be seen as an attempt to address this concern.

One assumption held by the researcher was that participants would express a desire to have more or better access to empirical research (as defined previously by the researcher). This assumption was the rationale for one of the interview questions ("Was there any information that you would have liked but that you did not have access to?"). The researcher assumed that access to research findings in general or evaluations of program effectiveness in particular, might have prohibited the utilization of research in curricular materials selection. This assumption was not borne out in the findings. It will be discussed in the recommendations for future research.

Another assumption of the researcher was that many of the curricular materials selection decisions would be based on a particular instructional philosophy, constructivism; and that participants would readily identify constructivism as the instructional philosophy that supported the decision. This

was not the case. The majority of participants did not specifically identify their philosophy as constructivist, though many referred to approaches or strategies that the researcher categorized as generally constructivist.

Relevance to Previous Literature

The findings of this research are perhaps most relevant in the context of the previous literature. Several authors have lamented the absence of research utilization in educational decision-making. Few authors had engaged recently in a systematic attempt to examine the specific process of curricular materials selection. This was thought to be particularly important by the researcher because of the significant influence elementary curricular materials have on classroom instructional practices.

Also, a mandate to utilize scientifically based research was issued in the No Child Left Behind (NCLB) Act (2002), which went into effect nearly ten years ago. Since then, the federal government has supported the formation of a resource called the What Works Clearinghouse (WWC) which was intended, specifically, to evaluate and disseminate research findings. It is reasonable to assume that NCLB and / or WWC may have had some impact on decision-making practices in educational settings. This study was an attempt to either support or contradict the largely anecdotal reports indicating that educational decision-makers were still not utilizing research. In the judgment of this researcher, the anecdotal reports have been supported; however, the utilization of research was not entirely absent. Three of the eleven participants demonstrated evidence of having utilized research in the decision-making process in a manner that approximates the rigorous mandate

established by NCLB; and several more seemed to believe that they had engaged in research. Most participants' understanding of the word research simply did not match what was described in the No Child Left Behind (NCLB) Act (2002).

This issue regarding research standards was addressed in the literature review as a problem in the field of education. Without standards, terms become ambiguous and professionals are left without a common lexicon. The No Child Left Behind (NCLB) Act (2002) offered a definition of scientifically-based research and called on educators to utilize it in their decision-making. For the purposes of this study, the researcher attempted to craft a definition that was similar but less rigid. The participants' understanding and use of the word research was often qualitatively different from the one set forth by the researcher. This problem in basic professional vocabulary may be attributable to the absence of clear professional standards and/or a clear research paradigm in the field; both of which have been described as symptoms of an immature science (Carnine, 2000). Findings of this study appear to support literature which indicate that we in education are without an agreed upon research paradigm.

The various uses or interpretations of the word research used by participants in this study have been described by Former Institute of Education Sciences (IES) Director Russ "Grover" Whitehurst (2004). He has differentiated between terms that might generally be categorized as *research* and *data*, explaining them in this way:

> In brief, scientific *research* [emphasis added]**,** evaluation, and statistics are produced by scientists and typically appear in peer-reviewed journals and other outlets that are read by a technical audience…Performance *data* [emphasis added], in contrast to

> scientific research, is produced by school systems and other entities that deliver education to determine whether the programs and practices that have been deployed are meeting goals…Together, scientific research and performance data comprise empirical evidence. (p. 2-3)

The difficulty in clarifying terms may very well impact the opinions or perceptions of professionals in the field toward educational research. Imprecise terms can lead to conflicting reports. Disagreements in the field may be perceived by educators as cause for skepticism. Several of the participants in this study expressed reservations regarding the use of research in curricular materials selection. Determining the root of this skepticism was outside of the purview of this study. However, the skepticism itself may be seen as an obstacle to the use of research by educational decision-makers.

Recommendations for Future Research

The researcher has come away from this study with far more questions than answers. This may be due to the nature of the research model and presentation of findings. As a descriptive study, it was designed to gather information in the hopes that such information might lead to and perhaps inform more systematic examination. Several recommendations are offered for the improvement or extension of this line of research.

The most significant limitation of this research may have been the inability of the researcher to crosscheck the recollections of participants against any other source. If curriculum selection committee meeting minutes are not available for analysis, perhaps two individuals from the same adoption committee could be interviewed separately. This strategy could meaningfully address concerns

regarding participant recall and might offer interesting insights regarding the role of perceptions and beliefs in the understanding and description of the process.

The question regarding "the most influential factors" might be altered to ask instead for THE most influential factor. Also, it might be interesting to review the interview data and assess the extent to which influential factors and evidence cited by participants were mentioned in the initial interview question regarding the process. Did self-promotion or social desirability (Stangor, 2007) play a role in the responses to those questions? It could be argued that they were leading. Perhaps instead of asking participants to list the factors and evidence that impacted the selection process, the researcher should have followed up with more specific questions to determine exactly how those things were actually incorporated into the selection process. For example, assessment data were mentioned four times as a factor and six times as evidence – how was it used in the decision-making exactly? In one case, the participant mentioned student/parent input as one of the most influential factors. An appropriate follow-up question might be: what was the form of that input? Did they vote? Or did they report what they didn't like about the current program?

In smaller districts, there seems to be wide variance in achievement scores from cohort to cohort. How does this impact program evaluation? This may be one reason that participants from smaller districts expressed a preference for local research and/or pilot studies. The pilot studies described by participants seemed to look at comparative data: Students experiencing Program A compared to Students

experiencing Program B. Curricular materials program evaluation might rely on longitudinal data: third grade last year compared to third grade the year before.

The No Child Left Behind (NCLB) Act (2002) contained a mandate for school administrators to utilize scientifically based research (SBR) in decision-making. Most participants seemed to be either unaware of the mandate, unaware of the definition of SBR, or have misunderstood the definition of SBR. Is it the states' responsibility to transmit this information to local districts? Even with a federal mandate in place for nearly ten years, there is little evidence that educators are utilizing SBR in decision-making. This might be seen as evidence of the ineffectiveness of mandates that are established without sufficient support for their implementation. It would be interesting though to examine these questions with a comparison group of participants from another state or two in order to determine whether or not states have transmitted this knowledge to administrators, and if so how they may have facilitated its implementation. Also, even though the ten Regional Education Labs can be seen as the instrument by which professionals might have met the NCLB mandate, no participant mentioned them in the course of the interviews. The ten Regional Education Labs could be another variable across which practices at the school district level could be compared. After all, those labs are funded by federal dollars, it seems that they should be providing some level of service to all districts in their area.

The finding that all of the districts that utilized research in the selection process also had organizational supports in place may offer a starting point for further study. Drake, Latimer, Leff, McHugo and Burns (2004) point out the

distinction "between the use of standardized procedures for finding and evaluating the scientific evidence (evidence based medicine) and using specific practices that are supported by scientific evidence (evidence based practice)" (p. 720). For the purposes of further research, *evidence based practice* can be defined as decision making that is supported by what has been defined in this study as research (which the school district representative refers to as evidence supporting selection), and *evidence based education* might be defined as the use of standardized procedures for finding and evaluating evidence.

Implications of the Research

In Chapter Four it was noted that none of the participants interviewed had selected, or even considered, a Direct Instruction curricular materials program. This finding may only be important if one believes that there is scientifically based research to support the selection of Direct Instruction curricular materials. John Hattie (2009) reports in his historic meta-analysis, "Every year I present lectures to teacher education students and find that they are already indoctrinated with the mantra 'constructivism good, direct instruction bad'. When I show them the results of these meta-analyses, they are stunned, and they often become angry at having been given an agreed set of truths and commandments against direct instruction" (p. 204). If *any* relevant curricular materials that have research support are not being considered by school district administrators in the curricular materials selection process, it is important to determine why they are not being considered. Three questions come to mind:

- Are decision-makers aware of the materials?

- Are decision-makers aware of the research support?
- Are decision-makers aware of the research and still choosing other programs? If so, why?

Sarason (1982) points out that when members of an organizational culture fail to consider all possible options or alternatives, then they are more likely to make decisions based on habit or belief than on objective evidence. The majority of participants of this study referred to seeking advice from colleagues or peers in one form or another. If peer advice *outweighs* systematic research evidence in our profession, then we have a significant cause for concern. If, however, peer advice is *taking the place of* systematic evidence, then it is a different kind of (still important) concern. These two problems would need to be approached in two different ways.

Coburn, Honig, and Stein (2009) point out that educational decision-making takes place in a political context. It may be that with increased accountability measures in place, stakeholders have become more aware of the performance of local schools. This situation may impact the decision-making process in some districts. As one participant pointed out, "If this (program) doesn't do what I said it would do…I'm going to be asked by the school board, 'hey doctor, why did you choose that back in 2010?' It's a lot better to say…I used the evidence that was available to me at the time to indicate that this was the best thing for our kids." All three of the participants who demonstrated evidence of research utilization were among the five who mentioned political context in some form. This may be seen as preliminary evidence that the increased accountability alone (as opposed to the

mandate) is having an impact on the use of research in curricular materials selection.

Results of this study, presented in Chapter Four and summarized in appendix B, taken along with the review of literature presented in Chapter Three, provide evidence that professionals in the field of education are still a long way from sharing a common paradigm regarding educational research. Kuhn's (1962) advice would indicate that we in education, need to reach a consensus regarding terms and standards of research so that a common paradigm can be embraced. As he states: "In the absence of a paradigm or some candidate for a paradigm, all of the facts that could possibly pertain to the development of a given science are likely to be seen as equally relevant" (p. 15). This absence of a paradigm may be a key factor that allows for the highly variable and frequently unstructured decision-making processes found in the conduct of this study.

The state of Missouri requires the identification and implementation of "research-based" strategies in comprehensive school improvement plans, but does not provide a clear definition of what is meant by research-based. The state may better serve district leaders by providing some guidance or support in the process of identification of such programs. State-level as well as district-level leaders need to engage in conversations around key terms such as "research" and work together to identify supports was well as obstacles to the utilization of research in decision-making.

In order to inform the important decisions that educational leaders have to make related to curricular materials selection, more high quality research studies

will be needed. Yet it seems unlikely that such research will be conducted if school leaders fail to use it in practice or demand it. Given the preference expressed by some participants for "local research," this may mean providing support for research to be conducted in Missouri school districts. Also given the large number of relatively small districts in the state, support in systematic pilot implementation and/or evaluation may also be welcomed.

In order for systematic research to be conducted in Missouri, a high quality assessment system will need to be selected and implemented reliably over time. The most recent elementary assessment was in place for approximately six years. In 2011, a somewhat different assessment will be implemented due to budgetary concerns. Changing the assessment system prevents school district administrators from examining meaningful longitudinal achievement data. Longitudinal data are needed to assess the effectiveness of curricular programming, and can be used in future curricular materials selection decisions.

Perhaps most importantly, this study can be seen as providing evidence of the need for a common lexicon in the field of education. While most participants seemed to generally value the use of research in decision-making, many expressed an understanding of the word research that was qualitatively different from the one mandated in federal legislation nearly ten years ago. In his book, *The Principles of Teaching* (1906), Thorndike pointed out:

> The efficiency of any profession depends in large measure upon the degree to which it becomes scientific. The profession of teaching will improve (1) in proportion as its members direct their daily work by the scientific spirit and methods, that is by honest, open-minded consideration of facts, by freedom from superstitions, fancies or unverified guesses, and (2) in proportion as the leaders in education

> direct their choices of methods by the results of scientific investigation rather than by general opinion. (p. 257)

This study was conducted in the hopes of contributing to the ongoing professional discourse regarding research standards and educational decision-making.

APPENDIX A

Semi-Structured Interview Questions:

- Please describe the curricular selection process (in the most recent elementary reading or math curricular materials adoption) from start to finish.
- Do you have any guidelines, procedures or policy, in writing that guided the curricular selection process in your district?
- What would you say were the most influential factors that led to the selection of curricular materials that was made?
- What kinds of evidence was considered in the decision making process?
- Is there any information that you would have found useful in the curricular materials selection process but that you did not have access to?
- Would you say that any particular philosophy or learning theory strongly influenced the selection process or limited the programs considered?
- What are your thoughts about the value of research in curricular selection?
- What resources do you know of to support the use of research in curricular materials selection?

APPENDIX B

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Vita Auctoris

Patty Poppe Polster was born and raised just outside of St. Louis in Valley Park, Missouri. She is the youngest of four children. She graduated from the University of Missouri St. Louis with a Bachelor of Science in Special Education. After her first two years teaching students with cross-categorical diagnoses at the secondary level, Patty left the field of education only to return a year later to work with elementary students on the autism spectrum. After the birth of her first child, Patty learned about applied behavior analysis and began a Master of Science in Behavior Analysis and Therapy at Southern Illinois University at Carbondale. She became a Board Certified Behavior Analyst in 2001 and maintains that certification today.

Patty spent the next several years teaching children with autism and/or supporting students, parents, and teachers in a consultative role. Now the mother of three, her interests have turned to educational effectiveness research, curricular programming, and general education instructional practices. She has spent three years as a school board member in a St. Louis County school district while working as a graduate assistant in the Department of Educational Leadership and Higher Education at St. Louis University. She hopes to find employment that will allow her to improve educational outcomes for students by supporting: the utilization of *research* in decision-making; the rigorous, collaborative, and systematic evaluation of instructional practices; the implementation of instructional programs that have strong evidence of effectiveness; and communication between educational researchers and practitioners to establish a common paradigm.