THE VARIATION IN TEACHERS' RESPONSES TO READING, WRITING, AND MATHEMATICS REFORMS

By

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ABSTRACT

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Taking a case method approach, this study explores four elementary school teachers' responses to recent reforms in reading, writing, and mathematics. It examines those responses along four dimensions: the relationship between reforms and past practice; teachers' learning about reforms; daily instruction; and assumptions about teaching and learning. The study is centered in teachers' classrooms, but it pushes out into school, district, state, and national contexts.

Two themes emerge. One is that responses to reforms vary across teachers and classrooms. This variation surfaces even when teachers work in the same context and attend the same opportunities to learn about reforms. The second theme is even more surprising. For not only do responses vary across teachers, but individual teachers' responses vary across reforms. Knowing how a teacher interprets reading reforms then guarantees no similar interpretation of mathematics or writing reforms.

Explaining the two forms of variation is challenging. One can see discrete evidence of individual factors (e.g., subject-specific knowledge, beliefs, and experiences), organizational factors (e.g., school and district settings and opportunities), and other influences (e.g., outside resources) throughout the study. But these factors also interact. How a teacher responds to a reform, how her response differs from other teachers' responses, and how her response in one subject differs from her responses in others, is best understood in the mix of individual, organizational, and extra-district factors. For example, a teacher who responds superficially to mathematics reforms may do so because she lacks the requisite knowledge, has few or weak resources for learning, works in a district where traditional mathematics knowledge and skills are emphasized, and she is

more interested in new reading practices. Another teacher might also have little knowledge of mathematics and few district incentives to change her practice, but she embraces reforms by pushing herself to confront those issues and work toward ambitious changes in her practice. Both examples show evidence of discrete factors. But more powerful insights emerge when one considers their interaction.

To Anne and Alexander

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TABLE OF CONTENTS

Chapter 1

Teachers and Reforms

Reforms[1] are "as American as apple pie" (Warren, 1989, p. 1). Since World War II, school and classroom reform efforts have been persistent and pervasive. That activity increased dramatically in the mid-1980's when reports like Nation at Risk (National Commission on Excellence in Education, 1983) portrayed America's public schools in serious decline. Many reforms look familiar. They tinker with regulations like student graduation credits and teacher certification standards. These reforms alter aspects of schooling, but leave important dimensions of teaching and learning largely untouched.

But this is changing. For a new breed of reforms--intellectually and pedagogically ambitious--is emerging. These subject matter initiatives are notable in at least three ways. First, they promote new educational goals. Where past efforts have alternatively aimed low or at selected students, these reforms express high academic standards and expect that all students will achieve them.[2] Second, the new reforms challenge teachers' modal knowledge, practices, and assumptions about subject matter knowledge, teaching, and learning. Prevailing approaches reflect traditional views: Knowledge is viewed as discrete bits which are sequential, hierarchical, and fixed. Teaching is didactic and emphasizes drill, practice, and assessment. Learning is passive, a reflex of teaching. Recent reforms in reading, writing, mathematics, and science challenge these views.[3] Reflecting constructivist thinking, they tender new views about knowledge, teaching, and learning.

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[1] I use both "policy" and "reform" to describe the range of new ideas and practices blowing through teachers' classrooms. When it is important, I make this distinction: "Policy" refers to those official actions or initiatives generated by sanctioned agencies within the educational governance system (e.g., state departments of education and local educational units); "reform" refers to those ideas and practices initiated from outside the formal governance structure (e.g., professional association guidelines, professional literature).

[2] These are notable in light of previous curriculum reform efforts. The basic skills reforms of the 1970's pushed academic standards downward, making "minimum competency" the goal. The subject matter reforms of the 1950's and 60's pushed strong academic goals, but only for the nation's top students.

[3] Social studies reforms have also been offered (Bradley Commission, 1989; California Board of Education, 1985a). These reforms share some views with their sister reforms, particularly in advocating active learning for students and strong subject matter knowledge for teachers. But the tendency to view knowledge as discrete and sequential prevails.

Knowledge is neither fixed nor hierarchical, but instead is constructed as individuals interact with ideas and one another. Teaching is no longer viewed as delivering material and supervising practice, but as guiding or facilitating learning. And learning is no longer viewed as passive, but as constructive where students develop understandings based on new information and the ideas, experiences, and theories they bring with them.

These reforms are notable in one other way. For not only are they different from past reforms and most teachers' practice, but they also promote a view of teaching and learning different from what most Americans experience. Ambitious instructional goals have been promoted in the past. But traditionally Americans have held modest expectations of their schools and students. The new reforms promote radically different expectations. As they are debated in schools and society, they may find ready and able supporters. But they may also find detractors who will cite them as too complex, too rigorous, or simply too naive.

The Study

This study looks at four Michigan elementary school teachers' responses to these new and challenging reforms. I concentrate on three areas: reading, writing, and mathematics. I describe each teacher's response along four dimensions: relationship between reforms and past practice, learning about reforms, daily instruction, and beliefs about teaching and learning. Comparing responses across the teachers and across the reforms provides insights into the various ways teachers interpret and manage reforms in their classrooms.

The Reform Context in Michigan

Before introducing the teachers, let me sketch the relevant state and district contexts. Michigan has traditionally had a weak state educational agency. The Michigan Department of Education began developing state curriculum policies and state assessment tests (Michigan Educational Assessment Program or MEAP) in the early 1970's. These were not widely influential, however. The curriculum policies were not mandated. The MEAP was required, but students did well and even though scores were reported, few educators interpreted them as important.

Instructional decisions were made primarily at local levels. Michigan school districts play a particularly important role for it is at the district level that most decisions about textbooks, curriculum guides, instructional time allotments, and tests are made. Districts differ widely in the degree and kind of influence they hold over teachers and schools. Hamilton, a large metropolitan district, maintains a powerful instructional guidance system rooted in traditional skills instruction: Pacing charts tie teachers to textbooks and tests for reading, mathematics, and science. By contrast, Derry maintains a laissez-faire approach. In this small, rural district, textbooks are adopted district-wide and the district administers standardized tests. But teachers have considerable instructional autonomy.

The national fever over education in the early 1980's fed numerous state-level efforts. Some states responded with expansive and inclusive legislative actions.[4] Others, like Michigan, responded in more moderate and piecemeal fashion. There the initial efforts came from the Michigan Department of Education and were focused on curriculum and assessment.[5] State department consultants, in collaboration with the subject matter professional organizations, drafted a new reading policy in 1986. New policies in writing and mathematics followed in 1988 and 1990 respectively.[6] They also revised the state assessment test (MEAP) to reflect the new policies.[7]

District responses varied (Spillane, 1993). Derry administrators embraced the first of these efforts, the new state reading policy. District-wide inservices were organized and a

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[4] Maine is a good example. Though a local control state, the Education Reform Act of 1984 included a host of new provisions: new graduation standards and teacher certification requirements, a new school improvement and accreditation process, a new state-wide assessment. It even included a $2000 "bonus" for every K-12 teacher. Other states that responded with legislative mandates include South Carolina and Texas.

[5] Michigan has since responded with Public Act 25, a comprehensive school improvement policy. PA 25 mandates, among other things, that each school district must produce measurable student outcomes, develop school improvement plans at both the school and district levels, produce school level annual performance reports, and have every school accredited by 1995.

[6] The policies were: Essential Goals and Objectives for Reading Education (Michigan State Board of Education, 1986); Essential Goals and Objectives for Writing (Michigan State Board of Education, 1988); and, Essential Goals and Objectives for Mathematics Education (Michigan State Board of Education, 1990). State department consultants also produced a health curriculum (the Michigan Model) and a new science policy (Michigan State Board of Education, 1991).

[7] The MEAP is given at grades 4, 7, and 10.

new literature-based reading textbook was adopted. The district responded less ambitiously to the mathematics and writing policies. A new mathematics textbook has been adopted, but there have been no district-wide professional development opportunities. The state writing policy has been virtually ignored. Hamilton administrators have been decidedly less enthusiastic about reforms from the beginning. The district reading coordinator tried to enlist interest in the new reading policy, but found few takers either at the district or school level.[8] The district did adopt a new English textbook which has the flavor of writing reforms. But it did so more as a matter of routine--replacing worn-out texts--than in response to the state initiative. Hamilton purchased new mathematics textbooks in 1988, but has taken no apparent action on the new state policy.

Teachers Respond to Reforms

With national, state, and local reforms all around them, each teacher in this study is responding to some type of new reading, writing, and mathematics initiative. The following vignettes provide a snapshot of their responses.

Bonnie Jones is a fifth grade teacher in a small, working-class school in Derry. After the death of her child, Ms Jones began an intense and expansive effort to transform her teaching. She eagerly embraces reading and mathematics reforms, but until recently, she ignored those in writing.

Ms Jones interprets all reforms as challenges to her traditional skills-based instruction and she aggressively pursues opportunities to learn about new ideas and practices. She has made several changes in her reading and mathematics teaching. Some appear added-on. But others, like using trade books[9] in reading and taking a conceptual approach in mathematics, are profound. In writing, however, Ms Jones maintains her traditional grammar instruction. She occasionally adds a reform-minded activity, but the bulk of her practice is little changed.

Beyond her daily instruction, Ms Jones is also questioning her basic assumptions about teaching and learning. Again there are differences, however. Her questions are deepest in reading. There she is making wholesale changes in her view of reading, her role as teacher, and her expectations of students. The questions are less deep and the changes less profound in mathematics and they are virtually non-existent in writing.

Frank Jensen teaches a combination third and fourth grade class in the same school. Mr Jensen's responses are much more modest. He appropriates the language of reforms, but his reading and mathematics instruction is quite conventional. Recently, however, Mr Jensen developed a writing project that reflects several reform ideas.

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[8] The district is currently piloting literature-based reading series.

[9] "Trade books" is a general term for fiction or non-fiction books written for school-aged children. Most often it refers to fictional texts used in reading instruction to supplement or supplant basal or textbook readers. These texts may be anything from a few pages designed for emergent readers to novel-length works for older students. The trade book label is also applied to non-fiction works, often around science or social studies topics.

Mr Jensen sees no significant differences between his practice and reading and mathematics reforms. In fact, he believes these reforms "justify" his approaches and he seeks no new learning opportunities. Mr Jensen has been more attentive to reading than mathematics reforms. He adds an occasional trade book and reading strategy. But most changes are added onto an instructional practice eclectic in the extreme. Beyond his talk, there is virtually no evidence of reforms in his mathematics teaching. In neither case is Mr Jensen examining his underlying beliefs about teaching and learning.

Some of the same could be said about writing reforms. But here Mr Jensen has moved more ambitiously. With assistance from his wife, the district reading coordinator, Mr Jensen developed an expansive writing project which integrated reading, social studies, and computer skills. Reform-minded aspects were present--an "authentic" writing task, using the "writing process." These pieces are quite different from his former practice. But other aspects suggest Mr Jensen has a limited understanding of the reforms. He reports being satisfied with the effort, however, and he has no plans to push the project or his practice any further.

Marie Irwin is a sixth grade teacher in a middle to upper-middle class school in Hamilton. Ms Irwin's responses also seem modest compared with Bonnie Jones. Her classroom practices remain largely conventional. Reforms are evident, but supplemental.

Ms Irwin's generally cautious response obscures the differences in her responses to individual reforms. She has been most ambitious in reading--using trade books, teaching skills in context, and abandoning ability-based reading groups. But Ms Irwin contends these reforms represent ideas she has believed for years. Reading reforms hold no challenge for her and she has sought no particular opportunities to learn more. This observation also holds for writing. But there, rather than assimilate reforms, she keeps them separate. Ms Irwin conducts some reform-minded activities, but they are kept to the side. Her instruction stresses mechanics. Different again is Ms Irwin's response to mathematics reforms. Until recently, she ignored them. She knew reforms presented a new approach to mathematics teaching. But her discomfort with mathematics and the district's emphasis on basic facts and procedures encouraged her avoidance. Last year, however, she began confronting her feelings and she is now considering a number of modest changes.

Marie Irwin's responses vary at the level of daily practice. But no evidence indicates she is pushing below that and exploring her basic assumptions about teaching and learning.

Paula Goddard teaches second grade in Hamilton, but in a very different school setting. Sheldon Court Academic Center is a public "alternative" school where students are poor and African-American. Teachers, parents, and administrators are committed to the school's strong disciplinary code and basic skills curriculum. Up until three years ago, Ms Goddard taught traditional reading, writing, and mathematics skills in traditional ways. She then experimented with new mathematics approaches, but recently returned to more conventional treatments. Her reading and writing instruction, however, continue to push toward reform-minded goals.

Ms Goddard responded eagerly to mathematics reforms. She took a university course, adopted several reform-minded practices, and seemed poised to make fundamental changes. A combination of school and personal factors, however, urged her to reverse course. Her practice today stresses mathematical rules and procedures. Ms Goddard is more attentive to reading and writing reforms. A new literature-based textbook, a university course, and her own children's positive experience in a "whole language" classroom abetted Ms Goddard's interest in reading. Numerous changes have resulted and, in her own way, Ms Goddard is reconstructing her reading practice and re-thinking her beliefs about teaching and learning. She avers similar goals in writing. But her interest there is brand new and her responses are just developing.

Variation in Teachers' Responses

Looking across the vignettes, I found several similarities. For example, teachers respond most ambitiously to reading reforms. Each teacher incorporates new texts and new instructional strategies. Reform-minded changes are also evident in writing, but they appear more tangential than those in reading. Frank Jensen aside, the teachers maintain their conventional writing instruction; new activities are add-ons. Finally, with the

exception of Bonnie Jones, teachers' responses to mathematics reforms are relatively weak. Frank Jensen ignores them completely. Marie Irwin did so until just recently. And after a trial run, Paula Goddard has settled back into a more conventional practice.

Beyond these broad similarities are conspicuous differences. First, teachers' interpret reforms and the relationship between reforms and their extant practices quite differently. Bonnie Jones views reforms as proposing a promising direction away from her current approaches. Frank Jensen, by contrast, views his practice as generally consistent with reforms. Second, what teachers believe they need to learn varies. Paula Goddard senses she has much to learn and she pursues a variety of opportunities. Marie Irwin is more sanguine. She seeks no learning opportunities in reading and writing, and it is not clear that she will do so in mathematics. Third, the instructional changes teachers make range broadly. Bonnie Jones and Paula Goddard are after big changes, especially in reading. Marie Irwin and Frank Jensen, though different, pursue more modest changes. Finally, though one could conclude that little change occurs below the level of daily practice, there are indications that reforms can provoke questions about traditional teaching and learning assumptions. But again this varies. Marie Irwin and Frank Jensen entertain no such questions; Bonnie Jones and Paula Goddard do.

The vignettes show similarities and differences <u>across</u> teachers and classrooms. But they also show variation <u>within</u> each individual teacher's responses across reforms. Thus Bonnie Jones's response to reading reforms varies from the other teachers'. It also varies from her response to writing reforms.

There are similarities within individual teachers' responses. Bonnie Jones may respond differently to reading and writing reforms, but her responses to reading and mathematics reforms share several commonalties. Similarities also appear across Frank Jensen's responses to reading and mathematics reforms. Paula Goddard seeks big changes in her reading practice and she declares similar intentions in writing. Marie Irwin's

responses to reading and writing reforms are quite different at a fine-grain level. But more generally, she aims to mix old and new.

Again, however, it is the differences that stand out. Consider Marie Irwin. Reading and writing reforms inspire no particular concern. She makes some changes in both areas, but she senses no profound incompatibilities between her views and reformers'. The situation is different with mathematics. Ms Irwin ignored mathematics reforms for years. She recently concluded, however, that reformers offer a new and different approach and that her practice is not in "sync." Among other things, Ms Irwin's personal discomfort with mathematics encouraged her to avoid reforms in the past. Her professional discomfort in knowing that her practice is out of "sync" now encourages her to entertain thoughts of reform-minded change. How she will proceed is not clear. But Ms Irwin's nascent interest in mathematics reforms illustrates how her responses differ from other teachers' and from her attention to other reforms.

The variation across teachers' reform responses is, in some sense, predictable.[10] More surprising is the variation within individual teachers' responses. This is no small point. For while several studies illustrate the first point (Cohen, Grant, Jennings, & Spillane, in preparation; Jennings, 1992; Porter, Floden, Freeman, Schmidt, & Schwille, 1988; Schwille, Porter, Belli, Floden, Freeman, Knappen, Kuhs, & Schmidt, 1983), virtually none recognize the second.[11]

I develop these themes of variation across teachers and within teachers through individual case studies. I chose these teachers because they represent a mix of students, grades, settings, and approaches to reforms. I chose reading, writing, and mathematics reforms because they are common: common school subjects, common subjects of reforms,

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[10] McLaughlin (1990) argues that variation is no longer considered an "anathema" to policymakers and that "local variability is the rule: uniformity is the exception" (p. 13).

[11] Others who have looked across teachers' practices, though not necessarily at their response to reforms, include Stodolsky (1988) and Wood, Cobb, & Yackel (1990).

and common across these four teachers.[12] In the cases, I construct portraits describing how teachers interpret reforms in relation to their past practice, what and how they learn about reforms, the influence of reforms on daily instruction, and how (if at all) their views of the subject matter, teaching, and learning have changed. Exploring these dimensions allows for comparisons across the four teachers' responses and within each individual teacher's responses.

Explaining Teachers' Varied Responses

Constructivist reforms promote new views of knowledge as constructed and mutable rather than fixed, teaching as guiding instead of telling, and learning as active rather than passive. But as the vignettes show, teachers' interpretations of and classroom responses to such challenges vary across teachers and within their individual responses. My study proposes to describe these responses and the differences among them and to offer explanations. I foreshadowed the teachers' responses in the vignettes above. I now preview possible explanations for their varied responses.

The nature of policy. One category of explanations centers on the nature of policy. Two conditions are relevant. One is the ambiguity of policy. Observers increasingly portray policy as ambiguous (Elmore, 1975; Kirst & Walker, 1971; Miles, 1978; Pressman & Wildavsky, 1974; Weatherly & Lipsky, 1977). Policy may set directions, define broad goals, and establish parameters. But policy is not sufficiently clear, coherent, or authoritative to ensure consistent interpretations or responses.[13] Rather than communicating a single message, policy is more likely to provide fodder for multiple, and even conflicting, interpretations.

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[12] Other reforms fit these criteria (e.g., science, health, cooperative learning). The Educational Policy and Practice Study (EPPS) which this dissertation is based on focuses on reading and mathematics. For more on this point, the decision to write case studies, and the selection of teachers and sites, see the Methodology appendix.

[13] Kingdon (1984) notes that the ambiguity which becomes problematic for those enacting policy is a necessary condition for those trying to get policy through the political process.

The second condition is the competition among policies. Competition comes in two forms. One is the competition among policies related to the same subject matter. In reading, for example, each teacher in this study encountered state policies like the Essential Goals and Objectives for Reading Education (Michigan State Board of Education, 1986) and the revised reading portion of the MEAP. But state policy holds no special privilege. Bonnie Jones and Paula Goddard also encountered national initiatives like Becoming a Nation of Readers (Anderson, Hiebert, Scott, Wilkenson, 1985). And all four teachers encountered local policies expressed through revised curriculum guides and new textbook adoptions.[14] These efforts may push a common constructivist view of reading. But that result is not assured.[15] Teachers who see only a new textbook may draw very different conclusions from colleagues who engage more substantive representations. The second form of competition among policies is between policies related to different subject matters. Though it is not always the case, teachers routinely respond to reforms in more than one area at a time. Bonnie Jones, for example, responds to health, science, cooperative learning, and outcomes-based education initiatives in addition to reading, writing, and mathematics reforms. As they decide what to attend to and how much attention to give, their individual decisions will likely contribute to a range of responses.

These conditions suggest that policy, by its nature, may inspire varied responses. Reformers expect their efforts will re-direct teachers' practice and make it more coherent and consistent. The effect seems to be just the reverse: Policy appears to foster greater variability rather than greater consistency. Policy may stimulate and support powerful changes. But the competition among policies for teachers' attention and the inherent ambiguity of policy suggests fertile ground for alternative responses.

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[14] This is also true in mathematics and writing. Teachers may encounter, for example, the state goals and objectives for mathematics and the revised mathematics section of the MEAP as well as efforts by the National Council for Teachers of Mathematics (1989; 1991) and local curriculum initiatives.

[15] A telling example comes in the case of the Michigan state efforts. Karen Wixson and Charles Peters, architects of the goals and objectives and the revised MEAP concede that the latter stands some distance from the former. See chapter 3 in Cohen et al. (in preparation).

Subject matter reforms. No where is this clearer than in the case of subject matter reforms. Educational policies dealing with regulatory matters (e.g., graduation and certification requirements) appear relatively straight-forward. Subject matter reforms are a different story. Recent initiatives are complex and require deep and profound changes in the conventional views most teachers hold of knowledge, teaching, and learning. These characteristics help explain the variation across teachers and within teachers.

Consider the scope of changes reforms ask teachers to make. The Michigan reading policy downplays conventional views of reading as "a series of skills" that are "sequential and hierarchical" and promotes a view of reading as a constructive activity emphasizing understanding (Wixson & Peters, 1984). The Michigan mathematics policy (Michigan State Board of Education, 1990) strikes a similar tone: "Conceptualization of mathematics and understanding of problems should be valued more highly than just correct solutions to routine exercises" (p. 3). This statement recalls the National Council of Teachers of Mathematics (1991) position that "learning occurs as students actively assimilate new information and experiences and construct their own meanings" (p. 2). The meanings students construct is also emphasized in the Michigan writing policy (Michigan State Board of Education, 1988). It advises, "Be primarily interested in the content, not the mechanics of expression....Perfection in mechanics develops slowly. Be patient" (p. 6). These reforms express constructivist worries about conventional views which treat knowledge as discrete, sequential, and fixed.

Reforms also challenge conventional views of teaching as telling. The NCTM Professional Standards (1991), for example, suggest, "Instead of the teacher doing virtually all of the talking, modeling, and explaining themselves, teachers must encourage and expect students to do more." (p. 36). To do that, reforms expect teachers will know their subject matters deeply and will develop rich instructional repertoires. The NCTM Curriculum and Evaluation Standards (1989), for example, cautions against using only traditional abstract or symbolic representations. It urges teachers use multiple

representations (e.g., manipulatives, diagrams, journals) and to emphasize problem-solving, estimation, and other mathematical strategies. Reading reforms advocate similarly rich instruction. Neither the Michigan reading policy (Michigan State Board of Education, 1986) nor Becoming a Nation of Readers (Anderson et al., 1985) advocate abandoning the ubiquitous basal reader. But both promote use of multiple text types (e.g., poetry, science fiction, biography, magazine articles, reference books) and instructional strategies (e.g., predicting, summarizing, accessing the reader's prior knowledge) aimed at helping students construct meaning. The assumption across all these reforms is that teachers who know their subjects well and build powerful instructional representations will be better able to meet all students' needs.

This assumption hints at constructivist views of learning. Creating rich learning opportunities where all students can draw on prior knowledge and experience is a common theme in reforms. Writing reforms, for example, advocate multiple and meaningful occasions for students to write--journals, stories, poetry, reports (Michigan State Board of Education, 1988). Mathematics reforms (National Council of Teachers of Mathematics, 1989) advocate "doing" mathematics where students have opportunities to "explore, develop, test, discuss, and apply ideas" (p. 17). In general, reforms promote occasions where students can engage substantive content, develop higher-order skills, and participate in active and shared learning experiences.

These reforms challenge modal practice. They call for teachers to know, think, and do very different things. But this call is problematic in at least two ways, both of which help explain why teachers' responses vary.

One problem is that these reforms do not prescribe all that teachers should know, what they should do, and how they should change their practice. Reforms provide direction. Rarely do they provide sufficient detail for teachers to engage the ideas deeply. In fact, the reforms themselves may contribute to teachers' varied interpretations. For one can easily

imagine teachers interpreting phrases like "constructing meaning" and "multiple representations" in very different ways.

Yet even if policies were more prescriptive, teachers would still construct varied responses. For teachers rarely encounter policies directly (Cohen & Ball, 1990). They more often encounter representations of policy like textbooks and tests. These representations are ubiquitous, but they do not necessarily reflect a coherent or astute sense of the reforms (Cohen & Ball, 1990; McDiarmid, Ball, & Anderson, 1989; Remillard, 1991).

Subject matter reforms present one other problem: They do not take into account the different knowledge teachers have of subject matters. Teachers' generally weak subject matter knowledge is widely recognized (Holmes Group, 1986; Kerr, 1983; Lanier & Little, 1986). Reforms expect teachers will know more about the subjects they teach: Without that knowledge, changes may be thin and prone to misrepresentation (Heaton, 1993; McDiarmid et al., 1989), or quickly abandoned (Richardson, Anders, Tidwell, & Lloyd, 1991). But there is also the more specific issue of teachers' differential knowledge and experience. For example, most teachers are confident and competent readers. Few are so in mathematics or writing. Reading reforms may challenge a teacher's extant practice, but teachers know how to read. Teachers are less sanguine about knowing how to do mathematics (Ball, 1988; Ball & McDiarmid, 1990a) or how to write (Calkins, 1986; Graves, 1983). Reforms in these areas ask teachers to know and do things they have little experience with, and often many fears about.

These special problems of subject matter reforms promote rather than curb variation. Given few specifics, weak representations, and differential knowledge and experience, teachers are more likely to fall back on individual knowledge and experience. Doing so

helps them make sense of the reforms. But it also contributes to the cross-teacher and within-teacher variation.[16]

Learning. If subject matter reforms provide only general direction about where to go, they are even less specific about how to get there.[17] Another category of explanations for teachers' varied responses emphasizes how teachers might learn to make the changes reforms demand.

Reformers might be excused for paying less attention to this aspect than one would expect. Re-educating thousands of teachers is an enormous challenge. There are few models worth emulating, and basic resources of time and money are rarely sufficient. But even if reformers knew what to do and had the resources to do it, the variation among teachers' responses would be scarcely decreased.

First, there is the matter of what teachers are to learn. Reforms represent a broad and expansive curriculum. Reading reforms, for example, promote new instructional goals, new kinds of text, new instructional strategies, new forms of assessment. Confronted with a blizzard of ideas, teachers are bound to attend more closely to some than others. Ambitious teachers who know what they want to learn will probably be able to find what they need. But many teachers will be confused and feel threatened. In those situations, less ambitious responses are likely.

A second issue concerns the resources for learning. Teachers have numerous occasions to learn about reforms. Textbooks, tests, university courses, and professional development opportunities are common learning resources. They offer the advantages of accessibility, familiarity, and occasions to think and talk with peers.

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16 Even if some of these issues were resolved fashion, teachers' responses would continue to vary. Knowing more about a subject, for example, may make one more conversant with others in the field. But it also guarantees that more rather than fewer interpretations will develop.

17 Two notable exceptions are the National Council of Teachers of Mathematics (1989; 1991) Standards project and the California frameworks in language arts (California Board of Education, 1987) and mathematics (California Board of Education, 1985b; 1992). The Michigan policies in reading, writing, and mathematics are considerably less prescriptive.

But resources can contribute to teachers' varied responses by sending multiple messages. Textbooks, for example, are a common vehicle for introducing reforms. Yet the typically thin treatments may support very different responses (Cohen & Ball, 1990; McDiarmid et al., 1989). Knowledgeable teachers can probably use their textbooks, along with ancillary materials, to advance ambitious goals. But those who prefer conventional approaches can probably use their texts toward more moderate ends. New tests work toward similarly diffuse aims. Revised assessments commonly accompany new curriculum policies. But as opportunities to learn new ideas and practices, they may be confusing (Corbett & Wilson, 1990; Wise, 1988). The Michigan reading policy promotes the notion of students as constructors of meaning. But the revised reading portion of the MEAP is a forced-choice assessment. Teachers could easily draw several different conclusions from this discord.[18] University courses tend to provide deeper and richer opportunities to study new ideas and practices. But university courses (in the disciplines and in education) are seldom good examples of constructivist teaching and learning (Cohen, 1989b): Most instructors lecture; most students listen passively; and the emphasis is on accumulating knowledge rather than constructing understanding (McKeachie, 1980; Sarason, 1977). Professional development programs are often little different. One can only wonder what sense teachers make of presenters who talk about constructing meaning but offer the attendees no opportunities to do so.[19]

Multiple messages contribute to teachers' varied responses. But even if these problems were resolved and all teachers learned from a single resource, they would still take away different understandings. For there are characteristic conditions of teaching and learning that inevitably contribute to multiple interpretations.

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18 This irony has not gone unnoticed by teachers. For more on this issue, see Chapter 3 in Cohen et al. (in preparation).

19 During the state conferences which accompanied the new Michigan reading policy, such sessions were common. One observer described the presenters as "talking heads" and the participants as "listening heads" (Cohen et al., in preparation).

Subject matter reforms push in two directions--away from old traditional ideas and toward new constructivist ideas. For most teachers, learning new ideas means abandoning or unlearning old ideas. This is no simple substitution for new information is not perceived purely. Instead it is processed and understood through our prior knowledge, dispositions, experiences (Fiske & Taylor, 1984; Resnick, 1987). This means new learning will invariably be shaped by old learning.

This condition has two implications. One is that the meanings each teacher constructs of reforms will reflect some measure of her past knowledge and practice. A second implication is related: If old learning shapes new learning, teachers may be disposed to conserve rather than change their ideas and practices (Nisbett & Ross, 1980). Old knowledge and beliefs can be strongly held and may adhere even when challenged. This does not mean teachers are unable to change their practices in important and fundamental ways. But it does mean that change in response to reforms is not guaranteed. Moreover, any changes that do result will likely occur in fits and starts, may look confused and inconsistent to observers, and will vary across teachers and reforms.

Individual factors. What teachers learn and how they learn are related to a larger category of explanations for their varied responses to reforms. That category centers on individual factors.

Individual factors are widely described in the literature on teaching.[20] They frequently get short shrift in the policy implementation literature, however, as organizational or structural factors receive more emphasis (Richardson, 1990). Some observers (Berman & McLaughlin, 1977; McDonnell & Elmore, 1987; McLaughlin, 1987; 1990) use the terms "capacity" and "will" as placeholders for teachers' individual factors or resources.

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[20] Those factors include personal knowledge and beliefs (Eisenhart, Shrum, Harding, & Cuthbert, 1988; Elbaz, 1983; Fenstermacher, 1979), dispositions (Buchmann, 1986; Zeichner, 1986), willingness to take risks (Meadows, 1990), professional experiences (Eisner, 1988; Lieberman & Miller, 1984; Lortie, 1975), personal and professional relationships (Dodd & Rosenbaum, 1986; Little, 1982; Little & McLaughlin, 1993; Lortie, 1975; Rosenholtz, 1991), and personal history or narrative (Carter, 1993; Connelly & Clandinin, 1990; Goodson, 1992).

"Capacity" describes what teachers know and believe, the subject matter knowledge and pedagogical skills they hold; "will" refers to teachers' determination or desire to act, where acting can mean behaviors leading alternatively toward and away from reforms. Hargreaves (1994) suggests both figure into teachers' varied responses to reforms: Understanding teachers' differential responses demands attention "not just to their capacity to change but also to their desires for change (and indeed for stability)" (p. 11).

The ideas behind terms like capacity and will help explain both forms of variation. As individual resources, it makes sense that what teachers know and are willing to do would be differentially distributed. Most teachers face reforms knowing more about reading than they do about mathematics or writing. But this is not universally so. Moreover, what teachers know and believe about subject matters varies. For example, some are competent teachers of textbook-based reading skills, while others push more adventurous instruction by exploring literature and students' ideas. What teachers know and believe about mathematics and writing also varies.[21] Most teachers know little about mathematics and writing and they treat these subjects in pedantic ways, emphasizing rote accumulation of discrete knowledge and skills. But not all do. These capacity differences undoubtedly contribute to the varied responses across teachers and within teachers.

Teachers' varied responses also owe something to their will. Will can be an elusive construct for if one assumes any measure of human agency, will would seem to infuse all action and experience. But even a cursory look across teachers' responses suggests that they are differentially disposed toward reforms. These differences help explain the variation across teachers' responses. For example, Bonnie Jones is determined to reconstruct her current reading practices while Frank Jensen seems equally determined to maintain his. Differences in teacher's dispositions also help explain the variation in an

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[21] One might argue that, given their relatively weaker knowledge, the variation in teachers' mathematics and writing instruction are more subtle than in reading. Making that argument, however, requires a more fine-grained study than I have made.

individual teacher's responses across reforms. For example, while she avoids mathematics and is unwilling to change her mathematics practice, Marie Irwin is interested in literacy reforms and she willingly make changes in her reading and writing practices.

One can make analytic distinctions between factors like capacity and will. But as explanations, they work in tandem. A teacher's different responses to reading and mathematics reforms, for example, probably reflects subject-specific differences in her knowledge, beliefs, and experiences with the subject matter and her motivations, desires, and willingness to take risks. Extending this example, one can see how individual factors help explain the variation across teachers as well as within teachers' responses.

Organizational context. Individual factors are powerful explanations. But teachers do not work in a vacuum. Another category of explanations takes this fact into account by highlighting the organizational contexts in which teachers work.

Michigan is a local control state. There are identifiable units--schools, districts, department of education--but these units operate in loosely-jointed ways. The state education agency establishes curriculum and assessment policies, but has few tools to either induce or enforce compliance. Control over curriculum and instruction devolves to the over 500 local school districts. Hamilton and Derry, the districts represented in this study, illustrate two very different contexts. Central office administrators in Hamilton exert considerable control over curriculum, instruction, and assessment. The district instructional guidance system emphasizes traditional skills-based goals and administrators view recent reforms with a skeptical eye (Spillane, 1993). By contrast, central office administrators in Derry play a more circumspect role and provide more encouragement (at least in reading) for reform-minded practice (Jennings, 1992). This difference is important: The Derry teachers, Bonnie Jones and Frank Jensen, face considerably fewer institutional constraints than their peers, Marie Irwin and Paula Goddard, in Hamilton. The difference

in organizational climates may not help explain the variation in their individual responses across reforms, but it seems an obvious factor in the cross-teacher variation.[22]

Teacher autonomy. One last explanation focuses on the autonomous nature of teachers' work. Teachers work in bureaucratic systems, yet the influence of those systems does not reach evenly or consistently into each classroom (Meyer & Rowan, 1978; Rowan, 1990). Teaching, regardless of the district context, is a complex task generally performed in isolation (Cusick, 1983; Lortie, 1975). Teachers have little choice over some matters--the students they teach, the texts they receive, the tests they use. But over other matters--how they group students, if and how they use texts, what messages they draw from tests--they have considerable control (Lortie, 1975; Lipsky, 1980).

Autonomy helps explain both forms of variation in teachers' responses. The latitude each teacher has, even where bureaucratic controls seem tightest, contributes to the cross-teacher variation. The two Hamilton teachers, Marie Irwin and Paula Goddard, work under common instructional constraints, yet their responses to reforms vary in several ways. Autonomy also figures into the variation within a teacher's responses. For the latitude that allows Bonnie Jones to embrace mathematics reforms while Frank Jensen ignored them, also helps explain why Ms Jones could ignore writing reforms. Teachers' autonomy is not absolute in any sense. But as a characteristic feature of teaching, it figures into the different ways teachers manage their classrooms and respond to reforms.

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Each of these explanations percolates throughout the ensuing cases. The ambiguities of and competition among policies, differential knowledge of subject matter, the vagaries of learning, individual differences in capacity and will, differences in organizational contexts, and classroom autonomy all help explain the cross-teacher and within-teacher variations. Accounting for them individually is helpful.

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[22] Whether the variation in teachers' responses is less in states with more centralized governance structures is an empirical question which this study does not address.

But these explanations also interact. How a teacher responds--how she interprets reforms, if and how she learns about them, what changes (if any) she makes in her daily practice and in her assumptions about teaching and learning--is best understood through some mix of these explanations. For example, a teacher who responds superficially to mathematics reforms may do so because she lacks the requisite knowledge, has few or weak resources for learning, works in a district where traditional mathematics knowledge and skills are emphasized, and she chooses to focus on new reading practices. Another teacher might also have little knowledge of mathematics and few district incentives to change her practice, but she embraces reforms by pushing herself to confront those issues and work toward ambitious changes in her practice. Both examples show evidence of discrete factors. But more powerful insights emerge when one considers their interaction.

These examples, taken together with the teacher vignettes, illustrate the complexity of teachers' responses and the explanations for the variation in those responses. Understanding those responses and how they vary contributes to our understanding of the relationship between curriculum policy and classroom practice.[23]

Structure of the Dissertation

Chapters 2-5 present the teacher case studies in two sets. The first two cases feature Bonnie Jones and Frank Jensen. Both teach at Donnelly-King Elementary in Derry, a rural, white, working-class district. Ms Jones teaches fifth grade; Mr Jensen teaches a split class of third and fourth graders. The second set of cases pairs two teachers in Hamilton, a medium-sized metropolitan area. Marie Irwin teaches sixth grade at Sanford Heights Elementary, a predominately white, middle to upper-middle class suburban school. Paula Goddard, a second grade teacher, teaches in the same school district, but in a very different school context. Ms Goddard teaches in the Sheldon Court Academic Center, an

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[23] The literature on this relationship is small, but growing. For classroom teachers' responses to the Michigan reading policy, see Cohen et al. (in preparation), Jennings (1992), Jennings & Grant (in press). For teachers' responses to the California mathematics policy, see the case studies presented in Volume 12 of Educational Evaluation and Policy Analysis and Volume 93 of Elementary School Journal.

"alternative," inner-city school whose students are African-American and poor. Preceding each set of cases is a prologue describing the schools and communities and establishing the local context of reform. Pairing the cases this way provides a rough screen for the myriad contextual variables that might arise in more diverse settings.

The cases describe each teacher's responses to reading, writing, and mathematics reforms. At the end of each case, I compare the teacher's responses across reforms. In each case after the first, I also compare that teacher's responses with those preceding. Comparing responses this way elevates the two forms of variation. Chapter 6 highlights the variation across teachers and reforms and purports to explain it. That explanation pulls from those outlined above and emphasizes the interaction of the several factors. I conclude the chapter with some thoughts about the implications of this study.

Prologue

The Derry School District and Donnelly-King Elementary School

Bonnie Jones and Frank Jensen teach in a small K-6 school, Donnelly-King Elementary, in the farming community of Lewis. Both are teachers of some considerable experience. Ms Jones, a fifth grade teacher, has taught for over 20 years. Mr Jensen, who teaches a combination class of third and fourth graders, has taught for 13 years.[1] Though they teach but 40 feet from one another, their individual responses to the new district reading textbook suggest they are teachers of different sorts.

Lewis is an idle, little town. Quiet streets lie at right angles to the county road which bisects the town. Modest single family homes and marginal farming enterprises prevail. The business district is a single street dominated by a large grain elevator on one end and two bars on the other. The few other establishments are non-descript and economically marginal. Inhabitants who don't work the land, work in durable goods industries in larger area communities. The former school principal, no fan of small town life, likes to tell the story of one of the school's original teachers. She lived her entire life in Lewis and rarely traveled. When she returned from a visit with a friend in New York City, her first stop was at the Donnelly-King principal's office. "Mr Adams," she announced, "I've discovered the most amazing thing. Lewis is just a piss ant little town!" (Adams interview, 11/23/91).

Donnelly-King Elementary is located just off the main street. The odd appearance of the school comes from the joining of the old section--a one storied, slope-roofed structure studded with skylights--with the new section, a two-story, flat-roofed gymnasium. The visual incongruities resume inside. The institutional greens and blues of most schools have no home here. Instead, orange-red walls and red-orange carpeting outfit one long corridor.

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[1] Mr Jensen has also served as an elementary school principal.

The gymnasium is done up in shades of turquoise. Classrooms walls, generally beige, provide a welcome respite.

The 300 students are virtually all Eastern European Caucasian and from working class families. There are two classrooms for each grade K-6; two additional classrooms house students with special needs bussed in from other towns in the Derry district. Class sizes are moderate--Ms Jones and Mr Jensen each have under 25 students. Students are bright-eyed, cheery, cooperative. Parents tend to support teachers' efforts, the district superintendent reported, but have low expectations of their children's abilities. The Donnelly-King principal faces neither severe behavioral problems nor the drugs and violence that confront his city school peers.

Common opinion in the Derry district holds that Donnelly-King Elementary is a "progressive" school. The superintendent[2] applies this label due to the staff's eager embrace of the state mandated school improvement process.[3] The faculty is involved to various degrees, but all attend a monthly school improvement team meeting. The district reading coordinator, Teresa Jensen[4], also describes Donnelly-King as "progressive." She played a substantial role in developing and disseminating state level reforms of reading. She feels the Donnelly-King staff has responded positively to the directions state reformers' envision. For example, when the new state assessment tests indicated that Donnelly-King students had trouble answering questions about non-fiction or informational text, several members of the staff asked Ms Jensen to meet with them on a regular basis to help them attend to the problem.

In fact, there are a wide range of reforms at hand in the Derry district. Many are curriculum related. State-level reforms in the definition, goals and objectives, and assessment of reading were initiated in the mid-1980's. More recently, reforms in state

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2 A new superintendent has since been hired.

3 There are four elementary schools in the Derry school district. Donnelly-King is acknowledged as the most progressive of the group.

4 Teresa Jensen and Frank Jensen are married.

writing goals and mathematics goals and assessment tests have been introduced. A new state health education policy has been developed and a state science curriculum is anticipated within the next year. Another state initiative, Public Act 25, is a comprehensive school improvement policy. PA 25 directs local attention to student outcomes, school improvement plans, annual school performance reports, and school accreditation.

These state reforms have been variously addressed by district administrators. For example, they embraced reading reforms while virtually ignoring writing. Attention to subject matter reforms tends to come through new district textbook adoptions. Committees of teachers and administrators convene, choose a slate of texts to be piloted, review the results of the pilots, and chose a single textbook series to be used in all classrooms. A reading text was chosen in 1990. A new math textbook series was recently selected; new science texts may be chosen within two years.[5] With each textbook adoption, the district contracts with the publisher for teacher workshops to introduce the text, demonstrate lessons, and answer questions. There are rarely any follow-up or extended inservice opportunities provided. District administrators have sponsored local initiatives beyond purchasing textbooks and sponsoring publisher inservices. One of these initiatives was the week-long inservice, "Reading Update," developed by the Teresa Jensen.[6] The other initiative is in response to PA 25. Derry administrators, working with colleagues in other Sheridan county districts, adopted the Outcomes Driven Developmental Model (ODDM) developed by William Glasser (Glasser, 1990). ODDM consists of four components: cooperative learning, self-esteem, responsibility training, and mastery learning. A planning committee met over the 1991-92 school year. An on-going series of workshops and inservices are planned for the next several years.

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5 The district English series has not been up-dated since the mid-1980's.

6 Teresa Jensen is highly respected within the district by teachers and administrators alike. Her responsibilities, however, lie solely within the field of literacy. There are no other curriculum specialists in this district. It is perhaps not surprising then that district level inservices are rare in areas other than reading.

Beyond these district level initiatives, the Donnelly-King staff has supported school-wide programs. As noted, several teachers meet regularly to develop plans to address students' difficulties with informational text. Other teachers run the school-wide CRUMP books program. Introduced seven years ago to promote reading, monies are solicited to purchase classroom sets of trade books. Students read and vote for their favorite books in a school-wide referendum. The "winners" are announced in an all-school assembly and the titles are inscribed on plaques. To further promote student reading, the faculty voted a year ago to devote a week each term to a DEAR (Drop Everything and Read) program. Each day of that week an announcement from the office alerts students, teachers, and school staff that it is "DEAR time." All activity stops and everyone reads from a selection of her or his choice for 30 minutes.

State, district, and school-level reforms vie for teachers' attention. These initiatives influence teachers' work. But teachers do not attend equally or consistently. Instead, their responses vary across reforms and across teachers. The cases which follow detail how Bonnie Jones and Frank Jensen manage reforms inside and outside their classrooms. For comparative purposes, I focus on reforms in reading, writing, and mathematics. I describe the teachers' responses by examining their views of reforms in relation to their past practice, learning, daily instruction, and assumptions about teaching and learning.

Chapter 2

Going It Alone:
The Case of Bonnie Jones

Bonnie Jones is a reformer's dream: She hears the call to reform and she is changing her teaching in profound ways. As the vignette in Chapter 1 suggests, Ms Jones asks hard questions of her reading and mathematics practice. She learns about and tries new approaches. She risks failing. Her response to writing reforms is more muted. Changes are less obvious and more fragile. But rather than a "failure," this example illustrates the complex variation in teachers' responses to reforms.

This is a case of a teacher who pushes toward reforms. But it is also a case of the difficulties she faces. Bonnie Jones is managing deep changes on multiple fronts. She is unsure of what she knows and how she will learn. She is convinced reforms offer powerful possibilities yet she worries about realizing them. She has considerable classroom autonomy, but she feels her efforts go misunderstood and unsupported. Bonnie Jones pushes on. But she does so feeling alone and uncertain.

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Bonnie Jones is a middle-aged woman whose dress is stylish, but comfortable--slacks, blouses, and sweaters in conservative colors. Her eyes, however, command attention. Magnified by the convex lenses in her designer glasses, they dance with energy and animation. Her talk is just as animated. Delivered at a staccato pace, it comes both in one word answers and in multiple paragraph expositions. She masks no feelings, taking pride in delivering "honest" (though occasionally dramatic) assessments of herself and others.

Ms Jones lives the life of her eyes and her talk. She pushes the school day in both directions--starting earlier and staying later than many of her peers. Her school days regularly end after 5 p.m. She often goes back to her classroom on Sundays to prepare for the coming week. Before and after school, she negotiates the blizzard of activities--locating and preparing materials for class, participating in a variety of school and district meetings,

talking to and counseling students and their parents--that define the less obvious aspects of teaching. While the children are there, Ms Jones is constantly on the move. She teaches from points all over the room, sitting at her desk only to attend to the bureaucratic tasks of taking attendance and recording lunch counts. Students move too. Using a variety of grouping strategies, bodies and furniture move throughout the day.

Bonnie Jones is also active outside her school and district. She belongs to state and national professional organizations[1] and regularly attends regional and state workshops and conferences, usually at her own expense. Moreover, she has been working on an advanced teaching credential, taking a steady diet of college courses for the past two years. And going home at the end of a long day is often like going to a second job. Ms Jones manages the home lives of two young children and the bookkeeping chores of her husband's carpentry business.

Her classroom testifies to her interests and energies. One could map the reforms Bonnie Jones attends to by surveying her room. Posters cover the walls. Many are hand-lettered and come from workshop ideas she has appropriated. From the "Keys to Motivation" and "Positive Reactions to Hostile Situations" workshops, for example, she made a series of "thoughts" posters: *It takes courage to take a risk. We are free to make mistakes. It is intelligent to ask for help. Everything is hard before it is easy. You are valuable. You are unique. Praise yourself.*

Other posters are commercially produced and reflect other workshop ideas. A "Problem-Solving Strategies" poster offers this rubric: understand the problem, solve the problem, answer the problem, evaluate the answer. "Fix-Up Strategies" urge students to slow down, continue reading, re-read, use maps and other aids, use glossary/dictionary, ask another student, ask the teacher. "Progress Charts" log the number of books students read.

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[1] Ms Jones belongs to the state math and computer associations and to the state and international reading associations.

Reading reforms are represented in cupboards overflowing with battered classroom sets trade books. A small, but growing, pile of science models, equipment, and books testifies to Bonnie Jones's interest in "hands-on" science and the Michigan Model, the state health curriculum. Her interest in mathematics is evidenced by the stacked crates of mathematics manipulatives, calculators, and the like in every corner. Amidst this mountain of educational stuff are collections of students' work--a timeline of the events of the Civil War hangs from the ceiling, tessellation drawings sit on a table waiting to be displayed, carefully constructed graphs of students' heights and weights, number of siblings, average hours of television watched hang behind Ms Jones's desk.[2]

From these observations, one might imagine Bonnie Jones has always taught in ambitious ways. Not so. Ms Jones reports being a very different sort of teacher before the "cycle of change" began around the new state reading definition in the mid-1980's.

"I used to be known as 'the ditto queen,'" Bonnie Jones explained.[3] She spent her time assigning, collecting, and correcting worksheets and workbook pages of skills exercises. "I was only doing what I was taught and what the research said," she explained, "In those days, it was all skills and I really got into those skills." Then, Ms Jones was the acknowledged expert--"the almighty teacher." She took pride in her ability to smoothly manage a wide array of tasks. Students were quiet and "on-task," papers moved efficiently between her and the students, and she kept up with the correcting and recording of grades. The accumulating evidence--piles of completed work and record books filled with grades--testified to her teaching and her students' learning.

About the time district reading coordinator Teresa Jensen began promoting the new state definition of reading, Ms Jones reached a personal and professional flash point. A

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[2] On top of this fire marshal's nightmare, Ms Jones' classroom is populated with a plague of frogs--frog drawings, frog planters, frog balloons, posters, wall-hangings, figurines. Ms Jones' predilection for frogs is well-known and well-supported; she claims not to have purchased any of the dozens in her classroom or in the boxes catalogued and stored in her attic. "People just know that I really like them," she said, "so they give them to me all the time."

[3] Unless otherwise indicated, all quotes are Bonnie Jones's and come from interviews done between 1991-1993.

string of difficult family circumstances--separation and divorce from an abusive husband, a new marriage, and the death of her middle child--left her shaken both personally and professionally.

> I guess maybe the biggest thing is nine years ago my son died. The night before he died, the doctor told me there was nothing wrong with him. I said there is something wrong and he said it was all in my head. And the next day, when I was holding a dead baby in the emergency room and the doctor saw it. I said to the doctor, "I told you there was something wrong." He said, "I should have believed you." And it was then that I started to think that you can't always trust the experts....So I guess I started questioning everything. I started questioning my faith, my teaching, the experts, and it just seemed like the world started to change. Things just took on a different perspective. (interview, 4/23/92)

Ms Jones's personal struggles continued when her marriage later broke up. "When I separated from my [first] husband," she said, "I just started backing away from classes, conferences, and everything as my life fell apart." Her retrenchment took two directions. Pedagogically, she pulled back, closing the classroom door and continuing her familiar and safe skills-based instruction. She pulled back socially as well, distancing herself from her colleagues and retreating into her family.

Once her personal life settled, Ms Jones re-examined her teaching. Unhappily she saw:

> My career was falling apart; the kids weren't achieving and I didn't care....I was burned out. I was frustrated. I knew something had to change, but I didn't know what....Then I thought maybe this [the new reading definition] was something I could try. It was there and what I was doing was shit. (interview, 3/4/92)

Personal and professional needs drive Bonnie Jones's current interest in reforms. Today Ms Jones is a teacher driven to ask big questions of herself and her teaching and to undertake big changes. Some of those changes are in her daily instruction: new curriculum materials, new teaching strategies, new ways of organizing students. Others lie deeper. For Ms Jones is changing not only her daily practice, but her underlying assumptions about subject matter, teaching, and learning as well. These changes cost time, energy, and money. They also cost comfort and certainty. Ms Jones trusts that her ambitious response to reforms is right. Reforms offer a vision of what can be. But that

vision carries heavy demands. Bonnie Jones embraces that vision. Pursuing it, however, is no mean feat.

Responding to Reforms

The geography of Bonnie Jones's classroom maps a range of reforms. Subject matter reforms--trade books, mathematical manipulatives, science models--figure prominently in the physical and intellectual environment of her classroom. Not represented, but also important are reforms in writing, classroom organization, cooperative learning, and outcomes-based education.

But Bonnie Jones does not attend to every reform. Though it seems she never met a reform she didn't like, Ms Jones's appetite is bounded. She gives no attention, for example, to new ideas about teaching history in social studies, to using student portfolios for assessment, to plans to develop a state-wide proficiency test. This observation does not obviate her future interest in these issues. It only notes that her current interests are but subset of those possible.

As noted in Chapter 1, teachers' responses to reforms vary. The cross-teacher variation will become more apparent in succeeding chapters. Here I concentrate on the variation in Bonnie Jones's responses across reforms. A range of actions is available and Ms Jones feels no compunction to treat all reforms equally. Some, like those in writing and science, she knew about but ignored until recently. Others, like the district outcomes-based education initiative, she attends to, but only perfunctorily. Still others, she absorbs into her current practice. In these instances, the new approach is evident, but it is tacked onto her pre-existing practice. Ms Jones's currently manages writing and health education reforms in this way. Finally, some reforms figure into a fundamental re-ordering of Bonnie Jones's teaching. Here, she makes profound changes in her extant thinking and instruction. The end result is a pedagogy that looks like a strong version of the reforms and stands in striking contrast to her past practice.

Bonnie Jones embraces most reforms. But doing so does not mean she is always confident or comfortable. First, she finds herself constantly thinking about and justifying (to herself and others) her actions. Those actions are made more difficult by the regularities of teaching--time constraints, content coverage, assessment pressures. Engaging reforms causes ripples throughout Ms Jones's practice: Lessons take longer, less content is "covered," disjunctures between her teaching and standardized assessments grow. Second, reforms provoke profound questions about purposes for teaching, conceptions of subject matter, views about learning and learners. Bonnie Jones's commitment to reconstructing her teaching means that she is not satisfied with superficial changes. But as she pushes further, deeply complex issues emerge. Pandora's box is open; managing what comes out is not easy. Ms Jones is willing. But she does so with a heightened sense of uncertainty that what she is doing is "right." Finally, Bonnie Jones's actions are not always understood or supported by her peers, administrators, parents, or students. Her response to the district reading textbook adoption is illustrative. Ms Jones believes the state policy offers a powerful new vision. By contrast, the district textbook, despite its promotion as "literature-based,"[4] is "pretty weak." Ms Jones asked to use textbook monies to purchase trade books. She was denied. Angered, Ms Jones is still willing to push her reading instruction toward reforms. But she feels she is doing so largely on her own.

I take up explanations of <u>why</u> Bonnie Jones responds to reforms as she does in Chapter 6. The question of <u>how</u> she manages is the focus of this chapter. In the next sections, I examine how Bonnie Jones responds to reforms in reading, mathematics, and writing. In each instance, I look at the relationship between reforms and Ms Jones's past practice, her daily instruction, and her conceptions of subject matter, teaching, and learning. I pull these reforms from the larger pool for three reasons. First, Ms Jones

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[4] "Literature-based" is a publishers' term which means that instead of text selections written by in-house editors to conform to vocabulary and readability formulas, selections are composed of passages taken from children's literature and, occasionally, literature classics.

invests considerable effort attending to these reforms. Second, these are subjects common to school classrooms and, as such, are targets of recent state and national reforms. Finally, as common subjects, these areas provide good sites for exploring and comparing teachers' responses.

Responding to Reading Reforms

Bonnie Jones uses old sets of trade books in place of the new textbook. But is this decision an act of pique, a superficial change in an otherwise conventional practice, a piece of a larger effort to transform her reading practice? I argue for the latter. Abandoning textbooks and adopting trade books has important implications both for Ms Jones's daily instruction and for deeper questions of subject matter, teaching, and learning.

Reading reforms. Bonnie Jones dates her current interest in reforms from the state's effort in reading. The Michigan reading policy reflects a new breed of state policies (Cohen et al., in preparation; Jennings, 1992; Spillane, 1993). These policies differ from standard state fare in two ways. First, they focus on teaching and learning rather than regulatory or accountability issues such as teacher certification, graduation requirements, or school accreditation. Second, they call for more ambitious approaches to teaching and learning than the basic skills efforts states pushed in the 1970's. These policies[5] challenge much of what teachers believe and practice and call for radical shifts in what they know and do in their classrooms.

The state policy in Michigan has two principal components. One is a new definition of reading and revised goals and objectives (Michigan State Board of Education, 1986). The new definition states:

> Reading is the process of constructing meaning through the dynamic interaction among: the reader's existing knowledge, the information suggested by the written language, and the context of the reading situation. (p. 1)

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[5] Other states, such as California, South Carolina and New York, are also using curriculum policy as a means of promoting new and richer visions of teaching and learning.

The former definition, reflecting a traditional view, portrayed reading as a series of isolated skills which students used to apprehend the "real" meaning of a text (Wixson & Peters, 1984). The new definition, and the attendant goals and objectives, casts teaching and learning reading in a much different light. Reflecting a constructivist perspective, the definition suggests that comprehension, rather than skills development, is the fundamental reading goal. It emphasizes the interaction between students, texts, and the context of reading. It encourages use of various texts--novels, poems, magazine articles--rather than sole dependence on reading basals. It promotes instruction in cognitive reading strategies such as predicting, summarizing, comparing and contrasting. And it concludes that students act as constructors of meaning.

The other component of the Michigan reading policy is the revised state assessment test, the Michigan Educational Assessment Program (MEAP). After the state board endorsed the new definition and goals and objectives, the reading portion of the MEAP was redesigned. The previous text looked like most standardized assessments: short reading selections; a few, largely literal, comprehension questions; and a wealth of skills-based questions (e.g., alphabetizing, identifying prefixes and suffixes, homonyms and antonyms). The revised MEAP represents the vision of reading offered in the new state curriculum policy. Longer text selections, and selections from both narrative and informational sources, reflect more realistic reading contexts. New forms of questions assess not only students' comprehension of the text, but also their familiarity with the topics of the selected texts, their knowledge about and attitudes toward reading, and their perceptions of themselves as readers. The comprehension questions also look different than those on conventional standardized tests. They ask students to use their prior knowledge of the topic and to dig deeper into the selections for more sophisticated understandings.

The Michigan policy emerged in the mid-1980's amidst a flurry of activity around reading. Other state policies (California Board of Education, 1987), national reports

(Anderson et al., 1985; Goodman, Shannon, Freeman, & Murphy, 1988), and the professional literature push in roughly the same direction--toward using richer texts, teaching reading strategies, viewing students as constructors of meaning, and promoting reading for understanding. While pushing toward constructivist approaches to reading, reforms simultaneously push against traditional skills-based approaches. To talk of "reading reforms" then is to talk about a collection of ideas and practices that advance a common direction by addressing a set of shared concerns, using a shared language, and identifying past approaches as inadequate.

But reforms and reformers are not univocal. Those who promote new views often emphasize different aspects. Cognitive psychologists focus on the strategies students use (Baker & Brown, 1984; Paris, Cross, & Lipson, 1984; Paris, Wasik, & Turner, 1991). Others focus on the kinds of texts students read (Goodman et al., 1988; Harris, 1993; Hiebert & Colt, 1989). Still others advocate integrating reading with other language arts (e.g., writing, spelling) in what is knows as "whole language" (Altwerger, Edelsky, & Flores, 1987; Cazden, 1992; Goodman, 1986). Reformers have not silenced proponents of conventional skills-based views of reading instruction (Adams, 1989; Adams, 1990; Chall, 1983). Moreover, the reformers' vision can be read in many ways. The Michigan policy, for example, places a premium on students as constructors of meaning. The "Constructing Meaning" portion of the revised MEAP, however, is in a multiple-choice format. One could logically infer that, while students might construct a range of meanings, there is still a "right" meaning (Cohen et al., in preparation).

With this range of ideas, it should not surprise that teachers, like their students, construct different meanings of the reading reform movement. Such is the case with the four teachers in this study. All four teachers have read the Michigan policy and two, Bonnie Jones and Paula Goddard, have read Becoming a Nation of Readers (Anderson et al., 1985) and some portion of the professional literature. Each of the four, however, also encountered new ideas about reading in other forms--textbooks, inservices, university

courses. In so doing, each teacher had a number of opportunities to learn about the new view of reading. But each also had the opportunity to construct varied interpretations of that view. Reading reforms have yielded an explosion of new ideas and new practices. But instead of making reading instruction more consistent across classrooms, the net result seems to be increased variability.

Learning about reforms. The new Michigan reading policy spoke powerfully to Bonnie Jones. Encountering the new definition during the district inservice led by Teresa Jensen, Ms Jones remembers her strong reaction to the notion of a "dynamic interaction" between students and text:

> It made sense because when I read, I subconsciously put myself in that character's place. And when I read, I live that character. I cry in the middle of the book or I laugh or I personally experience it. And if that's the way I read and the way I enjoy it, then this is what these kids should be having. They should be having this experience. (interview, 4/23/92)

Connecting her own experience as an adult reader with those her students "should be having" made a powerful impression. For years, Ms Jones taught reading through drill and practice, focusing on the word recognition and literal comprehension skills she found in her reading basal and student workbooks.[6] The new state policy seemed a radical departure from such practices.

Bonnie Jones's talk now sounds like an index of reforms: "reading strategies," "trade books," "text structures," and helping students "access their prior knowledge." She learned these ideas, most of which were unknown to her before learning of the new definition, through a number of sources.

Two of those sources are local. One was the week-long district inservice, "Reading Update," led by district reading coordinator, Teresa Jensen. There Bonnie Jones learned about the new state definition of reading, strategy instruction, narrative and expository text,

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6 Examples of word recognition skills include alphabetizing, identifying prefixes and suffixes, locating root words, and phonics. Literal comprehension questions include identifying main idea, recounting a sequence of events, identifying main characters, noting cause and effect. Durkin (1979) studied a number of elementary school reading practices and determined that very little time was given to comprehension instruction.

and the debate over textbooks and trade books. Another source was the Harcourt, Brace & Jovanovich (1988) textbook the district adopted two years later. Ms Jones refuses to use the textbook, but she attended the publisher-sponsored inservices. She felt, however, that beyond learning a couple of new reading strategies, the sessions were a "waste of time."

Sparked by the "Reading Update" inservice, Ms Jones increasingly looks outside the district to learn about reading. She joined both the Michigan Reading Association and the International Reading Association and attends a spate of yearly state conferences and workshops. She looks particularly for sessions on reading strategies, using trade books to teach reading across the curriculum, and changes in the reading section of the MEAP test. This extra effort is necessary, Bonnie Jones's feels, as school and district interest in reading dwindles. "It's died down," she said wryly, "ODDM[7] and science are hot now."

Reading reconsidered. Every fall Bonnie Jones distributes the district reading textbooks to her students. But the bindings are still uncracked. Ms Jones refuses to use them even though she admits they are an improvement over the former Scott, Foresman series. Instead, she uses classroom novels like The Midnight Fox which she purchased with CRUMP funds.[8] But substituting trade books for textbooks represents more than a change in curriculum materials. Also changing is her view of reading.

Before encountering reforms, Bonnie Jones held a familiar view of reading. Her "skills/word" perspective (Richardson et al., 1991) emphasized practice in discrete skills and extracting a literal interpretation of text. The "skills/word" or skills-based view reflects a traditional perspective that presumes that knowledge can be broken down into easily digested bits which one need accumulate in a fixed sequence. It also presumes the role of students as passive receivers of knowledge, the role of textbooks as the source of knowledge, and the role of teacher as expert technician, able to match students' needs with

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[7] ODDM stands for Outcomes-Driven Developmental Model, the outcomes-based education model developed by William Glasser (1990).

[8] Ms Jones has used CRUMP funds to purchase classroom sets of these novels: Stuart Little, My Side of the Mountain , Red Dog, and Cracker Johnson.

textbook prescriptions. In the context of reading, this view has several assumptions. For example, reading is a function of identifying individual words which carry meaning as they accumulate (Goodman et al., 1988). The process of identifying words can be decomposed into a seemingly endless list of discrete skills--identifying prefixes and suffixes, locating root words, using phonetic rules. These skills can be taught within rich and meaningful pieces of text. The assumption, however, is that they can be more efficiently taught through de-contextualized exercises and text, in the form of basal readers, written to highlight individual skills. "Knowing" how to read then is more a function of knowing how to identify individual words than of constructing rich and varied meanings.

Reading reforms call this view into question (Anderson et al., 1985; Michigan State Board of Education, 1986). Michigan reformers, Wixson and Peters, (1984) put the issue this way:

> ...reading was conceptualized as a series of skills that were viewed as sequential and hierarchical (e.g., literal, inferential, and applied comprehension)....While this view of reading was appropriate for that time, it no longer adequately reflects our knowledge of reading. (p. 1)

Bonnie Jones reacts strongly to reforms. She said, "What I heard was that everything was changing, and that all the things I had been doing for the last 16 years were rotten. And I agreed."

Ms Jones identifies several "rotten" elements in her past practice. One is the idea of reading being rooted in discrete skills. Where she once saw learning to read as a process of decoding and identifying words, Ms Jones now embraces the reform emphasis on "comprehension" and "the process of constructing meaning." One key to building comprehension are reading "strategies." In the constructivist view, "strategies" are approaches readers use to make sense of text or, as Smith (1979) notes, to read "directly for meaning" (p. 111). These strategies include predicting and summarizing, using context

clues, understanding text types and structures,[9] accessing students' prior knowledge (Paris et al., 1984; Paris et al., 1991). Good readers use strategies as ways of asking and answering questions of text, checking their understanding, comparing new ideas with previous experience (Anderson et al., 1985; Michigan State Board of Education, 1986). Strategic readers can identify words, but their purpose is understanding text.

Another "rotten" element is the text students read. This too is a prominent theme in the reading reform literature (Aiex, 1988; Anderson et al., 1985; Cullinan & Strickland, 1986; Goodman et al., 1988; Harris, 1993; Hiebert & Colt, 1989). Reformers appear of mixed minds about the role of textbook programs.[10] But they agree on the inclusion of more and more interesting text.[11] Students' understanding of story structures develops at an early age; they need rich and "meaningful" texts to facilitate that understanding (Anderson et al., 1985).

The Harcourt, Brace, Jovanovich textbook adopted by the district represents a change in that direction. It is advertised as a "literature-based" series and explicitly refers to reading "strategies." Bonnie Jones acknowledges this improvement. But she questions whether the texts really represent a new view of reading. The few references to reading strategies do not impress her: She contends they are presented much like the discrete and isolated skills in her old basal textbook. Ms Jones's criticism of the "literature-based" approach is even sharper. District administrators and many of her colleagues believe HBJ's approach reflects the call to enrich the text students read. Ms Jones is unconvinced: "To them it was literature-based. To me, that's not my interpretation of literature-based."

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9 Reflecting the Michigan reading policy, Ms Jones talks about two "types" of text--"narrative" and "informational." Text "structures" reflect these differences. Narrative texts can be dissected into "story maps"--the elements of the story such as theme, plot, characters, setting. Informational texts can be similarly analyzed into "semantic maps" which outline key terms and concepts, cause and effect relationships, and sequences of events (Michigan State Board of Education, 1986).

10 The issue of what to do about reading textbooks in light of reforms which advocate deeper and richer kinds of texts is illustrated in Cohen et al. (in preparation).

11 The number and types of text available to students is also a concern of those interested in writing reforms (Atwell, 1987; Calkins, 1986; Graves, 1983). Graves, for example, talks about the need to "surround the children with literature" (p. 65).

She interprets reforms as a call for students to read and discuss "real" literature (Goodman et al., 1988; Pearson, 1989). The selections in the textbook, she argues, are "watered down" and read like "basals." She said, "I mean, sure it's [the district text] literature-based; all the stories come from literature. But the book I wanted had full books in them." Ms Jones contends that using "full books" is important to students' understanding. Textbook selections of any sort are neither sufficiently rich nor complex to engage students' interest. She notes:

> When you talk about plot, sub-plots, character development, resolution, conclusion, I mean, sure, you can take a story that's only maybe 10 pages, but that seems to me superficial. I mean you're not really getting into the real meat of it. (interview, 1/17/92)

Of course, one might argue that length alone is a poor indication of whether or not there is any "meat" to a text. Here Ms Jones is reacting to the bland, vocabulary-controlled "stories" written by textbook editors she found in her basal readers. Written to emphasize one or more discrete skills, these stories offer little depth or richness from which to explore the elements of plot, sub-plot, and the like (Goodman et al., 1988). If she is to promote a new view of reading, Bonnie Jones believes she needs powerful texts. Her past experience with basal reading textbooks suggests they are a "rotten" resource.[12]

Bonnie Jones also takes aim at the traditional division between reading and other subject matters. Though it is not mentioned in the Michigan reading policy, teaching reading across the school day is a theme in the larger reading literature (Anderson, et al, 1985; Applebee, Langer, & Mullis, 1987). Ms Jones had always viewed reading as a separate subject, unrelated to any other part of the curriculum. She now embraces a reform perspective: Reading is a cross-disciplinary subject where students are taught how reading a content area textbook differs from reading other types of text and they are given opportunities to read books other than textbooks.

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[12] Sawyer (1987) argues that stories are the "heart of learning to read" and that children learn to read when they interact with "significant texts" (p. 34). Few would argue that standard basal readers qualify.

In identifying what is "rotten," Bonnie Jones illustrates her newly developing view of reading. Much of that view is centered in a new sense of purpose. Before the reforms, she held a largely utilitarian view: One learned to read in order to identify the words and understand the literal meaning of text. Her encounters with reforms, however, encourage her to think about her own experiences as a reader and about the notion of constructing meaning. She concludes, among other things, that learning to read has multiple purposes. Some of those purposes are technical. Learning reading strategies, for example, helps a reader understand and make sense of a piece of text. Other purposes are motivational. Reforms suggest that "good" readers are motivated to read and do so frequently (Anderson et al., 1985; Michigan State Board of Education, 1986). Ms Jones accepts this premise. "I realized that kids weren't reading books," she said, "And I wanted to bring out the joy and love and enthusiasm I have for reading."

Still other purposes concern the notion that reading is a way of connecting one's own life experiences with others'. Recall Ms Jones' statement about wanting students to have "experiences" with books similar to her own. This realization astounded her. She had had those experiences as a reader, but she never considered teaching reading to that end. Reforms convinced her that students benefit from connecting with text on personal levels, to "bring their own experiences from their lives and their past and relate it to the material."

One consequence is that Ms Jones now sees a role for interpretation in reading. Though this idea is central to the notion of constructing meaning, Ms Jones has come to it only recently. As a skills-based teacher, she was a textual fundamentalist: Text had a real authorial meaning and the purpose of reading was to apprehend it. The notion that one interprets text might have meant something to Bonnie Jones, the adult reader. As a teacher, however, she took extracting the "right" meaning as primary. In learning about students' needs to connect their experiences with the texts they are reading, Ms Jones acknowledges that students, in effect, interpret text:

> For [students] to understand those books [texts, reference books], they have to think and interpret. The books are there to give the information...But you have to interpret the information. (interview, 1/17/92)

It is not entirely clear what this means. The idea that students interpret text, and perhaps interpret it differently, is foreign to the kind of reading instruction Ms Jones knows. It raises profound questions about her past practice and, if she continues to pursue it, may mean profound changes in her future practice.

Bonnie Jones responds to reading reforms by radically overhauling her conception of reading as a school subject. Rejecting the skills-based view, she is headed toward a conception that emphasizes a constructivist view of knowledge. She makes understanding text or comprehension the goal of reading. She believes students need to learn reading strategies that go beyond word identification skills. She holds that students need substantive texts that go beyond worksheets and vocabulary-controlled basals. And she avers that students may construct meanings different from hers or from their peers'. These beliefs stand in stark contrast with the skills-based approaches she once held.

Bonnie Jones is opening up her practice on multiple fronts. Moreover, she is opening up enormous questions about the nature of reading and knowledge. This is a mighty effort and the consequences are several. One wonders, for example, if Ms Jones will have the time, energy, and inclination to continue learning about these ideas. Other initiatives, like the new state health curriculum, a new science curriculum, and outcomes-based education, call for attention. One also wonders what she will do with what she learns. In and around the new texts and strategies are very big questions about the nature, practice, and purposes of reading. Ms Jones's past practice allowed her to teach reading without having to think much about it. The kinds of questions she is now asking do not lend themselves to easy answers.

A look at current practice. Bonnie Jones talks about a new view of reading. But talk can be misleading, even under the best intentions. Much of her classroom reading instruction looks like reforms. But it is the look of instruction still in the making. Lessons

carry on, but there is a sense that both Ms Jones and her students are still learning new ways of interacting with one another and with text.

There are familiar elements here. Bonnie Jones leads the class. She directs the flow of discussion, asks most of the questions, provides many of the answers. But compared to elementary classrooms across the country, there is much new. Students talk with one another as well as with Ms Jones. They talk as a whole class and about a common text. And they talk about ideas and meanings in the text and from their own lives.

It was not always this way. For 20 years, Bonnie Jones taught reading in the prevailing skills-based fashion. She reports that discrete reading skills dominated her instruction; managing the flow of skills sheets occupied much of her attention. Students alternated between two work settings: individual seatwork and ability-based reading groups. They read little and what they did came from basal readers. They talked little and when they did it came during round robin reading and in their questions at the beginning of each new lesson. Textbooks and teacher's guides determined Ms Jones's practice. They defined the content to be taught, the instructional methods used, the tools of evaluation. They assured her she was teaching the "right" things and that students were learning. Ms Jones explained, "I had always done things exactly as the basal said...I just assumed that if the kid got an A, then he learned something."[13]

Elements of traditional practice remain. But in several ways, Bonnie Jones's reading practice looks much different today. A brief vignette from a recent lesson illustrates attention to several reforms:

> Just before lunch, Ms Jones asked the class to take out their copies of Midnight Fox. After directing them to turn to the chapter entitled, "One Fear," Ms Jones stopped and asked the students to take out their writing folders. Her instructions: "Please write a summary of what we've read so far." Several audible moans arose. She paused and said, "Okay, let's summarize it together; let's start at the beginning." A quick series of story line questions followed: "Why does Tom have to go to his aunt and uncle's farm? What does he think the farm will be like? What changed his mind?" Students flocked to volunteer confident, short answers. "Right," "Good," Ms Jones responded. Having quickly worked through the story

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[13] Goodman et al. (1988) contend that skills-based reading approaches are rooted in a view of learning based on E. L. Thorndike's Laws of Learning. These laws promote: tight sequences of skills built upon skills, constant drill and practice, a focus on identifying words before meaning, frequent testing (p. 98).

to date, Ms Jones said, "All right, you've got 5 minutes to write what the story is about." (observation, 12/2/91)

Several reforms are illustrated here. One is that all students read and discuss a piece of literature instead of a textbook. Bonnie Jones takes seriously the call to use richer and more challenging texts. Though she uses textbooks to teach content area reading strategies, she uses only children's literature, The Midnight Fox, during her reading period. Ms Jones knows that some students struggle with these texts and she worries about the few students who do not contribute frequently during class. But she believes that richer reading selections and more opportunities for students to talk about their ideas will elevate everyone's understanding.[14]

A related reform is evident in the use of whole class instruction rather than ability-based reading groups. When Ms Jones abandoned the district textbook in favor of trade books, she also abandoned ability-based reading groups in favor of whole class instruction. Until recently, Ms Jones organized her students, as is common practice, into 3-4 ability-based reading groups (Barr & Dreeben, 1983; Cazden, 1992). Group assignments reflected several factors: oral fluency, standardized test scores, past reading performance. Each group read from a different basal reader. The top group reads books beyond their grade level; the lowest group might be reading books 2-3 grade-levels below. Ms Jones met with each group each day. While working with one group, she assigned worksheet exercises or "seatwork" to the remainder of the class. Reforms like Becoming a Nation of Readers (Anderson, et al, 1985) challenge the practice of grouping students by ability. Accumulating evidence suggests that students in the "slow" groups not only read less challenging materials, but they also receive less instructional time. Moreover, classifying students as poor reader appears to seal their fate; students in low groups rarely break out of that categorization (Allington, 1980; Barr & Dreeben, 1983). Anderson and

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[14] The move from ability-based reading groups to whole class instruction has been advocated in some circles for many years. Recently, however, it has become a basic component of the reading reform movement (Pearson, 1989; Slavin, 1988)

his colleagues state, "The evidence suggests that ability grouping may improve the achievement of the fast child but not the slow child," (Anderson, et al., 1985, p. 89).[15]

A third reform, attention to reading strategies, is evident when Bonnie Jones asks students to summarize the story and, in this vignette from later in the same lesson, to predict what the "tragedy" will be.

> Ms Jones directed students to the last page of the previous chapter. "I want to get you back into the story," she explained, "Why would I have you turn to the last page of this chapter?" Jamie offered a prophetic response: "There is something there that will make you want to go on reading." Nodding, Ms Jones read the sentence, "That night, the tragedy of the black fox began."
>
> "Okay," she said, "turn your papers over and write what you think that tragedy is going to be." Students quickly engaged the task and offered several possibilities: the fox is shot by the uncle, the uncle traps the fox and her baby, the uncle finds the den and kills the black fox. "Is this the setting, the character, the problem, or the solution?" Ms Jones asked. Lisa suggested the "correct" answer: the problem. Ms Jones again nodded and turned to the chapter at hand. (observation, 12/2/91)

Summarizing and predicting are two reading strategies Bonnie Jones teaches as vehicles for making sense of text. Others include story mapping (i.e., understanding story elements such as setting, character, problem, solution) and using context clues (i.e., determining the meaning of a word by understanding the larger meaning around it). Though they have different functions, the purpose of reading strategies is to facilitate comprehension. In the first vignette, Ms Jones asks students to summarize the story as a way to check their understanding of the principal characters and events and to rekindle their interest in the story. In the second vignette, she asks students to predict the tragedy as a way to encourage speculation about possible outcomes which can then by checked by reading. Still another strategy, accessing prior knowledge, is apparent in this vignette:

> Ms Jones read the sentence: "It was like my food passage had suddenly shrunk to the size of a rubber band." She looked up from the book, asked the class what the term was for such a literary device, and appeared gratified when a student answered, "a simile." She asked if anyone had ever felt as though he or she could not swallow. Students readily offered examples: When about to throw up, when people tell jokes while you have food in your mouth, after finding a dead rabbit beside the road. Laughter, groans, and exclamations exploded throughout the room. Ms Jones eventually pulled the students back to the text, reading with enthusiasm and spirit; students followed intently. (observation, 12/2/91)

Here Bonnie Jones forges a connection between students' prior knowledge and experience and the lives of the characters. Doing so facilitates students' understanding of the story and

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[15] The evidence they cite comes from Kulick & Kulick (1982).

enlarges the role they play in their own learning. Ms Jones could teach these strategies using a series of worksheets. Doing so would be much faster, and time is an ever-present worry. One learns reading strategies, however, not to know how the strategy works, but to use it to construct meaning from the text.

The end of this particular lesson provided one additional insight into Bonnie Jones's embrace of reading reforms.

> The lesson ended, but before students could close their books, Ms Jones asked, "Would you study for a science test in a different way than for a test on Midnight Fox? Several students chorused, "Yes." Smiling, she continued, "Okay, what's SQ3R?" Jody answered: "Survey, question, read, reflect, respond." Ms Jones nodded and said, "Good. Please take out your science books. We're going to do a little surveying and questioning." (observation, 12/2/91)

Here Ms Jones suggests that a different type of text, an informational text like a science textbook, calls for a different reading strategy, SQ3R. But this also suggests a new sense of reading as a cross-disciplinary subject. Distinctions between "learning to read" and "reading to learn" (Sawyer, 1987) are less apparent as Ms Jones makes explicit references to reading strategies during her content area instruction and uses trade books to supplement textbooks. Until recently, Ms Jones's instruction in mathematics, science, and social studies centered exclusively on textbooks. She still uses them, but increasingly she draws from a growing trade book library.[16]

The approach to reading evident in these vignettes stands in some contrast to the skills-based focus that defined her reading practice for over 20 years. Put up against her past practice, it seems a revolution is occurring. But if so, it is colored by her past practice. For as rich as Bonnie Jones's reading instruction is, elements of traditional instruction remain.

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16 For example, Bonnie Jones uses the informational text, Tides at the Seashore and the narrative text, The Blue Lobster, during a unit on coastal biology. In mathematics, Ms Jones reads from books like Grandfather Tang and Anno's Multiplication Jar. For social studies lessons, she pulls in books on legends (e.g., Little Firefly) and historical fiction (e.g., A Cabin Faces West). Ms Jones also uses trade books to illustrate parts of speech in her grammar lessons. The book, Many Luscious Lollipops, for example, illustrates use of adjectives.

In another lesson from The Midnight Fox, for instance, Bonnie Jones distributed a conventional worksheet focused on recalling literal information. Many of the questions had the skills-based feel of a basal textbook:

> In Chapter 12, why was Aunt Millie so mad?
> How did this event affect Tom?
> On p. 104, why was Tom's nose all of a sudden running?

In the review which followed, Ms Jones concentrated on extracting "right" answers. There was no call for discussion or for alternative ideas, for example, when Melissa answered the first question with "because the fox killed the turkey eggs" and the second with "He was worried about the black fox." Nor was there any discussion around Peter's answer to the question about Tom's runny nose: "It always ran when he was scared." Ms Jones accepted these responses and moved on. Questions and answers were fixed, no discussion was necessary.

The second part of the worksheet looked even more conventional: Eleven fill-in-the-blank sentences with 11 "vocabulary" words to choose from. The words came from the Midnight Fox; the sentences, however, were unrelated to the text:

> Without a word we _____ the fence and walked along the sidewalk. (skirted)
> The baby was very _____ because he was cutting teeth. (displeased)
> At camp, the campers were told about an old Indian _____. (legend)

This exercise looks much like any textbook vocabulary lesson. Students need no knowledge of the story to answer the questions. Instead, a rudimentary understanding of the listed words is sufficient as each sentence is tailored for only one answer.

Still another example of conventional practice emerges in Bonnie Jones's approach to spelling. Reforms promote a variety of ideas about spelling (e.g., "invented" spelling, developing spelling lists from the texts students are using). Generally condemned, however, is the traditional practice of teaching de-contextualized lists of spelling words (Calkins, 1986). Bonnie Jones ignores this advice; her spelling instruction remains segregated. Conventionally structured, her speller offers 20 word lists organized around a specific spelling skill (e.g., words with -en, -on, -an endings--outspoken, sermon, villain).

As she has always done, Ms Jones discusses word meanings, assigns textbook exercises using the words, and tests on Friday. She now emphasizes reading strategies during some lessons (e.g., prior knowledge of words, context clues from sentences), but her focus remains on the spelling and meaning of these words apart from any meaningful context.[17]

A new view of teaching and learning reading. What is going on here? How should we think about a mix of practices that might variously be read as inconsistent, incoherent, or healthy? What do these illustrations suggest about possible changes in Bonnie Jones's conception of teaching and learning reading?

Several possibilities emerge. One is that Bonnie Jones is experimenting, trying out ideas and practices without committing fully. Another possibility is that Ms Jones is making real and potentially important changes in her daily instruction, but these are changes added-on at the margins of her practice. Yet another possibility is that Ms Jones is modifying some parts of her teaching, while leaving her underlying assumptions about teaching and learning reading unaffected. One other possibility is that she is transforming her daily practice, and along the way, is raising questions that go to the core of her beliefs about teaching, and learning. Depending on where and when one looks at Bonnie Jones's instruction, one or another of these possibilities might seem more appropriate. Her reading instruction is complex and is continually changing. Four years of watching her teach and listening to her talk about her practice convince me, however, that she is transforming both her daily practice and her conceptions of teaching and learning reading.

But this is a hard conjecture to substantiate. For Bonnie Jones's talk is about texts and strategies and comprehension. She does not talk about "conceptions of knowledge" and "underlying assumptions" about teaching and learning. Such things must be inferred.

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[17] The Michigan reading policy is silent on the issue of spelling instruction. The California English-Language Arts Framework (1987), by contrast, suggests that spelling be "integrated with the total language arts program so that spelling is taught in a reading and writing context" (p. 45).

Nevertheless, there are indications that something more than day-to-day changes is occurring.

First, Bonnie Jones's interpretations of reading reforms appear consistent with the common directions espoused. She learned about these directions through district and extra-district sources and the way she describes them suggests that she interprets them in sympathetic ways. She reads the reforms as distinctly different from her past practice and she resolves to make changes in the directions reformers advance. Second, Bonnie Jones continues to learn. She is satisfied neither with her understanding of the reforms nor the changes she has made. Ms Jones continues to seek out conferences and workshops on reading even though the press to learn about reforms in other areas makes this difficult. What seems especially interesting is that she attends these sessions as a learner rather than as a presenter. Rather than see herself as an expert who will now tell others how to do as she does, Ms Jones views herself as someone who needs to learn more.

Third, Bonnie Jones's receptivity to reforms hints at deep changes. Her classroom actions support that. Ms Jones manages an ambitious set of changes in her daily instruction--new texts, new instructional strategies, new grouping arrangements. These actions might be sufficient in and of themselves to support the claim that she is changing her assumptions about teaching and learning. But there are other indicators as well. One is the new purposes to which she teaches. Bonnie Jones once held a purely technical purpose for reading. It reflected the skills-based tradition and centered on the efficient and accurate identification of words and literal meanings. She now holds purposes which reflect the constructivist goal of reading for comprehension. Lessons focus on ideas and constructing meaning rather than on accumulating expertise in isolated skills. Her new purposes also include motivating students to be more frequent readers and more active constructors of meaning. These purposes speak to the new roles she and her students are learning to play. As the vignettes imply, Ms Jones is moving away from the kind of teacher who delivers instruction in discrete portions through worksheet and basal reader assignments. Instead,

she sees her role as helping students engage with text in a variety of ways (e.g., summarizing, predicting, accessing prior knowledge). This is a much different role than the one she played as a skills-based teacher. Students also have different roles. Instead of passively walking through their reading lessons, they are expected to play a more active role in their learning.

These changes suggest others. For example, the norms of interaction between Bonnie Jones and her students are changing. Lessons look increasingly like discussions rather than recitations. Students talk more, and more often with one another than in the past. And their talk is more about the ideas and events in the text and the connections to their own ideas and experiences. Also, the parameters of reading are changing. It is no longer a discrete subject taught with a specific set of materials and strategies. Reading is now a part of the entire school day.

Bundling these indications together still may not "prove" Bonnie Jones is revolutionizing her reading practice. But they do suggest a far rumble below the surface.

Responding to Mathematics Reforms

The "cycle of change" in Bonnie Jones's teaching began with reforms in reading. It now includes mathematics. Two years after her first encounter with reading reforms, Ms Jones began exploring mathematics. Here again, she is after big changes in her practice. But there are differences. In contrast with reading, Ms Jones's mathematics practice reflects a stronger conventional element and her efforts at re-examining her beliefs about teaching and learning are less clear.

Mathematics reforms. School mathematics has been the site of furious state and national activity since the early 1980's. Instead of promoting basic skills as reforms of the 1970's did, these initiatives advocate ambitious curriculum, instruction, and assessment standards. The National Council for Teachers of Mathematics captured much attention with a two volume set, Curriculum and Evaluation Standards for School Mathematics (National Council of Teachers of Mathematics, 1989) and Professional Standards for School

Mathematics (National Council of Teachers of Mathematics, 1991).[18] The Standards argue that "all students need to learn more, and often different, mathematics and that instruction in mathematics must be significantly revised" (National Council of Teachers of Mathematics, 1989, p. 1). Reformers in Michigan constructed a sympathetic new state policy, the Essential Goals and Objectives for Mathematics Education (Michigan State Board of Education, 1990) and began revising the mathematics portion of the state assessment test. Textbook companies and producers of curriculum materials have also retooled their lines.

As in reading , mathematics reforms cover a broad terrain. They challenge conventional approaches to teaching mathematics by offering new views of subject matter, learning, and teaching.

Mathematics is often perceived of as a collection of rules and routines, facts and procedures, which if correctly applied, yield the "right" answer. In school, mathematics is represented as tight sequences of fine-grained skills. Multiplying a two digit number by another two digit number, for example, is presented as a substantively different skill than multiplying by a single digit number. New views promote both conceptual and practical understanding of mathematics (Mathematical Sciences Educational Board, 1989; National Council of Teachers of Mathematics, 1989). As a conceptual field, mathematics involves the study of relationships, patterns, regularities. Examples range from "number sense" (the notion that one has a "feel" for how numbers behave when variously manipulated) to probability (the chance that a given event will occur) to the search for pi (Steen, 1990a). As a practical field, mathematics is concerned with "real world" applications such as deciding between a fixed or variable mortgage rate, determining the least amount of paint to buy for a household project, or understanding the effect of the prime interest rate on bank loans (Mathematical Sciences Educational Board, 1989; National Council of Teachers of

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[18] The authors of the Standards note that their work builds on a series of earlier statements (Conference Board of Mathematical Sciences, 1983; Conference Board of the Mathematical Sciences, 1983; Romberg, 1984) and are a response to the national call to reform teaching and learning expressed in A Nation at Risk (National Commission on Excellence in Education, 1983).

Mathematics, 1989). These applications may be of immediate use or more in the nature of an intellectual challenge.

Conceptual and practical applications merge when mathematics is considered from a "problem-solving" perspective. The focus is on rich, complex problems which can be approached from multiple angles (National Council of Teachers of Mathematics, 1989; Peterson, 1990). Problems provide a context for learning rules and procedures as well as problem-solving strategies such as estimation, mental math. Problems may have a "correct" solution, but more often than not, they are structured such that multiple solutions are viable. "Solving" problems in this context emphasizes conjecture, inquiry, debate, revision as opposed to efficiency and accuracy in finding answers (Lampert, 1990).

If mathematics has been perceived as a collection of rules and routines, then teaching mathematics has focused on telling. With knowledge divided into small, sequential bits, teachers were trained to organize and deliver that knowledge to students in didactic fashion. New views of mathematics teaching promote alternative conceptions (National Council of Teachers of Mathematics, 1991). Here teaching moves from telling to guiding or facilitating opportunities where students develop, test, and revise conjectures and share their thinking with others. Teachers, understanding that different constructions will emerge, should have a range of representations available (Ball, 1990a; Ball, 1990b).

Reforms also challenge traditional assumptions about learning. Those assumptions viewed learning as a reflex of teaching: Teachers organized continual practice in skills; students worked to master those skills. Learning was demonstrated by swiftly and accurately applying skills to school-based tasks. New assumptions (Mathematical Sciences Educational Board, 1989; National Council of Teachers of Mathematics, 1989) challenge the notion that practice leads to automaticity and that learning equals accumulating bits and pieces. Reforms suggest that procedures like computation are necessary, but not central, and that they might best be learned in the context of problems. They also hold that students actively build and revise mathematical theories. They gain "mathematical power" through

their ability to "explore, conjecture, and reason logically" (National Council of Teachers of Mathematics, 1989, p. 5).

Like reading reforms, new mathematics proposals point in a constructivist direction. But these reforms may be variously interpreted. For there is no reason to believe that teachers, any more than their students, will read and understand these ideas exactly as reformers intend them. First, there is the issue of access. Not all teachers have seen all these reforms. In this study, only Bonnie Jones has read the Michigan mathematics policy and the NCTM Standards. What the other teachers know of reforms comes from local and relatively weak sources--new textbooks and publisher-sponsored inservices. Second, there is the issue of teachers' sense-making. Textbooks and ancillary materials have changed in the last 10 years. But textbooks can be problematic as a source for learning about reforms (Ball, 1990b). Recent editions, for example, insert reform-minded activities, but do little to promote deep changes in teachers' practices. The result: Teachers may draw different conclusions about the import of reforms and take away very different impressions of what they might do to enact them. Finally, there is teachers' differential knowledge. Unlike reading, few teachers know the mathematics they teach deeply and confidently. With weak and uncertain knowledge, teachers' interpretations are likely to vary considerably.

Learning about reforms. Bonnie Jones embraces the directions advocated in the mathematics reform literature. She reads the new state math goals and objectives, the revised MEAP mathematics assessment, and the NCTM Standards as a challenge to her long-held view of mathematics teaching. She takes that challenge seriously and her talk suggests she is after big changes.

Bonnie Jones once viewed mathematics as a series of rules and procedures. Practicing addition, subtraction, multiplication, and division algorithms of whole numbers, fractions, and decimals comprised virtually her entire math program. Like many elementary school teachers, Ms Jones had little background in anything beyond introductory mathematics. An elementary education major, she took no mathematics courses beyond the minimum

requirement. And the mathematics education courses she took prepared her to teach mathematics in algorithmic fashion.

Perhaps bolstered by her efforts in reading, Bonnie Jones did not resist learning about mathematics reforms. But she discovered she needed to learn about both mathematics and mathematics teaching. For unlike reading, which many teachers see as a school subject without any particular disciplinary roots, Ms Jones realized that embracing mathematics reforms meant confronting her weak subject matter knowledge as well as radical new approaches to teaching and learning. She did not flinch, even when she realized that district resources were sparse. Instead, Ms Jones enrolled in university courses in both mathematics and mathematics education. She also joined the state math teachers' association, began reading journals, and started attending conferences and workshops. Through these venues, Bonnie Jones learned about state and national efforts to reform mathematics curriculum and instruction and about the revision of the math portion of the MEAP. She learned about mathematical manipulatives, estimation, problem-solving. She also learned some things about mathematics. Ms Jones came away from these experiences with two thoughts: There was much more to reforming mathematics instruction than introducing an occasional manipulatives activity or a few story problems; and the gulf between the kind of teaching advocated in the reforms and her extant practice was wide.

Mathematics reconsidered. Bonnie Jones approaches mathematics reforms as she does those in reading. She seeks out a wide range of ideas and practices. She uses these to make changes on a number of fronts. And the changes she attempts run deeply into issues of what it means to know, teach, and learn mathematics. Here, as in reading, Bonnie Jones is making big changes in her practice.

Some evidence for that claim comes from her changing view of what mathematics is about and what students should know. That view has a number of components. One is the notion of mathematics as a conceptual field. Bonnie Jones always assumed that learning algorithms and doing computations quickly and accurately was the heart of mathematics.

Reforms, she understands, promote a different view of mathematics and what students should know about it. That view stresses the conceptual nature of mathematics (Michigan State Board of Education, 1990; Michigan State Board of Education, 1991; National Council for Teachers of Mathematics, 1989). "Students need to understand the concept of things," she said, "And be able to think through a problem, and to have different strategies to work on problems."

The conceptual view of mathematics, in Bonnie Jones's interpretation, has two parts: Students need to understand the "concept of things" and have "different strategies to work on problems." An example of a mathematical concept is "number." "Number sense" or the "effective use and understanding of numbers in applications as well as in other mathematical contexts" (Conference Board of the Mathematical Sciences, 1983)[19] is frequently cited as one of the "big" or "unifying" ideas in a conceptual view of mathematics (Michigan State Board of Education, 1990; National Council of Teachers of Mathematics, 1989; Schifter & Fosnot, in press; Steen, 1990a; Steen, 1990b). Ms Jones learned about number sense in a summer workshop. She reports being "amazed" that students might have varied interpretations of what a number is. The impact of this realization was immediate. Rather than starting the next school year with the traditional review of whole number computation, Ms Jones began with an exploration of what a number is. "I started out with number sense," she said, "What do numbers mean to us? Where do we find them in our world? How do we use numbers in our world?" Aligning herself with reformers, Ms Jones hopes that by emphasizing the concept of number, students will be able to think about what numbers represent and use them sensibly in all mathematical contexts.

Another part of her changing view is teaching mathematical processes or "strategies." Bonnie Jones understands strategies like estimation and mental math help students understand that problems may be solved in various ways and may yield various answers

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19 This definition of "number sense" is cited in the Michigan Essential Goals and Objectives for Mathematics Education (Michigan State Board of Education, 1990).

(Michigan State Board of Education, 1990; National Council of Teachers of Mathematics, 1989). Finding a "right" answer is less important than understanding how one approaches and solves problems. This does not mean that Ms Jones has eliminated all evidence of computation or procedure from her practice, nor does she intend to. She echoes reforms which suggest computation has a role, albeit reduced, in learning mathematics (Michigan State Board of Education, 1990; National Council of Teachers of Mathematics, 1989). Ms Jones asserts that knowing how to compute is important and that some memorization (e.g., times tables) is useful. But, she now wonders, "Is it really important for them to practice for hours doing long division when they've got a calculator right there that could do it for them?"

Yet another aspect of Bonnie Jones's new view of mathematics involves purpose. As in reading, the change in Ms Jones's view of mathematics as a school subject has meant a change in what she sees as the purpose of learning mathematics. She once held a largely pedantic view: One learned mathematics in order to compute answers to textbook and test problems swiftly and accurately. Any connection between what students learned in their mathematics lessons and what might be valuable in the "real world" was tenuous at best. Learning mathematics was computation-bound and school subject-based. Bonnie Jones agrees with the reform literature in mathematics that challenges this perspective:

> [Students] have to have a purpose to learn. Not to learn for the sake of learning or because you told them to do it....There has to be some connection to the real world. And if there isn't a connection, if you can't convince them, then why are they going to learn it? (interview, 1/17/92)

What once passed as a rationale for learning mathematics--learning for the sake of learning or because a teacher demanded it--no longer holds. In its place, Ms Jones suggests constructing purposes that attend to the "real world" lives of her students.[20]

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[20] Mathematics reforms such as the NCTM Standards support Bonnie Jones' assertion that students need to see "real world" purposes in their study of mathematics. But they also underscore the purpose of introducing students to the intellectual discipline of mathematics. These purposes are obviously not mutually exclusive. In Bonnie Jones' classroom, however, the former takes clear precedent over the latter.

Holding a conceptual view of mathematics, teaching problem-solving strategies, promoting real world applications--raise deep questions about Bonnie Jones's former view of mathematics and mathematics pedagogy. Her weak background in mathematics makes this difficult. There is as much for her to learn about the subject matter of mathematics as there is about teaching and learning mathematics. Finding the time and energy to learn these things and to plan and deliver a different kind of mathematics instruction is also difficult. There is a lot on Bonnie Jones's plate already. But the determination that marks her response to reading reforms re-emerges.

A look at current practice. As with reading, reform-minded practices are evident in Bonnie Jones's mathematics practice. But there are differences. Ms Jones is a more confident and certain teacher of reading than mathematics. The changes are still fresh, but reading lessons exhibit a coherent flow. Mathematics lessons, by contrast, are often awkward. Evidence of reforms is strong; so to is evidence of traditional practice. The two coexist, but more as parallel than as blended activities.

Mathematics lessons have a pattern. Pages of practice homework problems are reviewed at the beginning and assigned at the end of each class. These familiar elements bracket mathematics of a different sort. The middle of Bonnie Jones's lessons often reflects reforms. A recent lesson on rounding decimals is illustrative.

> Class begins with a review of the previous night's homework. Ms Jones turned to the appropriate pages in the textbook and said, "All right, I'll take questions first." "Taking questions" cued students to ask her for answers to specific problems. For problem #20, for example, Ryan asked, "Would number 20 be 0.601, 0.559, 0.441, and 0.438?" "Right," said Ms Jones. (The question asked students to list these numbers from greatest to least.) At the end of class, she assigned another set of problems based on the day's work. She announced:
>
> > In the first section on rounding decimals to the nearest whole number, there are 15 problems. I want you to pick 7. In the second section on rounding to the nearest tenth, there are 15 problems. Pick 7. And in the last section on rounding to the nearest hundredth, pick 7. (observation, 12/27/91)

Bonnie Jones has changed some aspects of her homework assignments. In a summer workshop, she learned that simply running down a list of correct answers "wastes time and doesn't really answer the questions the kids have." She also learned that students need to

"have choices and feel empowered." Ms Jones is attracted to these ideas. They fit with another of her current interests in reframing teacher-student relationships. Ms Jones feels that "taking questions" and giving students a choice about which problems will help students feel more involved in their learning. Perhaps. But in many ways, this seems window dressing on a practice that remains fundamentally unchanged. Students do fewer problems, but the emphasis on drill and practice and getting right answers remains firm. Moreover, the discussion seldom went beyond the example above--a student question and a teacher answer. On this day, neither Ms Jones nor the students wondered why one particular answer was best.

Not long ago, Bonnie Jones defined her entire mathematics practice this way. A typical lesson consisted of reviewing the previous night's homework and demonstrating the next procedure or algorithm listed in the textbook. She worked through a few problems on the board and asked for questions. If there were none, she assigned a raft of problems for seatwork. Students worked silently and individually, asking for and receiving help only from Ms Jones. At the end of the period, students who had completed the assignment would turn it in; the others finished it for homework. The textbook (and teacher's guide) defined instruction. Ms Jones used it exclusively and deliberately; she took pride in starting school with the first page, proceeding through the units in order, and finishing the book by the end of the year. This teaching represents standard fare in elementary school classrooms across the country. Mathematics means rules and procedures; teaching mathematics means efficiently organizing students, materials, and assessments; and learning mathematics means constant drill and practice and frequent demonstrations of skill.

Elements of traditional practice bracket her current mathematics lessons. But in between, Bonnie Jones introduces a range of reform-minded activities. A lesson on rounding decimals, for example, provided a site to emphasize place value, use mathematical manipulatives, and make connections between mathematics and the real world.

As Ms Jones collected the homework, Scott and Gina passed out base 10 blocks, Ryan distributed bingo chips.[21] Ms Jones said, "Today we are going to work on rounding decimals. Who can tell me what rounding is? [Hands go up] I see one, two, three...hands. Some of you know and some don't. Okay, well, I want you to build this number." She turned to the board and wrote, "0.71." Students immediately began work manipulating the assorted pieces. Ms Jones scanned the students' work (all seemed to be successful) before writing the number on the board in the following notation

Ms Jones continued, "Sometimes when we work with decimals, we don't always want the exact number. So we need to round decimals." She said, "I'm going into the A+P and I see this price [0.71]. I want to round it so I can remember it. I want to round it to the tenths place. Please show me your answer." Students removed the 1 hundredths cube. Satisfied, Ms Jones turned to the board and wrote "0.236" both in Arabic numerals and in the block notation.

0.236 

Ms Jones--[after the students finished] Now I wouldn't see this number [0.236] in a grocery store, so I want to find a number that would be easier to use. For example, what place value might you want to round to, Scott?
Scott--Tenths.
Ms Jones--Good. Kelly, what might be another one?
Kelly--Hundredths.
Ms Jones--Good. [to the class] Show me what to do to round to hundredths. [The students work quickly and quietly.] Can you tell me what you did? (observation, 12/27/91)

This vignette illustrates several changes. The lesson is ostensibly about a conventional procedure--rounding decimals. Rounding decimals is a common topic in fifth grade mathematics texts and Ms Jones is concerned that her students understand and master it. But rather than teach the procedure as a tool in and of itself, the lesson is an opportunity to reinforce the concept of place value. "Place value" is a key concept in the reform literature,[22] but students are frequently confused. Using mathematical manipulatives like base 10 blocks help students "see" the effect of rounding a decimal. Ms Jones feels some students "haven't really understood place value." She concludes that number lines displayed in the textbook might be "okay for some kids, but if they're still having problems, then you still have to go back to the blocks."

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[21] Base 10 blocks are manipulatives often used to demonstrate the concept of place value. A set consists of 10x10 unit "flats," 1x10 unit "rods," 1 unit "cubes," and 1 unit "chips." Flats represent ones, rods represent tenths, cubes represent hundredths, and chips represent thousandths. The bingo chips act as decimal points.

[22] The authors of the NCTM Standards (1989) state, "Understanding place value is [another] critical step in the development of children's comprehension of number concepts" (p. 39).

Reforms are also evident when Bonnie Jones explicitly connects school lessons and the real world. Once, she would have taught the rounding decimals algorithm from the textbook alone, considering only how it fit into the sequence of lessons in that chapter. Today, she stops to consider other purposes. That one learns to rounds decimals because it's useful in shopping in grocery stores may seem no big leap. But from the view of mathematics instruction Bonnie Jones once held, it is a leap of some distance.

Another leap is toward problem-solving. On another day, Ms Jones introduced an activity emphasizing the problem-solving strategy of estimation:

The problem-solving exercise involved estimating the number of cinnamon flavored "TeddyGrams" (small graham cracker cookies shaped like teddy bears) in a sealed clear plastic box. Ms Jones described the exercise this way:

> Okay, between now and May we'll be using the guessing box quite a bit. And I'll always try to make it edible. (After the class determines the number, they eat the contents.) Now this is a liter box, like one-half of a liter bottle of pop. You'll have to guess how many TeddyGrams there are in the box.
>
> Now there are lots of ways, but I'm not going to tell you. You have to come up with some ways to decide. But I want you to discuss strategies before you start predicting because predicting is better than guessing. Guessing means you have no method at all. In predicting, you have some knowledge, some idea of method.

Ms Jones passed the box around the class for inspection. Some of the discussion around the problem follows:

Ms Jones--Can someone tell me some strategies (to estimate the number of TeddyGrams)?
Jason--Well, you can tell there's more than 20 or 30 so you know you have to guess more than 20 or 30.
Ms Jones--So your prediction is 20 to 30? (Jason shrugs in agreement.)
Jane--You could buy another box of TeddyGrams.
John--You could call the makers of TeddyGrams and see how many are in a box.
Chris--Or you could look on the side of the box to see if it says.
Ms Jones--Do you think that would be helpful? (Chris nods. Ms Jones gives him the box. He discovers that the number of cookies is not listed, but the weight of the product in ounces and grams is. It's not clear why the students think all the cookies from this one package were used.)

Ms Jones asked the students what they would do if she gave them a centicube (I couldn't see what this looked like from my seat) and a scale. There was much discussion about what to weigh and what to compare different weights with. Students talked both with Ms Jones and one another. The talk was interrupted when a student got Ms Jones's attention. After checking with the student, she announced, "News flash! We've got some more information." The student said, "It says on the package that 11 pieces equals one-half an ounce." Jared volunteered, "So if you read on the box to see how many ounces, then you just keep adding 11 pieces to get the number." Ms Jones nodded and said, "Good. So you can see the difference between what Jason said about 20 to 30 pieces and getting more information."

Ms Jones then sent around a package of PostIt notes and asked students to write their prediction on it. She told them they could use any of the strategies discussed and that she would make a variety of weights and scales available to them. After making a prediction students were to post them on the front blackboard. Ms Jones then put the box away and said that the class would do "something else" with it the next day. (observation, 10/29/92)

In this activity, Bonnie Jones talks explicitly about problem-solving strategies and pushes students to construct a wide range of them. There are no "right" answers here. Instead, Ms Jones is open to any approach short of "guessing." Doing so, she believes, helps students understand that problems "may have more than one answer and may have many strategies to solve the problem." Her goal is to ease students' concerns about working through "problems" and to see that:

> Yes, there is a problem, but there are different ways to approach the problem. There's not always one way. And that you can have more than one way of expressing an answer. (interview, 1/17/92)

If students know that multiple responses are possible, Ms Jones contends, they will be more confident in approaching problem-solving situations and more willing to offer inventive solutions.

Behind both lessons are two other changes of note. One is the changing dynamic between Bonnie Jones and her students; the other is her newly conceived role as curriculum planner.

Reflecting a position common in the reform literature (National Council for Teachers of Mathematics, 1989; 1991), Ms Jones reasons that students benefit not only from their texts and assignments, but also from their interaction with her and with one another. Consequently there is much talk in her classroom. Whole class discussions like that in the problem-solving vignette are routine. So too are opportunities for students to talk in pairs or small groups. In the rounding decimals lesson, for example, she encouraged students to confer as they manipulated the base 10 blocks. Ms Jones reasons:

> There has to be more to [changing her practice] than just bringing in the manipulatives. There has to be more to it. The kids have to interact with each other...They have to be able to talk to each other, to teach each other, to basically verbalize their thinking and what's going on. Now that can't go on if I'm saying, "You do this, you do that." (interview, 1/17/92)

Changing the way she and her students talk is related to other role changes. Until recently, Ms Jones was the undisputed knowledge authority in her classroom. "I was the teacher," she said, "I was supposed to have all the answers." She didn't, and she often felt

"threatened" when students asked questions. In summer workshops highlighting new ideas about teacher and student relationships, she began questioning her need to feel "the almighty teacher" and the sense that students depended on her for all that they learn.

Those questions took root in another change. Until recently, Ms Jones taught mathematics exclusively from her teachers' guide and student textbooks. Rules and procedures defined mathematics and textbooks delivered them in tight, easily managed sequences. Like many elementary school teachers, Ms Jones did not question the centrality of the text to her practice.

The new district text (Addison-Wesley, 1991) continues to center much of her instruction. Unlike the reading textbook, she feels the Addison-Wesley text represents reforms fairly; she cites the emphasis on problem-solving strategies like estimation and mental math, and alternative representations of some concepts and processes. A few aspects pose problems (e.g., using number lines alone to illustrate decimals), but she is willing to use it as an important piece of her mathematics instruction.

But only as a piece. Bonnie Jones adamantly refuses to give over control to textbooks as she once did. "I'm not going to let a textbook drive my lesson plans," she said. As evidence, she cites a willingness to skip around the textbook. Rather than starting on page one and marching lockstep through the text, Ms Jones rearranges the order of topics. She began this past year, for example, with units on number sense, metrics, and decimals (all of which she tied into her first units in science) rather than with the initial textbook chapters on computation with whole numbers. Sometimes she skips entire sections. After finishing the unit on metrics and decimals, she decided that, as students could perform simple calculations, she could disregard the entire set of chapters devoted to whole number computation.

Supplementing the text is a growing array of ancillary activities and materials like base 10 blocks and the guessing box. Bonnie Jones collects and uses these materials because she believes the text places too much emphasis on abstractions and too often fails to

provide concrete illustrations of concepts. "It doesn't carry through," she said, "After it introduces a concept, it goes right back to the abstract." Ms Jones understands that reforms promote student experiences with concrete materials. As a result, she frequently uses mathematical manipulatives to supplement textbook lessons.[23] She capped a recent textbook unit on fractions, for example, with an activity from Fractions with Pattern Blocks. Students were given "tangrams"--plastic shapes in the form of squares, triangles, parallelograms--and worksheets of figures, parts of which were shaded. The task was to cover the unshaded section of each figure with the designated shapes (e.g., triangles) and write a fraction which expressed the ratio of shaded to unshaded space.

So convinced is Bonnie Jones that the textbook no longer holds the key to all her instructional needs, that on occasion, she abandons the textbook altogether. Then she substitutes ancillary materials for entire textbook units. For example, she recently concluded that the measurement unit in the textbook was inadequate. Once unthinkable, Ms Jones replaced the entire unit with materials from Project AIMS[24] without hesitation.

A new view of teaching and learning mathematics. Managing these changes has not been easy. Bonnie Jones's mathematics instruction was as strongly rooted in traditional skills-based approaches as her reading instruction. And unlike reading, Ms Jones finds she needs to learn as much about the subject matter of mathematics as about new instructional approaches. She is nevertheless determined to make big changes in her teaching. The incorporation of a conceptual perspective, problem-solving, real world applications, and a range of new representations suggests she is changing her day-to-day instruction in fundamental ways. Those changes co-exist with a still strong element of

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[23] Ms Jones has purchased some of the Marilyn Burns materials which emphasize manipulatives with her own money. She borrows manipulatives kits like Fractions with Pattern Blocks and Fraction Factory from the county intermediate school district.

[24] Project AIMS (Activities to Integrate Mathematics and Science) materials are teacher resource books. Mathematics activities include estimation, measuring, sequencing, probability, and computing scale. Science activities include observing, classifying, collecting, and interpreting data. Ms Jones saw these materials demonstrated in a workshop and purchased them with her own money.

traditional practice, however. As a result, it is less clear that Bonnie Jones is reconceptualizing her views of teaching and learning mathematics.

Ms Jones's efforts can be read in various ways. One might be tempted to dismiss the changes in light of the firm evidence of skills-based practice. A slightly more generous interpretation suggests that these changes are real, but tenuous, susceptible to being undercut without more, and more substantial, changes. A third possibility, however, is that Ms Jones is turning a corner on reframing her mathematics practice in light of reforms.

This third possibility seems the most viable. Bonnie Jones holds a sympathetic view of mathematics reforms. As in reading, her interpretation mirrors the common themes of the reforms. Ms Jones pursues opportunities to learn about reforms and what she hears, she endorses. She describes sharp distinctions between her past practice and the vision of practice advanced in reforms and she works to change her teaching. The many changes evident in her daily instruction testify to her successes. Ms Jones is using new and different curriculum materials and methods, and students are having new and different experiences in learning mathematics.

These changes in daily practice imply changes at deeper levels. As in reading, Bonnie teaches to new purposes. Technical competence and skill in computation are no longer the sole purposes of learning mathematics. New purposes such as conceptual understanding and real world applications now vie for attention. Ms Jones also seems to be redefining the roles of teacher and student--encouraging a more active role for students and a less directive role for herself. Finally, interaction patterns are changing. Mathematics is no longer a silent, individual activity. Students talk about their ideas with Ms Jones and one another.

These changes aim deep and seem on the same order as those in reading. But they seem fresher and much more tentative. Moreover, they are colored by the co-existence of traditional elements which seem both stronger and more persistent than those in reading. What are we to make, for example, of the homework assignments which, other than a gloss of student choice, seem little changed from the convergent, drill and practice

approach she describes as her former practice. Students do fewer problems. But neither the type of problem, the purpose they serve, nor the press for a single right answer have changed.

That old and new practices appear, however, tells little in and of itself. The point is not that Bonnie Jones refuses to reexamine her beliefs about teaching and learning. In fact, she seems to be doing just that. But it is less clear here than in reading. A better conjecture then might be that the appearance of parallel skills and reform-minded approaches implies that Bonnie Jones is still negotiating big issues of teaching and learning mathematics.

Responding to Writing Reforms

Since the mid-1980's, Bonnie Jones has attended to many reforms. She responds vigorously to some, like those in reading and mathematics, embracing multiple new ideas and making a host of changes. She embraces others (e.g., the state health curriculum) in similar fashion. But Ms Jones manages others by ignoring them. Until a year ago, writing reforms were a case in point.

Writing reforms. The flurry of reform activity around reading is matched in writing. Recent thinking abhors the fact that students spend a tiny fraction of their day writing and that the writing they do is often pedantic and mind-numbing (Applebee et al., 1987; Applebee, Lehr, & Auten, 1981). Reformers call for both more frequent and more engaging writing assignments (Atwell, 1987; Calkins, 1986; Graves, 1983; Michigan State Board of Education, 1988). More specifically, they call for writing opportunities that are more varied and have more connections to students' lives. Rather than limiting writing opportunities to end of chapter questions and occasional book reports, reformers advocate writing poems and stories and keeping journals and learning logs.[25] Reformers also promote writing as a cross-curricular activity. They argue writing is a powerful learning

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[25] Calkins (1986) advocates both. The distinction is that "logs" are records of students' ideas and conjectures related to a content area, while "journals" are unrestricted.

tool to help students learn content. Moreover, students learn to write by writing and so need opportunities to write throughout the school day.

Writing reforms also deal with instruction. Writing has traditionally been taught as discrete skills--identifying parts of speech, memorizing punctuation and capitalization rules--in de-contextualized settings--worksheets. Reformers challenge both of those conditions. In the language of reforms, writing is a "process." Though variously described (cf. Calkins, 1986; Graves, 1983), the steps of the process include brainstorming where one generates ideas, drafting where an idea is fleshed out with little attention to mechanics, revising where ideas, arguments, and examples are sharpened, and editing where problems of mechanics--spelling, grammar, syntax--are resolved. Two additional components of the writing process are conferencing and publishing. Conferences are opportunities for teacher and student to discuss a piece of the student's work. Conferences may cover a range of topics from elements of a story to character development to use of commas, whatever is the most pressing point at the time. Once the final editing is done, students' work my be "published" by displaying it on a bulletin board, reproducing copies for other students, or binding it in book form.

Reforms of writing push in these common directions. But as in reading and mathematics, these reforms can be variously interpreted. Michigan has a new reform-minded writing policy. Moreover, writing is not assessed on the state MEAP test. Under the assumption that what is tested is important, teachers might interpret the import of writing reforms very differently. Interpretations may also vary about what reforms call for. The issue of when and how to teach mechanics is a particularly ripe example. Reformers urge an end to traditional de-contextualized grammar and spelling exercises. They suggest these be taught within the writing process and in the context of an active piece of student writing. The theory is that understanding when and how to use a comma, for example, will make more sense if students need to know about it for a piece of work they care about. Teachers looking at new textbooks, for example, will see this view promoted. But, they

will also see traditional grammar exercises. New textbooks are typically divided into two sections: One features the writing process and teaching mechanics in context; the other offers a conventional treatment of grammar, punctuation, and the like. Teachers may or may not view this as a problem. But it is likely to encourage various interpretations of what writing reforms are about. One last issue is teachers' knowledge and inclinations. Few teachers are experienced and confident writers. Many express fears similar to those about mathematics. With uncertain knowledge and private fears, teachers are likely to interpret reforms variously.

Learning about writing reforms. These ideas about writing are represented in the new state writing policy, the Essential Goals and Objectives for Writing (Michigan State Board of Education, 1988). Bonnie Jones has not seen this policy.[26] She learned of these new ideas and practices through conference sessions and journal articles. But knowing about them did not mean that Ms Jones had to do anything with them.

The Derry school district responded to the new state reading policy with a week-long inservice, a new literature-based textbook series, and teachers with concerns about students' performance could meet with Teresa Jensen, the district reading coordinator. The district role was much less ambitious in mathematics. A new textbooks was adopted and a few publisher-led inservices were scheduled. But there is no district mathematics coordinator and teachers were left to their own resources. Even less has happened in writing. There have been no workshops or inservices; no new textbook series has been proposed. Teresa Jensen is promoting writing reforms, but she works with only a few teachers individually.[27] This does not mean Derry teachers are oblivious to writing. These reforms have been circulating for almost 10 years and some teachers have embraced them.

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[26] Interestingly enough, while all four teachers in this study have seen the state reading policy, none have seen the state writing policy and only Frank Jensen has heard of it.

[27] Bonnie Jones counted Teresa Jensen as an early and helpful advocate of the changes she attempted. After Ms Jones rejected the district textbook, however, the two have had a falling out. Though she is now attending to writing reforms, Ms Jones does not ask for Teresa Jensen's assistance.

But if teachers know about or do anything with writing, they do so in spite of district efforts rather than because of them.[28]

Like the district, Bonnie Jones has avoided writing reforms. But when asked why, Ms Jones does not cite district ambivalence. Her earlier experience with the reading textbooks angered her and she no longer counts on district guidance or assistance. Instead, Ms Jones claims a long-standing personal discomfort with her own writing prompted her response.

> [Writing] is a weak area of mine. I always have to push myself to do it. I avoid it because I'm not very good at it. I have to get better, but it's a conscious effort. (interview, 10/29/92)

She contends this lack of confidence in her own writing caused her to be reluctant to promote writing among her students.[29]

A changing view of writing? For many years, Bonnie Jones held a traditional view of writing: Writing decomposed into a series of discrete grammar skills--identifying parts of speech, parsing sentences, memorizing rules for capitalization and punctuation. Students learned these skills by circling the appropriate noun, verb, or adjective on pages of de-contextualized sentences. They applied these skills in short responses to textbook questions and in occasional book or "research" reports.

The parallels between this view of writing and the skills-based view of reading Bonnie Jones held are several. Both views hold that knowledge can be dissected into small bits that can be easily organized into sequential lessons. Similarly, they suggest that knowledge is cumulative--i.e., what one knows are the individual bits built up over time and practice.

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[28] A study of the state writing policy and the local response almost begs to be done. The contrast in how reading and writing policies were developed, disseminated, and received is stark. The lack of immediate response to the writing policy may be a function of several factors. First, as noted, there is no state writing test as there is in reading and mathematics. Second, there is no state professional organization devoted to writing. Finally, in contrast to the new state reading policy, there was no promotion of the writing policy through state-wide conferences. The state department of education developed the policy, but has done little with it since.

[29] Unfortunate personal experiences are frequently cited for teachers' reluctance to engage mathematics. A similar phenomenon exists with regard to writing. See Donald Graves's (1983) account of a teacher, Pat, who also avoided teaching writing because of a personal discomfort.

Finally, practice is seen as essential, for the goal is accurate and adept use of the skills learned. In these views, correctly identifying the words in a piece of text appears to count as much as understanding the different ways the text might be interpreted and correctly identifying the parts of speech in a sentence is as important as being able to write with clarity and grace.

Over the past year, Bonnie Jones decided to confront her discomfort with writing and her skills-based writing practice. She said, "I'm trying to push myself to do more writing this year: more expository, more poetry, more writing in general." Ms Jones's unease with teaching writing is palpable though. In the interview, this statement seemed more directed to her than to me. Changing the way one talks about reforms may indicate changing practice.[30] But talk is an inexact measure of change. Ms Jones may be on the way to a transformation of her writing practice similar to that in reading. At this point, however, this is speculative at best.

A look at current practice. Bonnie Jones' writing instruction looks more like her mathematics instruction than her reading instruction. Elements of old and new coexist, in effect, running as parallel curricula. There is a different balance here, however. Reform-minded instruction increasingly defines her mathematics practice. Her writing practice, by contrast, is defined by the traditional study of grammar. Consider a typical English lesson on parts of speech.

After reviewing the previous night's homework, Ms Jones handed out the next set of worksheets. The first, mirroring the homework, asked students to identify the underlined word as a noun, verb, or adjective in each of 15 sentences. The second asked them to identify the adverb in each of 28 sentences. Ms Jones reviewed the first two items on the first sheet.

Ms Jones--Who can tell us number 1? ("You can roller-skate best on a level sidewalk.") Mary?
Mary--Adjective?
Ms Jones--Why? You're right, but you have to know why. (No response) Thomas?
Thomas--Because it describes the sidewalk.
Ms Jones--Right. Number 2? ("The river rose to a level of 60 feet during the flood.") Randy?

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30 Some would argue that using new language signals a change in belief, a prerequisite for changing practice (Eisenhart et al., 1988; Fenstermacher, 1986). Others (Cohen et al., in preparation) argue that this relationship is murkier, but that change in the language teachers use is nonetheless an important feature of responding to reforms.

Randy--A
Ms Jones
Sherry--I
Ms Jones
Eric--It's
Ms Jones
Eric--Bec
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Randy--A verb?
Ms Jones--Why? (No response)
Sherry--It's an adjective because it's describing the river.
Ms Jones--Okay. Put "level" next to "river."
Eric--It's a noun.
Ms Jones--Why?
Eric--Because it's not an adjective or a verb!
Ms Jones--All right. But notice that it's also preceded by an "a."

Ms Jones then asked students to turn to the second sheet. She did not review any of these items. Eric asked if they had to do all 28 items. Ms Jones looked at him and said, "Okay, I'll compromise at 20." (observation, 4/23/92)

This lesson illustrates Bonnie Jones's skills-based view of teaching and learning writing. First, writing decomposes into mechanics--parts of speech, grammar, punctuation. The assumption is that one writes well or poorly based on one's knowledge of the elements of writing. In this lesson, the activity devolves into correctly identifying the underlined word. Ms Jones does not ask students to consider the function a word plays within a sentence. She does not ask students to consider alternative sentence constructions. Words are treated literally; there are no shades of meaning. Second, writing is taught as discrete exercises apart from any particular context. The assumption is that teaching is about introducing, reinforcing, and remediating discrete skills. Most of Ms Jones's grammar lessons take this form: Individual worksheets highlighting one or more skill. The sentences are unrelated to one another other than through use of the same identified word. And there is no effort to extend the lesson beyond the confines of the worksheet. Finally, learning to write means acquiring knowledge of mechanics through continual drill and practice. The assumption is that students' ability to write depends on their mastery of mechanics. Students do not learn about crafting plots or developing characters or resolving conflicts. Nor do they learn about how to use mechanics within a piece they are working on. Instead learning to write means learning to identify and correct mechanical errors.

Bonnie Jones recognizes such lessons are some distance from reforms. "[They're] something weak in my program," she explained. Ms Jones takes seriously the reformers' contention that students learn to write by writing. Consequently, she is providing more opportunities for students to write. Asking students to summarize the story and to record

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their predictions as in the Midnight Fox vignette is one example. Another is using "math journals." These spiral-bound notebooks provide sites for students to free-write about ideas, questions, and concerns.[31]

Another aspect of the writing reforms Ms Jones attends to is the writing process. This conception of writing suggests that students' writing improves through a process of brainstorming ideas, writing and editing a series of drafts, and conferencing with a teacher or peer. But the writing "process" only works if students have opportunities to write.

> The writing process is discovered by doing it....Students can be lectured on the components of the process, but they still only know the process by actually doing the writing, making words fulfill their intentions. (Graves, 1983, p. 250)

Ms Jones does not believe students need to follow the entire process on every piece of writing. And even if she did, she observes that time constraints would prevent it. But increasingly Ms Jones develops assignments where students can work on a piece of text over a period of time. Recently Ms Jones assigned the writing of a cinquain poem.[32] Using Halloween as the theme, she urged students to work through the writing process stages. At various points, she met with each student, sometimes individually, sometimes in pairs. She encouraged students to discuss, critique, and edit their work with one another.

Bonnie Jones is adopting some elements of reforms. But she ignores others. One is the connection between opportunities to write and learning mechanics. Calkins (1986) makes a point common among reformers: "The single most important thing we can do for students' syntax, spelling, penmanship, and use of mechanics is to have them write often and with confidence" (p. 197). Bonnie Jones provides more opportunities for students to write. She may understand that their knowledge and use of mechanics will improve as a

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31 Using journals as a site for students to explore mathematics is frequently mentioned in the literature on mathematics reforms. See, for example, (Connolly & Valardi, 1989).

32 A cinquain poem is a five line stanza with a standard format. The first line is one word which identifies the subject of the poem. The second line describes the subject. The third line describes an action; the fourth expresses a feeling or observation. The last line renames the subject. Lines 2-5 have no prescribed length.

result. At this point, however, she seems unwilling to trust that connection. Ms Jones continues her direct instruction lessons in grammar, punctuation, and parts of speech.

Writing reforms promote a far different view of teaching than the skills-based approach Bonnie Jones learned and practices. Far more emphasis is put on constructing opportunities for students to write and re-write, to think and talk about writing. Mechanics are important. As Graves (1983) notes, however, if teachers never get beyond correcting spelling and grammar mistakes, students will not either. The notion that systematic direct instruction may not be the best way to teach writing or mechanics, however, is undoubtedly difficult to accept: It runs counter to the way most teachers were taught and to the periodic rebirth of direct instruction initiatives such as Madeline Hunter's Instructional Theory into Practice (ITIP) program.[33]

A changing view of teaching and learning writing? The question of whether Bonnie Jones's views of teaching and learning writing are changing is even less clear than in the example of mathematics. Indications in both in her talk and in her teaching hint that Ms Jones is attempting to make her current practice look more like reforms. At the same time, however, she acknowledges, and classroom observations confirm, that her practice remains largely conventional. If Ms Jones's views of teaching and learning writing are changing, it is a change in its infancy.

Responding to Reforms in the Context of Schooling

The discussion thus far has looked at Bonnie Jones's response to reforms in the context of her pre-existing practice. In that context, changes are occurring both in her day-to-day instruction and in her conceptions of subject matter, teaching, and learning. In making these changes, however, Ms Jones must manage regularities--time, content coverage, assessment--and relationships inside and outside her classroom. These factors

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[33] Madeline Hunter's ITIP program is a step-by-step approach to designing and developing direct instruction lessons. The approach highlights small instructional pieces, continual practice, and frequent assessment.

are not benign: Some support the changes Ms Jones is working toward; others do not. In either event, understanding how Bonnie Jones responds to reforms requires an account of these factors.

Managing the Regularities of Schooling

One set of factors might be called the "regularities" of school (Sarason, 1977). These factors--time constraints, content coverage, assessment pressures--tend to be common concerns across teachers and part of the context of teaching school.

Time is a perennial concern. At the height of her skills-based practice, Bonnie Jones had too much to do in too little time. But her textbooks and teachers' guides cookie-cut lessons into readily manageable chunks. She always felt pressed, but she managed to "finish" each of her textbooks.

Compared with many teachers, Ms Jones is fortunate. Neither her school nor her district impose guidelines on instructional time.[34] Ms Jones may always need more time, but she has a great deal of discretion in how she schedules her instructional day. This discretion is critical for Ms Jones discovered that adopting new practices means she can no longer plan her lessons with the precision she once did. Introducing more complex and engaging assignments, opening up discussion, and providing opportunities to write simply take more time than skills-based lessons:

> The more time I allow them to do that [discuss ideas] the less teaching time I have. So now I'm really struggling within myself. I'm not where I should be in the textbooks right now. Do I cut back on that and say, "Well, I don't have time to do this. I don't have time to allow you to do this because I have to be on this chapter? We have to get through so much material and we are behind." (interview, 1/17/92)

Ms Jones feels caught. She senses the value of allowing students time to discuss their ideas. She rarely cuts off promising activities or discussions. But that means she must compromise in some other fashion--taking time away from, postponing, or even

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[34] Compare this with the strict guidelines that govern Marie Irwin and Paula Goddard's practice described in subsequent chapters.

eliminating subsequent lessons. Ms Jones has the flexibility to make these decisions, but the constant negotiation of time wears on her.

A second regularity involves content coverage. By abandoning the new reading text and vowing not to let the new math text "drive [her] lesson plans," Bonnie Jones assumed a large measure of control over her teaching. What she teaches and how she teaches it are now decisions she makes. Ms Jones will no longer cede that power to teachers' guides and textbooks.

But this new authority does little to relieve Bonnie Jones's worries about what content to "cover" and how deeply to cover it. Textbooks and teachers' guides once provided ready answers. She now faces decisions about what to teach without her familiar tools. Ms Jones rejects the superficial view of subject matter that defined her teaching for over 20 years. But reforms, which offer a panoply of ideas and generalizations about "doing less is more," are seldom accompanied by specific recommendations about what to do in practice.[35]

Some of the difficulties Bonnie Jones faces are evident in the story she tells of an encounter with a sixth grade colleague:

> I had a sixth grade teacher last year say, "You didn't cover multiplication and division of decimals. Now I have to go back and start from the beginning. It was your job, you should have covered them. It was in your textbook. Why didn't you?" My answer was, "I spent more time on the concepts with manipulatives."
> [She said] "Well, that's fine, but you should have covered multiplication and division of decimals." And my answer was that I didn't think that they were ready to handle it because they were still having problems with the concept of a decimal and place value. [She said] "Well, just go back and teach them the algorithm." (interview, 1/17/92)

Ms Jones acknowledges that students must demonstrate these skills on the Stanford Achievement Test. And she worries that students' scores may suffer as a result of her

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35 Applebee et al. (1987) conclude, "It may be necessary to cover fewer topics, in order to provide time for students to explore particular topics in more depth" (p. 47). What those topics are, and more importantly, what topics should be left out, is left unaddressed.

curricular decisions. But in the case of mathematics, she wonders, "Which is more important? Knowing that the kids have the concept or [being] able to do the algorithm?"

Time pressures exacerbate the rub between "covering" content and teaching in new ways. Bonnie Jones embraces reform ideas that stress substance over coverage. Yet as a fifth grade teacher, she knows that her sixth grade colleague expects Ms Jones's students will know certain content. The unwritten expectation, Ms Jones explained, is that she "cover at least 3/4ths of [any] textbook" before the end of the school year. As lessons take longer and longer, and she gets further "behind," Ms Jones anticipates her colleague's dismay.

Concerns about what to teach are tied to a third regularity--assessment. Bonnie Jones is committed to fundamental changes in her teaching practice. But she knows the kind of teaching that reforms espouse is not well measured by skills-based assessments like the district-administered Abbreviated Stanford Achievement Test (ASAT).[36] She provides an example of the dilemma she faces:

> I have the Stanford Achievement coming up....Do I cut back on the manipulatives? Do I cut back on the thinking process? Do I cut back on the questioning? Do I now take more control and give less to them [students] because I have...this test coming up and the administrators and the parents will all look at the scores? And judge you by the scores. (interview, 1/17/92)

But not all tests are hostile to the kind of teaching and learning Bonnie Jones wants. The revised state assessment (MEAP) advances many of the ideas she finds appealing: The reading test measures comprehension rather than skill acquisition and promotes use of rich and substantive text; the mathematics test de-emphasizes computation in favor of problem situations. She might cite the new goals of the MEAP as justification for her ambitious response to reforms. The potentially positive force of the MEAP is undercut, however, by

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36 As fifth graders, Ms Jones' students do not take the state assessment test (MEAP). All Derry students, however, take the Abbreviated Stanford Achievement Test (ASAT) which focuses primarily on basic reading and mathematics skills.

the fact that Ms Jones's fifth grade students do not take it. They do take the more conventional ASAT.

To date, students' scores on the ASAT have shown little change up or down. Perhaps Ms Jones's students will out-perform their peers even though standardized assessments like the ASAT do not reflect the kind of content and instruction they receive. But what if they don't? Ms Jones might redouble her efforts at effecting changes in her teaching. But she might also be pressured to abandon some of the changes she has made. In the end, she may decide the effort necessary to continue reforming her practice is simply not worth the cost.[37]

Managing Relationships

Donnelly-King Elementary has a reputation as a "progressive" school. Ms Jones disputes that label. She finds little explicit support for ambitious change and that she must re-negotiate her relationships with peers, parents, and administrators.

The changes Bonnie Jones makes have gone neither unnoticed nor uncriticized. She faces no formal sanctions. In fact, the laissez-faire attitude of the school and district administrators appears to guarantee significant classroom autonomy. But unpleasant exchanges with colleagues occur. Such resistance increases as Ms Jones dives deeper into reforms. She describes another conversation with a peer at an inservice for the new Addison-Wesley mathematics text:

> She asked me...what page I was on. I said, "I'm skipping around in the book." She said, "You can't do that." Now this woman has been teaching math [but] she hasn't taken any classes...she has her Masters and she knows it all!
>
> She said, "Well, you can't do that." And I said, "Why not?" She said, "It's a brand new book. You have to go chapter by chapter and go in sequence." I said, "Why can't I skip around?"
>
> "Because it's a new book. You won't find out; math is built upon all these prior skills. You just can't do that. You have to go page by page, chapter by chapter," [she said].

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[37] Some observers (Corbett & Wilson, 1990; Wise, 1988) suggest this is not an unreasonable conclusion. They claim standardized testing distorts the curriculum in ways that may make it impossible for reform-minded teachers to continue.

> And I said, "Well, I'm not doing that." So she said, "Well, you're not doing it right. You shouldn't be teaching math this year." (interview, 1/17/92)

These incidents are discouraging. "I'm kind of pulling back," Bonnie Jones said, "Not talking, not wanting people in my room anymore." Ironically, reforms aimed at encouraging students to talk more result in Bonnie Jones feeling more isolated. The starkness of her choice--ignoring reforms and the attendant changes in her practice for the comfort of her peers' approval versus embracing reforms and change and braving the fallout--is as discomforting as it is illuminating about the difficulties of changing teaching.

Parents also raise questions about Bonnie Jones's response to reforms. Beginning the school year with the unit on "number sense," Ms Jones used a variety of materials and activities. Her textbook does not cover this concept so she did not distribute it until the two week unit ended. One parent complained to the principal. Another objected to his child "choosing" which mathematics problems he worked on. "[The parent] wanted to know why they just didn't do them all," Bonnie Jones said, "He thinks the more they do, the more they'll know. I tried to explain it to him, but I don't think he got it." There has been no organized parent outcry, but administrators heed these reports. Both her principal and superintendent have "stopped by" to observe her classroom. Neither said much, but Ms Jones feels she is now being "watched." She is angry and feels that her professional judgment is being questioned. As she manages this complex array of reforms and changes in her practice, she increasingly feels that she does so on her own.[38]

This last point raises an important issue. Bonnie Jones must negotiate these difficult issues of regularities and relationships <u>because</u> she's trying to make big changes in her practice. Those changes are strenuous in and of themselves. In embracing reforms, Ms Jones must learn whole new approaches to subject matter, teaching, and learning at the same time she unlearns all that she came to know and count on. Complicating that effort

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38 One of the interesting stories to be told from this study is of the relationship between teachers and administrators in the context of reforms. Conventional wisdom contends that administrators play a central role in how teachers respond to reforms. For example, Applebee and colleagues (1987) claim, "Administrators are the key to successful implementation of new instructional approaches" (p. 46). The case of Bonnie Jones undercuts the sweep of such generalizations.

are regularities and relationships which seem primarily designed to maintain the status quo. In her willingness to think hard about reforms and act in ambitious ways to enact them, Bonnie Jones encounters more problems than if she simply closed her classroom door to reforms. Rather than make life easier, attending to reforms opens a Pandora's box.

Variation in Responses Across Reforms

In succeeding chapters, I compare Bonnie Jones's responses with the other teachers'. Here, I compare Ms Jones's responses across reading, writing, and mathematics reforms. There are similarities, but notable differences emerge. Ms Jones does not manage all reforms in the same ways. Her responses do not generalize over reforms or time: Knowing how she responds to one reform guarantees no similar response to another. Nor does it mean her initial response will always hold. The variation in Bonnie Jones's responses is complex and dynamic.

To illustrate these points, I focus on four dimensions: the relationship between reforms and past practice, learning, daily instruction, and assumptions about teaching and learning.

Reforms and Past Practice

One point of comparison is Bonnie Jones's interpretation of the relationship between reforms and her past practice. There are broad similarities here. For Ms Jones interprets reforms sympathetically and she understands those interpretations challenge her extant practice. But the differences are distinct and bear explication.

Since the mid-1980's, Ms Jones has attended to numerous reforms. Her interpretations of reading, mathematics, and writing reforms suggest she has appropriated the major themes. In reading, she echoes reformers' concern for comprehension, rich text, reading strategies, students as constructors of meaning. Her interpretation of mathematics reforms is similarly agreeable. She talks knowingly about conceptual understanding, problem-solving, and real world applications--all key elements of the reform agenda.

The exception is writing. Bonnie Jones talks about giving student more opportunities to write and teaching the writing process. She misses a key point, however--the notion that mechanics are best taught through students' writing. Perhaps Ms Jones is unaware of this. Perhaps she knows this idea, but chooses to ignore it. Or perhaps she knows about it, but is unsure how to effect it. In any case, this is an instance where Ms Jones's interpretation does not well match the reform.

These interpretations bear on the relationship between reforms and Bonnie Jones's past practice. Ms Jones believes that reforms deeply challenge her extant reading and mathematics approaches. In reading, constructivist reforms offer new views of text, instruction, grouping, and purposes. The story is similar in mathematics. There too reforms advocate new purposes, curriculum materials, and instructional methods.

Writing is something else. After years of ignoring reforms, Ms Jones took some tentative steps toward reforms this year. Though still uncomfortable as a writer, Ms Jones acknowledges the gap between her practice and reforms and she is resolved to "push" herself to confront it. But only so far. For until Ms Jones recognizes that reforms offer a very different view of mechanics, her practice is unlikely to change in profound ways.

Responding to reforms may mean teachers construct sympathetic interpretations and acknowledge the distance between their practice and reforms. But it need not. As succeeding cases demonstrate, Bonnie Jones's determined responses are extraordinary.[39]

Reforms and New Learning

Reforms challenge modal practice and call for teachers to know and do different things. But reformers depend on teachers being willing and able to re-educate themselves. How teachers manage their own learning then provides another site for comparison.

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[39] In a study of another Donnelly-King teacher, Jennings (1992) portrays a teacher, Catherine Price, whose reading practice looks much like the practice Bonnie Jones is trying to construct. She holds that reading is about constructing meaning, she uses classroom novels, and she teaches in whole class settings. But Ms Price was doing many of these things before the new state policy. She has made changes in her teaching which she attributes to the policy, connecting reading and writing activities, for example, but the distance she perceived between her practice and reading reforms is much smaller than that Bonnie Jones perceives.

Embracing reforms without the requisite knowledge is a hollow gesture (Richardson, 1990). Bonnie Jones recognizes this and she invests heavily in her own learning. In reading, this means learning new instructional strategies, new materials, new ways of talking with students about their ideas and understandings. This is no mean achievement. First, Ms Jones concludes much of her reading practice is "rotten" and she has much to learn. Second, she has had to look outside the district for good opportunities. She values the week-long inservice organized by the district reading consultant, but she discounts the textbook inservices. So Ms Jones pursues a spate of outside courses, workshops, and conferences hoping to learn what she needs to know.

She pursues a similar route in mathematics--taking what she can from local sources while seeking more powerful opportunities elsewhere. There is an important difference, however. In reading, Ms Jones's studies are pedagogical. With mathematics, she realized a need for both pedagogical and subject matter knowledge. Ms Jones is a confident reader even if she is questioning her instructional practice. Examining her mathematics practice led her to question her mathematics teaching and her own mathematics knowledge. As a result, she signs up for courses and workshops which provide both kinds of knowledge.

Many teachers evince a strong aversion to mathematics. If that was a problem for Bonnie Jones, she has overcome it. More difficult have been the doubts about her writing, for those doubts figure into her long avoidance of reforms. Ms Jones is confronting those doubts today. She talks openly about her concerns and she seeks out opportunities to learn. But it is a struggle.

This last point implies that learning is more than a capacity-building exercise. Bonnie Jones's efforts to transform her teaching require new knowledge. But they also require courage and will. This is especially true in mathematics and writing. There Ms Jones faces stark truths: She does not know enough mathematics and she fears writing. Comfortable with her textbook instruction and with little outside incentive to change, Ms Jones might have passed. That she didn't testifies to a strong sense of purpose and determination.

Reforms and Daily Instruction

Bonnie Jones has made numerous reform-minded changes ranging from subtle to profound. Some general similarities appear. Students are more active. Instruction is more varied. Content is richer and more complex. Beneath these similarities, however, are notable differences. In reading, the changes are profound and suggest a revolution is occurring. Big changes are also evident in mathematics. How deep they run, however, is unclear. Changes are fewest and most fragile in writing. Ms Jones has added-on a few new activities, but her practice centers on mechanics.

Bonnie Jones is constructing a brand new reading practice. The changes--substituting trade books for textbooks, teaching reading strategies instead of discrete skills, abandoning reading groups for whole class instruction, and pushing reading instruction throughout the school day--are leaps away from her past practice. But they are more than a series of discrete actions. For in combination they suggest Bonnie Jones is reconceptualizing her reading instruction. Her purposes and practices work toward students constructing meaning, a fundamentally different end than the word recognition and skill acquisition ends of her past practice.

She is also conceiving a new purpose--conceptual understanding--in mathematics. Her actions support that purpose. Ms Jones provides multiple representations of concepts and procedures and the time to explore them. She makes real-world connections between the mathematics students are learning and the lives they lead. She opens up the conversation about mathematical ideas. And she challenges students to think beyond one right answer. These are dramatic changes from her silent, textbook-centered, school math practice. Coloring these changes, however, are persistent elements of the old--drill and practice assignments, an emphasis on efficient and accurate computation--which interweave with the new. That old and new co-exist neither undercuts Bonnie Jones's commitment to or actions toward powerful mathematics teaching. But the possibility that changes in mathematics may not run as deeply as they do in reading must be considered.

The relationship between old and new is different still in writing. Traditional practices define Bonnie Jones' writing practice. Evidence of reforms exists. Ms Jones is providing more writing opportunities and is encouraging the writing process. Writing also seems more visible across the school day. But skills-based instruction in the mechanics is Bonnie Jones's writing program. Reform-minded activities appear added-on.

Reforms imply modal practice should change. But change depends on a teacher interpreting reforms as different from her current practice and being willing and able to learn new ideas and approaches. It also depends on a teacher being willing and able to make room among the old and familiar for the new and strange.

Reforms and Assumptions about Teaching and Learning

One last site to compare Bonnie Jones's responses across reforms is her assumptions about teaching and learning. Again there are broad similarities. First, Ms Jones is receptive to reforms. Her interest, enthusiasm, and willingness to pursue new ideas is remarkable. Second, Ms Jones is not satisfied. She has made what many teachers might consider a career's worth of changes. Yet her commitment to learning and doing more continues even as new reforms (e.g., science, outcomes-based education) press her time and attention. Finally, Ms Jones takes risks. Her eager and ambitious responses court uncertainty throughout her practice.

These similarities should not obscure the obvious differences. Changes in Bonnie Jones's beliefs about teaching and learning are most obvious in reading. There, the changes in her daily practice reflect profound changes in her purposes and approaches to teaching and in her understanding of how students learn. Those changes manifest in several ways--new texts are used, new roles of teacher and student are developing, new forms of interaction are occurring. One senses a teacher willing to shake her practice to its core and able to reconstruct it around a different set of assumptions.

The case for fundamental change is less clear in mathematics and writing. The difference in Bonnie Jones's daily mathematics instruction is palpable. But changes in her

beliefs, especially in what it means to know mathematics, are not distinct. She is changing her instructional means, but a fundamental piece--strong content knowledge--is underdeveloped. The sense then is of a teacher negotiating the difficult relationships between content and pedagogy. Changes in Bonnie Jones's assumptions about teaching and learning writing are less evident. Ms Jones adds a few reform-minded exercises, but the bulk of her practice supports conventional views.

Conclusion

Bonnie Jones is a teacher on a mission. She embraces reforms, seeks opportunities to learn, pushes changes in her daily practice, and re-examines her basic beliefs. But she does not manage all reforms the same. Variations emerge. And those variations suggest two conclusions. One is that responses are unpredictable. For example, Bonnie Jones's assertion about a "cycle of change" aside, one should not assume the deep changes in reading practice will be replicated in writing. These subjects might seem related.[40] But as this case illustrates, a teacher's knowledge, experience, and motivation can differ across subjects. If responses are unpredictable across reforms, they are also unpredictable over time. It may be no accident that the biggest changes arise in areas Bonnie Jones has dealt with longest. But there is no guarantee that she will eventually make big changes in all areas. Moreover, there is no guarantee that her current responses will hold into the future. Bonnie Jones's world is much too complex and dynamic to expect changes will occur predictably or regularly.

The second conclusion is that, while outside influences are obvious, Bonnie Jones's inner resources guide her responses. I deal more fully with this point in Chapter 6. For now, however, I want to make the point that Ms Jones' determined efforts demand considerable knowledge and determination. As she moves from traditional to constructivist

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[40] In Becoming a Nation of Readers (1985), Anderson and his colleagues make numerous references to writing and the need to connect reading with writing. Alternatively, those who advance new ideas about writing talk about "surrounding" children with text (Graves, 1983).

approaches, Ms Jones faces the enormous challenge of unlearning what she was taught and learning something quite new. It would be one thing if the difference was limited to new materials or new instructional techniques. In Bonnie Jones's view, it isn't. Instead, constructivist approaches involve changes in her basic beliefs about teaching and learning. Meeting these demands head-on requires a strong will. For not only does Bonnie Jones feel the uncertainty and doubt associated with learning new things and trying new practices, but she does so in an environment ambivalent at best.

Chapter 3

A Paradox of Talk and Practice: The Case of Frank Jensen

Frank Jensen also hears the call to reform. Mr Jensen presents a stark contrast, however, to his colleague Bonnie Jones. For while these two teachers work in the same school, receive the same textbooks, and attend the same district inservices, their responses to reforms vary widely. Bonnie Jones is after big changes and reforms are her vehicle. Frank Jensen responds more modestly for he believes reforms generally confirm ideas and practices he has long held. The evidence is spotty, but the implications are clear: Frank Jensen believes reforms demand little new learning and no big changes. His responses tend to preserve rather than transform his extant practice.

The contrast between Frank Jensen and Bonnie Jones is vivid. Mr Jensen essentially ignores reforms in mathematics. His talk has changed, but his practice shows little influence. Reforms are more obvious in reading. His interest is waning, but Mr Jensen adds-on some reform-minded activities. Mr Jensen is most ambitious in writing. There he adopts big pieces of reform, in effect, creating a brand new practice. Frank Jensen's responses are much more modest than Bonnie Jones's. But his differential responses suggest a practice that is dynamic and ever-changing.

* * * * *

Frank Jensen is a white man in his late-40's. If clothing defines the man, Mr Jensen is aptly dressed. His casual, often rumpled, clothing, and well-worn sneakers stand in some contrast to the crisp shirts and ties of the Donnelly-King principal and his three male colleagues. But they reflect well his informality and disinterest in "doing things the regular way."[1]

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[1] Unless otherwise indicated, all quotations are Frank Jensen's words and come from interviews conducted between 1991-1993.

Mr Jensen has not followed the "regular" way for some time. After five years as a fifth-grade teacher and 13 years as an elementary school principal[2], he became increasingly dissatisfied with "regular" school. His interests turned to the experiences of students who, while bright, did not succeed in school. When plans for developing a district program for "under-achieving gifted"[3] students were announced, Mr Jensen resigned his principalship and joined in.

The effort produced the Challenger program, now in its eighth year.[4] His 16 third and fourth graders are labeled "academically interested and talented" and have "above average potential."[5] They are "right-brained, holistic learners" and "non-linear thinkers," Mr Jensen explains, whose needs are not met due to a "mismatch between their learning styles and the basic curriculum."

More important than students' cognitive development, however, are their affective needs. "The kids' affective development is really the most important thing," explained Mr Jensen. The Challenger program takes this point as its credo:

> There were gifted and talented students who were not making it in the regular school program...we figured that there was an affective reason...[so] we decided we had to work with the affective area before we could get into the academic area. We thought it was an attitude thing...that maybe it had to do with attitude and perception, self-esteem, and all of that kind of stuff--the affective areas. (interview, 11/12/92)

Challenger-type students fail, Mr Jensen contends, not because they lack the intellectual capacity, but because of a range of affective deficiencies--poor self-concept, low self-esteem, inability to work by oneself or in groups, poor organizational skills.

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2 Mr Jensen was principal of a school in the Derry district, but not Donnelly-King Elementary.

3 The construct "under-achieving gifted" is not of Mr Jensen's making, but he is unsure of its origin. He points out, however, that as he investigated the literature around gifted education, he found little that addressed the phenomenon of gifted children not reaching their potential. Finding little of value either in the literature or at the conferences he attended, Mr Jensen decided to "follow [his] nose."

4 Mr Jensen is fascinated with the US space program. The "Challenger" label comes from the space shuttle of the same name.

5 Potential Challenger students can be recommended by a parent or teacher, but they must score in the top 5% on the Otis-Lennon test administered in the first and second grades. Students are placed for a 9 week trial period. Few students return to regular classrooms at that point or during the remainder of their years at Donnelly-King Elementary.

Frank Jensen knows his students' needs from personal experience. "I was a Challenger type kid as an elementary student," he explained, "I was a good reader except I was non-traditional." Mr Jensen recalls few teachers understood his cognitive needs as a "global learner, very much right brain" and his affective needs to be "praised for the things I did right."

He intends to be different. Mr Jensen teaches a "holistic curriculum," one in which a lesson in self-concept is as important as a lesson in multiplication.[6] "We're trying," he said, "to adapt a traditional curriculum to meet their needs...it's like a traditional curriculum in non-traditional ways....With these kids, you need to try a lot of different things." Asked to describe his teaching, Mr Jensen said, "I use a shotgun approach."

Frank Jensen's efforts seem admirable. But what this talk means is not clear. For Mr Jensen also takes a "shotgun" approach to ideas. His talk is peppered with references to "non-linear thinkers," "affective needs," and "holistic curriculum." His talk is also sprayed with references to reforms: Mr Jensen talks confidently and at length about "reading strategies," "whole language," "mental math," "problem-solving," "the writing process." But neither his talk nor his teaching makes obvious what these terms mean. Mr Jensen's talk is broad, sweeping generalities; his teaching, particularly in reading and mathematics, is quite conventional. His mathematics instruction, for example, looks neither "non-traditional" nor rooted in "problem-solving." Instead, it is skills-based and focuses primarily on drill and practice of algorithms. By contrast, his reading instruction looks like a hodge-podge of old and new. On any given day, one is as likely to observe students

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[6] Mr Jensen's belief in affective development has few bounds. He notes, "Whenever I give a piece of data to a student, the student's whole affect is going to determine how they [sic] perceive what it is that I see, I say, or do which is then going to powerfully determine what the outcome, the learned outcome is."

That perception contrasts with reforms which urge greater emphasis on content. Applebee et al., (1987), using NAEP data, suggest, "There is a temptation to ask schools to do too many things, many of which have little to do with developing academic skills. When priorities are set and resources allocated, academic goals should be among the top priorities" (p. 45). Unlike the reforms of the 1950's which stressed only academics (Cohen & Barnes, 1993), current reforms suggest that both content and social goals are important and that one reinforces the other (See, for example, NCTM Standards, 1989; 1991).

working on a de-contextualized phonics worksheet or practicing "reading aloud" as participating in an in-depth discussion about a character in a story.

A self-described "pack rat" with a "cocktail party mind," Mr Jensen's classroom reflects his ideas and instruction. It bursts with all manner of odd and end. There are the usual classroom accoutrements--textbooks, bulletin boards, desks, and chairs. But these things compete for space with an array of stuff Mr Jensen has collected through the years. One corner houses the first in-class computer in the school. Disks, manuals, print-outs spill onto the floor. In the opposite corner is the "reading area", a large, two- story structure made from scrap 2 by 4's and plywood. During free reading time, students take books and crawl underneath and on top, lounging against the assorted pillows. Dominating a third corner is Mr Jensen's "junk pile." Cardboard boxes overflow with metal, wooden, and plastic doodads. Heaps of partially disassembled machines--radios, typewriters, telephones cover shelf and floor space. Spools of wire, trays of nuts and bolts, and boxes of tubes and transistors lie scattered about. This "collection" provided the fodder for a recent unit on "inventions." The hallway door is in the fourth corner of the room and is the only unobstructed area in the classroom. Though the corners function as gathering places for both stuff and students, each classroom wall holds just as much--sets of old encyclopedias, an extensive collection of National Geographics, bookcases of trade books and cut-up magazines. Squeezed into the middle are a scattering of students' desks and the podium Mr Jensen occasionally teaches from. Mr Jensen's desk, near the back of the room, flows over with a representative sample of all of the above. This classroom jumble is more or less permanent. But at different times of the year, class projects take over the room.

The look and feel of Frank Jensen's room reflects his "cocktail party mind" and his "shotgun approach" to teaching. It also reflects what he terms a "special dispensation" to run the Challenger program with minimal interference. Describing the program and the classroom in which it resides also says much about how Mr Jensen responds to reforms:

Frank Jensen collects ideas just as he collects stuff--in large, loosely-connected piles. But like the stuff in his classroom, Mr Jensen takes more interest in collecting ideas than in their use. He has much to say, but it is not clear that he thinks deeply about ideas or teaching. Mr Jensen claims his teaching reflects the reforms, but if so, it is mostly in bits and pieces scattered across the school day. His talk about reforms and "non-traditional" approaches aside, Frank Jensen's instruction is largely conventional.

Responding to Reforms

Frank Jensen's responses differ sharply from Bonnie Jones's. But differences also surface across his responses to individual reforms.

There are some commonalties between Frank Jensen and Bonnie Jones. Neither teacher attends to every reform. Like his colleague, Mr Jensen attends to more than reading, writing, and mathematics reforms. But much of the national education conversation passes by him. A second similarity is that neither teacher is notably constrained by the school or district. Bonnie Jones claims no "special dispensation" or "bubble of privacy." But neither teachers' actions demonstrate any particular constraint.[7]

The differences between these teachers, however, are profound. Bonnie Jones sees yawning gaps between reforms and her skills-based practice and she is pushing ambitious changes. Frank Jensen, by contrast, believes reforms support and justify what he thinks and does. This fundamental difference has serious consequences. Like his colleague, Frank Jensen is making changes. Some, as in writing, are potentially substantial. But Mr Jensen's efforts more often nibble at the edges of his practice. His talk aside, Mr Jensen's teaching remains as traditional and skills-based as Bonnie Jones's once was.

Shifting focus suggests that the cross-teacher variations may be no greater than the variation across Frank Jensen's responses. There are similarities. Mr Jensen sees little new to learn and reforms have not induced big questions about his stance toward teaching

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[7] The two other teachers studied in this school, Catherine Price and Tom Fielder (Jennings, 1992), are similarly unconstrained.

and learning. But how he manages each reform varies. Mr Jensen basically ignores mathematics reforms. He attends more closely to reading and writing, but it is only in writing that substantive changes may be occurring. The relatively few changes in reading and mathematics are marginal.

The following sections describe Frank Jensen's responses to reading, mathematics, and writing reforms. I choose these examples for these reasons: Mr Jensen claims attention to all; these are reforms common across elementary classrooms; and they provide common sites for comparing Mr Jensen's responses with the other teachers in the study. The discussion highlights his views of reforms, learning opportunities, current practice, and assumptions about teaching and learning.

A note: Both Bonnie Jones and Frank Jensen offer interpretive challenges. With Bonnie Jones, the puzzle is how to describe a teacher enmeshed in a blizzard of ideas and changes. With Frank Jensen, a different challenge emerges, for his responses reveal a mass of incongruities. One is his claim about teaching in "non-traditional" ways. Mr Jensen rhapsodizes about creating a "holistic curriculum" and not teaching in "regular" ways. Yet beyond an occasional social studies or science project, his classroom is a familiar place--traditional subjects, taught in traditional ways. A second incongruity involves reforms. Mr Jensen knows and uses reform language and he claims his instruction reflects reform-minded practice. But beyond his talk and a few new activities, his practice looks like the kind of instruction reformers assail. One other incongruity involves Mr Jensen's claims about student affect. Affective "lessons" are frequent. But they seem to have little effect. Mr Jensen talks knowledgeably and convincingly about all these issues. Examining his talk and practice, however, makes understanding and accepting his view problematic.

Responding to Reading Reforms

Frank Jensen claims to embrace reading reforms. From his talk alone, one might accept that claim: He talks easily and at length about "reading strategies," "literature-based

instruction," "comprehension," "prior knowledge." A closer look, however, suggests something else. For while Bonnie Jones interprets reforms as a serious challenge, Frank Jensen believes they simply reify ideas and practices he has long held. The result: While Bonnie Jones pushes ambitious changes throughout her practice; Frank Jensen is more ambivalent, adding-on a few pieces, but leaving the bulk of his practice intact.

Learning about reforms. Mr Jensen learned the new reading language from state and local sources. One source was the state reading policy. Mr Jensen encountered the new definition of reading and the revised reading section of the MEAP at a state conference in the mid-1980's. He also encountered it at home. Teresa Jensen, his wife and the district reading coordinator, served on a state-level committee charged with reviewing the fledging definition and disseminating the final version throughout the state. Mr Jensen remembers reading early drafts and discussing it with his wife. He later volunteered to pilot the revised MEAP with his students.

District sources provided additional opportunities to learn. Mr Jensen attended several sessions of the week-long district-sponsored "Reading Update" inservice. He reports learning little new, however. More important is the new "literature-based" Harcourt, Brace, Jovanovich (1988) reading textbook. Mr Jensen expresses none of Bonnie Jones's concerns. An "excellent representation" of the state policy, he uses it regularly.

From these sources, Frank Jensen learned the reform talk, but little more. Other than "picking up a few little tidbits," most of what he learned was a new way to talk about ideas and practices he claims to already hold. Bonnie Jones and many other Michigan teachers interpret the reforms as revolutionary (Cohen et al, in preparation). Frank Jensen does not. His reaction: "It all fit my orientation and justified what I'd been thinking all along." Since the initial state and district activity, Mr Jensen's interest in reading reforms has faded. He pursues no other opportunities to learn about reading and reports that he is currently occupied with new science and outcomes-based initiatives.

A mixed view of reading. Frank Jensen's "orientation" toward reading is a hard nut to crack. Researchers differ in characterizing the range of approaches teachers take toward reading,[8] but most believe that teachers follow a predominant line. Richardson and her colleagues (1991), for example, characterize teachers as taking one of three stances toward reading: skills/word, literary structuralist, or whole language. Of the 39 teachers in their study, all but four fit into one of these three categories. Those four teachers were characterized as holding a view that "does not represent an extant approach" (p. 571). The researchers conclude this view represents "either extreme theoretical complexity or confusion" (p. 583). Frank Jensen's view of reading fits this category.

If we accept Mr Jensen's contention that reforms mirror his extant view, that view reflects his "shotgun" approach. Mixing metaphors, he contends, "Reading is a potpourri." Mr Jensen takes eclecticism to its logical extreme. He may see some distinctions between various views of reading. He avers, however, that all are entirely compatible and equally useful. Mr Jensen's view of reading runs in several directions at once: skills-based instruction (emphasizing phonics, oral fluency, and discrete skills); strategy instruction (which focuses on the structure of text and the construction of meaning); literature-based instruction (which highlights the reading of good stories); whole language (which emphasizes integrating reading and writing across the curriculum). So melded together is Mr Jensen's view that he understands there to be no apparent inconsistency in statements such as "phonics is part of whole language. It's just one of the skills" and "oral fluency is a good measure of comprehension."

Reading educators would cringe. Phonics and oral fluency reflect a traditional view which emphasizes the sequential accumulation of isolated and de-contextualized skills. Whole language and comprehension reflect constructivist views by emphasizing meaning and context.[9] Reforms such as the Michigan Essential Goals and Objectives for Reading

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[8] Compare, for example, Harste & Burke (1977), Hiebert & Colt (1989), and Richardson et al., (1991)

[9] This is not to say that all constructivists hold the same views on these ideas (Pearson, 1989).

Education (Michigan State Board of Education, 1986), Becoming a Nation of Readers (Anderson et al, 1985), and Report Card on Basal Readers (Goodman et al, 1988) make much of the distinction between traditional and constructivist views. When Frank Jensen claims to embrace the reforms then what he embraces is an interpretation which blurs all the distinctions.

One example involves the purposes for reading. Frank Jensen's interests lie less in what reforms mean for teaching and learning reading and more in how they facilitate his students' affective development. In his melange of ideas, are some cognitive purposes--mastery of technical skills, using story elements and reading strategies for comprehension. Mr Jensen can and does talk at length about these ideas. But their importance blurs in Mr Jensen's talk about reading and reading reforms as a means of fostering affective growth. "We always deal with the affective side [of reading] first," he said, "because we consider that of primary importance."

Frank Jensen's view of reading and his interpretation of recent reforms contrasts with Bonnie Jones's. Ms Jones interprets the reforms primarily in pedagogical terms. She sees the contrast between constructivist and traditional conceptions of teaching and learning as real and important. Frank Jensen interprets the reforms primarily in terms of his long-standing affective agenda. He is unconcerned about cognitive and pedagogical debates or distinctions. With his eye on affective goals, all approaches to reading appear to be equally viable.

The stark differences between these teachers highlights the point made earlier that teachers interpret reforms differently. The different knowledge and experiences each teacher brings, as well as the different purposes each holds for reading, play out in their varied interpretations of the meaning and import of reforms. But then the Michigan reading policy may sanction such differences. For if students construct meaning and those meanings vary according to prior knowledge and experience, then one should not be surprised to learn that Bonnie Jones and Frank Jensen interpret reforms differently.

A look at current practice. Frank Jensen's blurred view of reading surfaces in his teaching. There is no pattern to his instruction. On any given day, one is equally likely to observe him reading from a trade book, assigning textbook questions, or distributing a phonics worksheet. This is the essence of Mr Jensen's "shotgun" approach--doing whatever he thinks will be instructive at the time. Consider some examples.

Some of Frank Jensen's lessons have the look and feel of reforms. One reading lesson became a site to reward and motivate a student's interest in reading.

> The day's reading lesson began with Mr Jensen asking, "Donny, who is Wayne Gretsky?" The boy answered, "A famous player...a millionaire. He just kept on practicing and didn't give up." Few students seemed to follow this exchange; there was much talking, rummaging through desks, walking around the classroom.
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> "Well, Donny," Mr Jensen continued, "because you were so interested in the story yesterday, I'm going to use you for a demonstration." With that, he called the class to the front of the class and dragged out two large canvas bags full of hockey equipment. Mr Jensen, an avid amateur hockey player, later said he wanted to "reward" Donny's interest in the story by dressing him up in hockey equipment.
>
> With the students gathered around, and Donny standing awkwardly in front of them, Mr Jensen explained the purpose of each piece of equipment as he "dressed" the boy. There are a lot of pieces to a hockey uniform, so Mr Jensen had ample opportunity to describe the equipment and tell stories about his college playing days. Students were attentive, calling out questions related to the different components--why the thumb on the glove moves, why the puck has bumps on the side--and to aspects of the game--why players take off their gloves when they fight. Mr Jensen answered each question in great detail, but students did not always seem to listen. The hockey demonstration lasted about half an hour. (observation, 2/13/91)

Anderson et al. (1985) state that motivation is a "key" to reading. With his affinity for all things affective, Mr Jensen agrees. He described Donny as a "reluctant reader" who he wanted to reward for showing interest in the previous day's reading of the story.

Later in the lesson, Mr Jensen pulled the fourth graders aside to discuss parts of the story. This interaction was one of several:

> Mr Jensen--Dan, what did you find interesting in the story?
> Dan--He had a hockey rink in his back yard.
> Mr Jensen--Where is that in the story?
> Dan--I don't know.
> Mr Jensen--Will it be in the beginning or in the end?
> Dan--The beginning?
> Mr Jensen--How do you know that?
> Dan--Because he was just a boy then.
> Mr Jensen--Good. Donny, what else did you find interesting?
> Donny--The whole thing.
> Mr Jensen--Chris, what did you think was interesting?
> Chris--He got to be a millionaire. (observation, 2/13/91)

"Accessing prior knowledge" is frequently cited as an important reading strategy (Langer, 1984; Paris et al., 1991). In asking what they find "interesting," Mr Jensen tries to enlist students' prior knowledge in order to engage them in the story. Another hint of reform can be seen in his question to Dan about where a piece of information might be found. Understanding that stories have sequences of events is a piece of becoming a knowledgeable reader (Michigan State Board of Education, 1986). Through his questions, Mr Jensen helps the boy connect information across the text to determine when the event occurred.

One other example of reforms is Frank Jensen's occasional use of trade books. Though he likes and uses the new HBJ reading textbook, he drops the textbook "from time to time" to use a trade book as the primary reading text. His reason, however, has less to do with reformers' arguments about richer text than promoting affective issues. "The kids can see themselves in the characters and they can learn about themselves through the characters," he said.

Examples of reform-minded practice are notable but rare. The bulk of Frank Jensen's instruction is skills-based. For example, phonics is an important piece of his instruction. Reforms suggest that phonics, if done at all, should be accomplished by the end of second grade (Anderson et al., 1985). Mr Jensen is either unaware of or ignores this advice. In his view, phonics is "an efficient way of reading" and "all kids need some." Consequently he regularly distributes worksheet exercises in the "44 sounds of the English language."

Another example of traditional reading practice can be seen in the predominately literal level questions Frank Jensen routinely asks of students. Consider these examples from the discussion about the Wayne Gretsky story:

> Mr Jensen--Donny, what can you tell us about Gretsky?
> Donny--Like I said before, he's a famous hockey player, and he practices a lot. Oh and it told about when he scored his first goal.
> Tom--At the age of 18 he was a millionaire.
> Mr Jensen--Can we find the year he did that? (Only a couple of the students look through their books. Others are distracted by the antics of the third graders.)
> Tom--(locating the reference) Nineteen seventy-eight.

> Mr Jensen--Katie, yesterday you were talking about the Lady Bing trophy. Where in the book does it talk about it? (She appears not to understand the question.) What page is it on?
> Katie--(looks through the section, the other students are inattentive) 109.
> Mr Jensen--What does it say? (She stiffly reads the passage and stops at the word, "phenomenal.") What is that word? Break it down into parts. (Mr Jensen helps her sound out the word. He did not ask if she understands its meaning.)[10] (observation, 2/13/91)

Encouraging students to find evidence for their ideas is part of constructing meaning. In this vignette though, the questions Mr Jensen raises are all at the literal or factual level. Asking students to support their answers in that context seems less an example of constructing meaning than of checking whether or not students can remember and locate small details of the story.

One last example of skills-based practice can be seen in a unit on reference books. During this month-long period, reading lessons consisted of worksheet exercises looking up and identifying words from dictionaries, thesauri, and encyclopedias. One day's worksheet directed students to take out dictionaries and, "Look up words. Write page number, guide words, and pronunciation." The activity was ostensibly connected to a "pioneer" unit the students were doing in social studies. The ten words students looked up, however--*aerobic, complain, flail, haze, metronome, pleat, sari, stegosaurus, tapir, yeti*--were unrelated to the pioneer project or anything else. "I just thought they'd be interesting for the kids," Mr Jensen explained.

This lesson has the look and feel of a traditional basal assignment. Students look up a series of unrelated, de-contextualized words and record the appropriate guide words. But to what end? There is no obvious connection among these words or between these words and any other work they are doing. The meagerness of the lesson is underscored when Mr Jensen brushed off students' inquiries about whether they should record definitions of the words. "That's not our purpose," he answered. Mr Jensen saw this lesson as part of a larger instructional whole, but it is not clear that students understood this. They responded

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[10] The Lady Bing trophy is for good sportsmanship. After establishing that, Mr Jensen gave a 10 minute explanation of the different types of penalties players could get. Students seemed only mildly interested.

as if it were just one more school assignment. And though the lesson seemed relatively straight-forward, students dawdled and most had not finished more than an hour later.

Reforms offer a vision of teaching and learning that calls for students to read, think, and share the meanings they construct. When Frank Jensen talks about reforms, much of what he says sounds sympathetic. His practice, however, suggests a different story. In virtually all of his lessons, the instruction is didactic; teaching as telling. The learning is passive and often rooted in repetitive practice. Much attention is aimed at eliciting "right" answers. Students are occasionally encouraged to offer their ideas and opinions, but they often resist. His talk about "holistic" and "non-traditional" approaches aside, Mr Jensen apparently holds a fairly traditional view of teaching and learning reading.

A traditional view of teaching and learning reading. Frank Jensen's reading practice is stuck. Reform-like activities appear. But there is no indication that he is pushing his practice further in that direction. Instead Mr Jensen adds new pieces onto a practice that remains skills-centered. Bonnie Jones's reading instruction also shows a mix of old and new. The difference, however, is that Ms Jones is consciously moving her instruction away from skills-based approaches toward more constructivist approaches.

Frank Jensen is making no substantive changes for he sees little to change. He blurs the strong distinctions reformers make between old and new approaches and he feels confident that he already knows what he needs. In effect, Mr Jensen argues that reformers have finally caught up to what he has thought and done all along.

One other observation: Mr Jensen makes numerous claims about his attention to student affect. Affective "lessons" occur frequently. What these efforts mean, however, is difficult to understand for the effect seems fairly diffuse. This is a typical example:

> During a reading lesson, Mr Jensen delivered two pointed and lengthy affective messages. While reading the play, "The Price of Eggs," Tanya read the line, "I have little enough to eat. I'm a poor widow." Mr Jensen seized this opportunity to label this a "poor me" statement, noting that it served as a means of "putting yourself down."[11] A few minutes later, Mr Jensen again stopped the student reading. "What is

[11] On other occasions Mr Jensen talked about "killer" statements (inappropriate comments which stop or kill discussion) and "vulture" statements (comments disparaging of others). Though Mr Jensen uses this

the good mistake you just made, Carl?" he asked. The boy looked puzzled. "You said, 'littler in purse' instead of 'lighter in purse,'" Mr Jensen said, "That's a good mistake. It means the same thing." Mr Jensen then spoke for several minutes extolling the virtues of "good" mistakes. Acting as if this was an old refrain, students' attention wandered. Some watched peers playing a secretive game of tag, others stared out the window, two students read silently. (observation, 2/20/91)

Mr Jensen often puts content aside to make an affective point. But, in this example, as in the earlier vignette, the result is unclear. Pseudo-sermons on "poor me" statements and "good mistakes" and events like the hockey demonstration appear to have a negligible effect. Students frequently seem disengaged and oblivious to both affective and content lessons. A telling example comes as a coda to the hockey vignette. Donny, the boy Mr Jensen marked to receive special attention, ended up being kept after school for misbehaving the rest of the day. One can only wonder what sense he made of the day's events.

Responding to Mathematics Reforms

As in reading, Frank Jensen knows the language of mathematics reform and talks in ways consistent with it. Reforms, he explains, involve:

> ...changing the whole structure of mathematics and understanding that there is more than just the skills of arithmetic. It's more the reading of graphs and charts and teaching problem-solving methods. (interview, 11/26/91)

Such statements echo the reform literature. The NCTM Standards (1989), for example, recognize that "mathematics [is] more than a collection of concepts and skills to be mastered; it includes methods of investigating and reasoning..." (p. 5). But Mr Jensen's talk about changing conceptions of mathematics and mathematics pedagogy does not apply to him. For he interprets mathematics reforms as he does those in reading: nothing new here. Frank Jensen contends his teaching reflects new ideas about mathematics and always has. Observations of his instruction, like those in reading, suggest otherwise.

Learning about reforms. It is difficult to tell how Frank Jensen comes to talk so confidently about reforms in mathematics. He remembers hearing about a new mathematics section on the MEAP. But he is unaware of the Michigan Essential Goals and

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language extensively, students do not seem to adopt it, nor does the incidence of such statements seem to decrease.

Objectives for Mathematics Education (Michigan State Board of Education, 1990) and the NCTM Standards (National Council of Teachers of Mathematics, 1989; National Council of Teachers of Mathematics, 1991), he belongs to no professional organizations devoted to mathematics, nor does he attend conferences, workshops, or university courses. The principal source of his talk appears to be the newly adopted district mathematics textbook (Addison-Wesley, 1991) and the publisher-sponsored inservice. Here Mr Jensen apparently picked up the vocabulary of reforms: "patterns," "mental math," "estimation," "problem-solving."

Mr Jensen appropriated this language, but he terms it "educational jargon." He taught such things as "supplements" to the previous textbook. "I just called them something else," he explained. If Mr Jensen supplemented the previous mathematics series (Houghton-Mifflin, 1983), he rarely does so now. For he relies almost exclusively on the new Addison-Wesley (1991) textbook. He believes the text embodies the direction reforms advocate and he is willing to follow it's lead.

> I really haven't changed much [due to the] new textbook. I was doing the same sorts of things before. Now they're just built into the textbook....My math teaching is much more orderly now. I hate to say it, but it's driven by the textbook. I'm following that structure. (interview, 10/26/92)

It is not altogether clear what Frank Jensen thinks is "built into" the textbook or why he "hate[s] to say" that he follows it.[12] For in spite of his talk about reforms, Mr Jensen's mathematics practice looks very conventional. If the new textbook reflects current thinking about mathematics, that message is lost in Mr Jensen's presentation.

A mixed view of mathematics. Two themes permeate Frank Jensen's talk about mathematics. One reflects constructivist notions about problem-solving and "doing mathematics" (National Council of Teachers of Mathematics, 1989) The other is rooted in a more conventional view: Mathematics as rules and routines, computation and math facts.

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[12] One possible explanation is that Frank Jensen is sufficiently savvy to know that instruction "driven by the textbook" is considered unenlightened.

As with reading, Frank Jensen uses the language of reforms with confidence and ease. Terms like "mental math" and "estimation" percolate throughout his talk. But it is the term "problem-solving" which occurs most frequently, and it is in this direction that Mr Jensen says the mathematics reforms point. He is right. The reform literature proposes problem-solving as central to a new view of mathematics (Michigan State Board of Education, 1988; National Council of Teachers of Mathematics, 1989).

> Problem-solving should be the central focus of the mathematics curriculum. As such it is a primary goal of all mathematics instruction and an integral part of all mathematical activity. Problem-solving is not a distinct topic but a process that should permeate the entire program and provide the context in which concepts and skills can be learned. (NCTM, 1989, p. 23)

Mr Jensen believes that problem-solving should "permeate" instruction, but not mathematics instruction alone. In fact, asked to define the term, he balks at any specific reference to mathematics.

> Problem-solving is generic. You need to do problem-finding first. Then you need to identify the situation and isolate the problem. It's a totally generic process. (interview, 11/26/91)

Mr Jensen claims to derive this view of problem-solving from the "scientific method" and believes that it can be broadly applied. Thus he contends that problem-solving not only applies to mathematics, but the problem-solving "process" applies equally well across subject matters.

> [It's] the same process to get kids to draw out what a story problem is that is asked for in a problem within a math context....If a learner goes into a situation with an attitude or methodology or process in mind, what's going to come out is going to fit math as well as reading as well as it fits science and so on. (interview, 11/12/92)

This view raises a complex issue. Curriculum reforms make much of teachers' need for deep subject matter knowledge. Considerable attention is also given to "thinking skills."[13] The research base on thinking skills, however, is of two minds. Some researchers hold that thinking is done only in context and is subject matter-specific (Brown,

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13 "Thinking skills" is but one of several labels applied to this literature. Others include "higher-order thinking skills" and "critical thinking."

Collins, & Duguid, 1989; Resnick, 1987). Others promote the notion that thinking or problem-solving is a generic activity (Glaser, 1984; Perkins & Salomon, 1989). The complication comes when reforms might be variously read to endorse either subject-specific or generic problem-solving. Consider a brief example. The Michigan Essential Goals and Objectives for Mathematics Education (1990) states:

> Problem-solving permeates all content strands.[14] Because of their central purpose in mathematics and in practical situations, problem-solving and logical thought are viewed as threads that run through all content areas. Beyond [that], there are problem-solving strategies in a separate strand that can help students be better problem-solvers. (p. 5)

This statement establishes problem-solving as fundamental to mathematical reasoning and all aspects of mathematics content. But at the same time, it suggests that some set of problem-solving "strategies" can be separated out and taught independently of any particular mathematical context.

Whether Frank Jensen recognizes these disparate views or not is difficult to say. Remember he has read neither the Michigan policy nor the NCTM Standards. One wonders what sense he might make of all this if he did. Would he focus on the generic view and feel justified in his view? Or would he zero in on the notion that problem-solving need be a contextual matter that makes sense only within a mathematical setting? It's a good question. He talks about mathematics but, as in reading, Mr Jensen disregards distinctions among ideas and focuses instead on broad connections. If he were to read the Michigan policy, he might reconsider his view. As it stands now, however, Mr Jensen takes the position that, while he teaches problem-solving in mathematics, it is the same process he might teach in a reading or science lesson. The "basic framework [of all subject

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[14] Problem-solving is one of six mathematical "processes" which the policy asserts should weave throughout the content. The content strands or areas are: whole numbers and numeration; fractions, decimals, ratios, and percent; measurement; geometry; statistics and probability; algebraic ideas; problem-solving and logical reasoning; and, calculators. The other processes are: conceptualization; mental arithmetic; estimation; computation; and, calculators and computers.

matter] is the same," he said, "And it's easier to use one than to make up a bunch of new ones."

Problem-solving, however defined, is one aspect of Frank Jensen's view of mathematics. Equally important is an emphasis on mathematical rules and procedures. He states that reforms call for "changing the whole structure of mathematics" and that his view of mathematics reflects this push. But like his view of reading, Mr Jensen's view of mathematics is expansive. And within that view is a traditional conception of mathematics as computation.

Reforms challenge the primacy of computation. "Conceptualization of mathematics and understanding of problems should be valued more highly than just correct solutions to routine exercises"(Michigan State Board of Education, 1990, p. 3).[15] Reformers do not dismiss computation. But they do dismiss the notion that computational mastery is a necessary precursor to problem-solving. They suggest that "knowledge often emerges from problems" and that "experience with problems helps develop the ability to compute" (p. 9). The proper role then is to contextualize computation by centering it within problem situations.

When he observes that reforms downplay the "skills of arithmetic," Frank Jensen implies that he understands this argument. But much of his talk has a different cast. Computation, he said, "is a very necessary phase...being able to perform the calculations is still terribly important." Mr Jensen holds that computation is "pretty unexciting." Nevertheless, he argues that mathematics is composed of sequential facts and skills and that mastering the rules and procedures of computation is critical. As an example, he cites the need for students to quickly memorize the multiplication tables:

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[15] The authors of the NCTM Standards (1989) concur:

> The approach to computation taken in this standard requires educators to rethink traditional scope-and-sequence decisions. If they are to meet the comprehensive curricular goals articulated in the K-4 standards...teachers must reduce the time and the emphasis they devote to computation and focus instead on the other mathematical topics and perspectives that are proposed. (p. 46)

> [Memorizing multiplication tables] is one of those unfortunate things. It's one of the building blocks of mathematics....There's no new ideas about teaching the times tables. It's just something you have to learn. (interview, 11/26/91)

Drilling students on the multiplication tables is "every teacher's bane." But Mr Jensen questions neither that practice nor the conception of mathematics it represents. In fact, when pressed about his interpretation of the relationship between computation and new views of mathematics, Frank Jensen makes an astounding connection. Just as he blurs distinctions between subject-specific and generic ideas about problem-solving, so too does he blur the distinction between problem-solving and computation. Mr Jensen claims there is no difference between them:

> It's [problem-solving and computation] really the same thing. You start with 'What are the facts?' Then you figure out what you're being asked to do. And then you decide what operations to use. (interview, 11/26/91)

A statement like this is difficult to make sense of given Frank Jensen's propensity to talk in generalities and to make large, but loose, connections between ideas. Consider another example. In Mr Jensen's view, all subject matter reforms are about "process": "Reading is a process. Math is a process. It's [all the reforms] all process oriented. You're more interested in <u>how</u> the child does rather than <u>what</u> they do." Mr Jensen could see a deep connection between computation and problem-solving. But given his breezy acquaintance with such things, he might also be making these connections without having thought much about it at all. As in reading then, Frank Jensen's view of mathematics and his interpretation of the mathematics reforms are a stew of ideas where the identifiable pieces take on the flavor of whatever is around them. It also appears that, unlike Bonnie Jones, reforms have not induced him to think deeply about mathematics.

<u>A look at current practice</u>. The parallels between Frank Jensen's reading and mathematics practices are strong. His talk about mathematics is a complex mix of traditional and reformist views. His mathematics instruction, despite the appearance of some reform-minded elements, typically leans toward conventional knowledge and skills. There is a difference between Frank Jensen's reading and mathematics instruction. Where

he takes a "shotgun" approach to reading, Mr Jensen's mathematics lessons are drawn almost exclusively from one source--his mathematics textbook--and aim at essentially only one goal--mastery of computation rules and procedures. A lesson in division of whole numbers is representative:

> Mr Jensen wrote this problem on the board: $3\overline{)246}$ He covered the 4 and 6 with a piece of paper.
>
> Mr Jensen--William, what's the first step?
> William--Three divided into 2?
> Mr Jensen--That can't happen, right? Will 3 go into 24? (Mr Jensen moves the paper to reveal 24. William nods) How many times?
> William--Eight.
> Mr Jensen--Where does it go? (William points at the board. Mr Jensen interprets this as above the 4) Up top? (William nods) What is 8 times 3?
> William--24 (Mr Jensen writes 24 under the 24 in the dividend.)
> Mr Jensen--What's the next step?
> William--Subtract. (Mr Jensen does so.)
> Mr Jensen--What's the next step?
> William--Bring down the 6?
> Mr Jensen--Okay, what's the next step?
> William--Three goes into 6.
> Mr Jensen--How many times?
> William--Two. (Mr Jensen writes a "2" over the 6)
> Mr Jensen--What is 3 times 2?
> William--Six. (Mr Jensen writes a "6" under the 6 in the dividend.)
> Mr Jensen--Then what do we do?
> William--Subtract. (Mr Jensen subtracts 6 from 6.)
> Mr Jensen--When you have a pattern like that, do you know what it is called? (No response.) An algorithm. That's a big word that you don't have to remember. (pause) If you remember the steps, it's sort of like a song.

Mr Jensen then set the third grade assignment--a textbook page of 20 similar division problems. To the rest of the class, he announced, "Fourth graders will need to go one step further today."[16] He wrote the problem

$$4\overline{)556}$$

on the board and said, "It's the same process, a few more steps. It's the same series, just keep going."[17] He quickly reviewed the "steps" of solving the problem and assigned a number of textbook problems. As students turned to their work, Mr Jensen circled the room. In response to numerous questions, Mr Jensen repeated one of two refrains--"Remember to go step-by-step" and "You forgot the pattern, didn't you?" (observation, 2/20/91)

Mr Jensen claims reforms mean students need more than the "skills of arithmetic." Yet his instruction is rooted in just that. He demonstrates the procedure, focuses on the correct

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16 With rare exceptions (e.g., the problem-solving vignette which follows), students are always divided at some point in their mathematics and reading lessons. Science and social studies lessons are taught across grade level.

17 After the lesson, Mr Jensen explained that "one step further" meant that fourth graders would compute a product with three digits as opposed to the two digit products in the third grade assignment.

"steps" to take, and assigns a sheet of practice problems. Consistent with a skills-based approach, the emphasis is on doing the procedure correctly and getting the right answer. The interaction between Mr Jensen and the student is also typical. There is seldom any discussion; most students sit passively, disengaged from the lesson and one another.

Ironically, in this most traditional lesson, Mr Jensen uses a term central to reforms: pattern.[18] Though it's use and interpretation varies,[19] "pattern" generally refers to a relationship characterized by regularity and predictability (National Council of Teachers of Mathematics, 1989). Frank Jensen, however, equates pattern with a routine or procedure, as in the steps of a division problem. He uses the term frequently, but he does so in ways outside any common mathematical use.

Mr Jensen's instruction is at odds with reforms in other ways as well. First, there is the issue of computation. Reformers argue that computation should be taught in a problem-solving setting and with an eye toward conceptual understanding. This lesson, and all others I have observed, reflects neither of these ideas. Mr Jensen makes no attempt to connect the division lesson with any particular problem or issue, nor is there an attempt to pull from the lesson any connection to larger concepts like grouping, partitioning, and naming and re-naming. Instead the emphasis is on the procedure and getting the right answer. Second, there is the issue of instructional representations. The Michigan mathematics policy (Michigan State Board of Education, 1990), for example, urges teachers to "identify and use models and thinking strategies for basic facts...to use models [for example] to show the multiplication algorithm" (p 9). The NCTM Standards (1989) support that view:

> By emphasizing underlying concepts, using physical materials to model procedures, linking the manipulation of materials to the steps of the procedures,

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[18] The California math policy (California Board of Education, 1992), for example, lists patterns as one of the central themes of a new view of mathematics. Heaton (1994) points out, however, that "What is a pattern?" is no easy question to answer.

[19] The status of pattern as a key concept in school mathematics has risen. Described as a "strand" in the 1985 California mathematics framework, pattern was elevated to a "theme" in the 1992 document.

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> and developing thinking patterns, teachers can help children master basic facts and algorithms and understand their usefulness and relevance to daily situations. (p 44)

If Mr Jensen is concerned about his students' conceptual understanding of division, one wonders why he does not use mathematical manipulatives to provide alternative representations of the division algorithm. This seems particularly ironic given his claims of attention to students' "learning styles." Mr Jensen is determined to have students learn to divide, but there appears to be only one "right" means to that end.

Skills-based instruction prevails. But reform-minded ideas are not completely absent. The reference to "patterns," weak though it might it be, is one example. Another is the "problem-solving" activity Mr Jensen schedules each Friday. Fridays, Mr Jensen explains, are "game days." On game days, he said, "We do about a half a lesson out of the regular math and then we do that [problem-solving] kind of thing." An example follows:

> Mr Jensen distributed a handout and asked Louise to read the problem. The problem was this:
>
> Kevin, David, Julie, and Tom contributed a praying mantis, a katydid, a ladybug, and a wasp to their class insect collection. Don't let the clues BUG you as you sort through the puzzle.
>
> 1. Kevin, David, and the boy with the wasp brought their specimens to school in jars with holes poked in the lids.
> 2. Julie lives next door to the boy who brought the katydid and down the street from Kevin.
> 3. The boy bringing the ladybug to school carried it in a baby food jar lined with grass (Dandy Lion Publications, 1982, p. 2)

The handout showed drawings of the four characters, the insects in labeled jars, and a matrix with the insects listed across the top and the children's names along the side. As he reproduced the matrix on the board, Mr Jensen said, "This one will take a lot of thinking, so if you get a headache, then that's good." He added, ""Remember, this is math, but it's also reading. You've got to remember that." There was no student response.

As about half of the students worked the problem, Mr Jensen exhorted them to "read the clues and think...you can't do this one quick and dirty, this one's hard...all the clues are there, just think about it." After approximately three minutes, he noticed that two boys and one girl had finished. Mr Jensen immediately called the class back to order and said, "Okay, let's see if we got it right."

Mr Jensen read the first clue ("Kevin, David, and the boy with the wasp brought their specimens to school in jars with holes poked in the lids.") and asked Bryan, "What does this tell us?" No response. "Who brought the wasp?" he continued. Several students call out, "Tom." "Right," said Mr Jensen. He wrote "yes" at the intersection of Tom and wasp, and "no" in the rest of the row. He also filled the wasp column, beside the other characters' names, with "no." Then Mr Jensen read the second clue ("Julie lives next door to the boy who brought the katydid and down the street from Kevin."). Talking aloud, he concluded, "So David must have brought the katydid." He wrote "yes" at the intersection of David and katydid, and "no" in the remaining places.

At this point, Joey said, "Wait, Mr Jensen, I don't get the first one [clue]." Mr Jensen paused and said loudly, "Joey, you are to be commended for asking that question. The only dumb question is the one you don't ask." He then talked through the first clue until Joey said that he understood. Mr Jensen then read the third clue and concluded aloud that Julie had brought the praying mantis and Kevin the ladybug. He

completed the matrix and asked who among the students had arrived at the same answer. A couple of hands went up. Mr Jensen called on Robert to explain how he had solved the problem. "I just figured out the clues and then it came easier," Robert explained. Mr Jensen accepted this without comment. He asked no other students for their solutions nor for their thoughts about Robert's solution. The lesson passed. Mr Jensen concluded the activity by asking if the task was a math or reading problem. Seemingly on cue William called out, "It's both!" "Right," Mr Jensen said, "and both reading and math are important." (observation, 11/26/91)

If the division lesson does not look much like the reforms, what about this activity? Reformers would undoubtedly object to the association of problem-solving with "games" and the partition between problem-solving and "regular" math. But on the surface at least, the activity offers potential. There is an opportunity for students to engage in logical reasoning and problem-solving by drawing pictures, developing conjectures, sharing their ideas.

Apart from the "problem-solving" label, however, it is not clear how Frank Jensen's treatment of this activity differs from the division lesson. Both lessons suggest a traditional perspective on teaching and learning. The teaching is didactic. Mr Jensen steers the discussion of the situation and clues in step by step fashion. He entertains no alternative conceptions of the clues or how to solve them. He offers only one way to solve the problem, and he suggests there is only one right answer. The learning is passive and reflexive. In the division lesson, there is little sense that students understand what they are doing or why they are doing it. They attempt to follow Mr Jensen's instructions and reproduce them. In the problem-solving lesson, they sit and listen to Mr Jensen solve the problems and mark their papers accordingly. In neither lesson do students have much opportunity to make their thinking public and to consider and critique each other's ideas. One can only wonder what students who arrived at answers different from Mr Jensen understand about this activity and their ability to do mathematics.

A conventional view of teaching and learning mathematics. Frank Jensen claims mathematics reforms merely confirm approaches he has held for some time. He senses no significant difference between his practice and reforms and no need for fundamental change.

Though his talk echoes reforms, there is little indication that Frank Jensen is moving his practice in that direction. In fact, Mr Jensen seems generally content with his approach to mathematics. He has made no major changes and plans none in the future. Any visible changes then have been added-on. Use of the word "patterns" is an example. Mr Jensen undoubtedly teaches the division algorithm much as he did early in his career--as a step-by-step routine aimed at computing right answers. He layers on the language of "patterns." But Mr Jensen's conception of division, his approach to teaching it, and his expectations of learners have not changed.

Frank Jensen's response to mathematics reforms roughly parallels his response to reading reforms. Reforms are more evident in reading, but in both subjects, his daily instruction and his basic assumptions about teaching, and learning reflect traditional approaches. By emphasizing procedures over conceptual understanding, right answers over multiple responses, single representations over alternative representations, and individual learning over group learning, Frank Jensen's instruction is rooted in the very kind of pedagogy that reformers decry. Unlike Bonnie Jones, Mr Jensen hears nothing that impels him to question his current practice, to learn more, or to make any substantive changes.[20]

Responding to Writing Reforms

Until this year, Frank Jensen ignored writing reforms completely. He is now taking a second look, and his ambitious response contrasts sharply with those in reading and mathematics.

Learning about writing reforms. Frank Jensen cites two sources for his current interest in writing. One is the "state" (the state department of education) which he understands is promoting student writing. "They're trying to encourage more free-writing

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20 There is one interesting difference in the way Frank Jensen responds to reading and mathematics reforms. In contrast to reading (and virtually every other subject), there is little mention of student affect in Mr Jensen's talk about mathematics. Why this is so is not clear. But taken together with his solidly traditional approach to mathematics, it undercuts Mr Jensen's claim to be teaching in "non-traditional" ways.

because the more [students] do it, the better they get at it," he explained. Not surprisingly, he appends an affective justification: Free-writing is "confidence-building" and is "good for students' self-esteem." It is not entirely clear, however, how Mr Jensen reached these conclusions or what "free writing" means to him. He has attended no workshops or inservices on writing, other than a single session during the "Reading Update" inservice five years ago, nor is he aware of any particular state initiatives such as the Essential Goals and Objectives for Writing (Michigan State Board of Education, 1988).

The more likely source then is his wife. Though technically the district reading coordinator, Teresa Jensen, has become increasingly interested in connecting reading and writing. To that end, she supports and encourages teaching writing as a regular part of the curriculum and in cross-disciplinary units. Whether the state or his wife holds sway, Frank Jensen is actively responding to the call of writing reforms.

Writing reconsidered? Until this year, Frank Jensen not only ignored writing reforms, but any instruction in writing at all. Nothing like "writing" or "English" ever appeared on his daily list of topics, though "reading," "spelling," and even "hand-writing" do.[21] He did not teach lessons on identifying parts of speech, using punctuation marks, or parsing sentences nor did he offer students opportunities to write beyond worksheet exercises and end-of-the-chapter questions. Interview transcripts reveal that, though he holds a view on nearly every subject, there is virtually no talk about writing. In the single reference, Mr Jensen notes that he increasingly uses video technology because "kids find the physical act of writing and re-writing off-putting." Evincing his considerable discretion, Mr Jensen apparently decided he would teach no formal lessons in writing.

Though his sources are few, Frank Jensen nonetheless appropriates the language of writing reforms. He talks about elements of the "writing process" such as brainstorming and revising. He talks about students' need to do more "real world" writing. And he talks

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[21] Mr Jensen lists the subjects to be covered each day on the blackboard. He rarely follows this list as written.

about the need for "writing across the curriculum." Like Bonnie Jones, Mr Jensen makes no connection between writing and mechanics. Unlike Ms Jones, however, Mr Jensen does not talk about mechanics at all. His interpretation of writing reforms centers primarily on providing more opportunities to write.

Interestingly enough, Mr Jensen does not describe this as a big change for him. Though he had virtually no writing practice before this year, adding writing caused neither any disruption to his daily schedule nor encouraged him to seek opportunities to learn about the reforms.

A look at classroom practice. The first writing lessons I observed in Frank Jensen's classroom came during the third year of this study. From this perspective alone then, one might argue Mr Jensen is transforming his practice. For not only is writing now an explicit part of his instruction, but there is much in these vignettes that looks like the reforms. From another perspective, however, this change looks much less radical. For it is not clear that Mr Jensen sees this effort as an important change in his daily practice or as a challenge to his prevailing assumptions about teaching and learning. Moreover, it remains to be seen if writing will continue to be a regular part of the school day. Unlike his response to reading and mathematics reforms then, Mr Jensen leaps squarely into the middle of writing reforms.

One piece of the writing reform agenda evident in Frank Jensen's classroom is journal writing. A brief example follows:

> Fifteen minutes before science, Mr Jensen announced that it was "journal time." Students pulled stenographer pads from their desks and flipped through to the first open page. Mr Jensen said, "Today is absolutely free form. The only rule is you have to write." Most began, but only about half seemed engaged at any one time. Students stopped writing to talk with tablemates, walk around the room, make faces at one another, stare off. Mr Jensen circled the room urging them back to work.
>
> Jessica, one of the more diligent writers, closed her journal and put it in her desk. Mr Jensen noticed this and, in a loud voice, said, "Keep writing." The girl made a face, pulled the journal out, and showed a tablemate several pages of text. "Look, I wrote all that!" she said. She opened the journal, but did not write anything more. A couple of minutes later, Mr Jensen announced that it was time to put the journals away. Jessica looked at her friend and rolled her eyes. (observation, 3/23/92)

Reformers believe daily writing is critical to students becoming regular and competent writers (Calkins, 1986; Graves, 1983; Michigan State Board of Education, 1988). Journals provide one opportunity. Mr Jensen creates the time for students to make daily journal entries. He allows students to set their own agenda of writing and he controls neither the topic nor the assessment of these entries. He requires only that students write. In these ways, Mr Jensen helps "make writing seem possible" (Calkins, 1986, p. 4). In a classroom where virtually all content area instruction is teacher directed and tasks are closely defined, allowing students time to write in journals is a change of some note.

Reform-minded ideas can also be seen in the pioneers project Frank Jensen organized with the assistance of his wife, Teresa. Mr Jensen describes it as an "integrated research unit" combining reading, writing, and computer skills[22] around a social studies topic. Students, working as partners, write chapters for a "big book" on pioneers for the school library. A "big book" is a large format book written and illustrated for beginning readers. The project took approximately a month and became the focus of each school day.

A number of reform-minded elements emerge. One is the purpose for writing. Writing, as it is generally taught in elementary school classrooms, focuses on discrete grammar exercises. The small amounts of writing students do is confined to worksheet and textbook exercises little of which calls for much thought or skill (Applebee et al., 1981). In the pioneer unit, by contrast, students have a "real" purpose--creating a book that younger children can read. Mr Jensen's students collected information from a number of sources, decided how best to represent that information for younger readers, and constructed the text. A second example is the interdisciplinary aspect of the pioneer unit. Writing reforms argue for teaching writing across the school day. The Michigan Essential Goals and Objectives for Writing (1988) suggests, for example, "provid[ing] instruction and time...for students to practice their writing skills in all disciplines....[Teachers should]

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[22] Computer skills were represented when students entered the text they wrote on a computer. "They get to see how a computer works," Mr Jensen said, "they use the word processing program and the spellcheck."

not limit writing to the English composition classes" (p. 5). With a book as the product of the unit rather than a test, students engage a number of writing tasks as part of their whole school day. One other example is the writing process. Students spent some time brainstorming ideas around their topics, wrote early drafts, and went through a series of revisions. "Publishing" their work as a book for the school library caps the process.

In the past year, Frank Jensen took a bold step toward writing reforms by instituting journal writing and in constructing the pioneer unit. But what kind of change is this? Remember, writing was virtually non-existent in Mr Jensen's classroom before this year. Against a barren background, almost any change might look significant. Looking further into Mr Jensen's efforts suggests that he may be glossing over some key features of the reforms.

One example is the writing process. Frank Jensen talks cogently about the process and its importance for student writing. But consider how he describes the actual process of writing the pioneer book:

> We started with facts and simple words like "ax" and "tool." The kids looked them up in the dictionaries and created a data base[23] looking up things about pioneers....We talked about how to look up facts. What different sources there are and how to use them, like how a dictionary is organized....Then the kids categorized and organized this stuff--tools and weapons, health, travel, clothing...They wrote one sentence for each word. Then we grouped the sentences together and discovered that they made paragraphs. And each group of paragraphs will become a chapter in the book. (interview, 4/24/92)

Statements like this, combined with observations of Mr Jensen's instruction, suggest that he takes a pedantic view of writing instruction. As he describes it, students paged through reference books looking for terms related to pioneer life.[24] They wrote individual

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23 The "data base" consisted of a form Mr Jensen created on the in-class computer to keep track of the information students collected. An entry consisted of the group members' names, the topic category, a brief description (often only a word or phrase) of the item, and a place to indicate the source. The form listed three types: Reference Books (almanac, atlas, dictionary, encyclopedia, Who's Who), Books and Magazines; and Other Sources (family history, interview, letter, photograph, video/television). The several items I looked at all listed a dictionary as the sole source.

Mr Jensen talked at length about using a computer in this project. But most of the time, Mr Jensen used the computer instead of the students. Their activity seemed limited to initially entering their text and using the spell-check program.

24 Examples include "Conestoga wagon," "stagecoach," "log cabin," "lumber mill."

sentences, largely definitional, describing the terms. These sentences were then combined into paragraphs, which were further combined into chapters. The book is a compilation of the disparate chapters. Mr Jensen talks about writing as a "process," but little evidence of the rehearsal, drafting, revision, or editing phases that researchers on writing advocate is evident. There is little sense that writing is a means of thinking about and expressing ideas. Instead writing is taught as an additive process of accumulating more and more words and putting them into standard forms such as sentences and paragraphs until a "book" emerges.[25]

Cast in this fashion, the pioneer unit seems at odds with the new views of writing. Calkins (1986) warns against the temptation of "interpret[ing] the stages of the writing process as discrete, linear steps" (p. 19). Treated as a step-by-step procedure, students may develop a skewed idea of how text is constructed. Moreover, they do not have opportunities to revise or "re-see" their text. Reformers (Calkins, 1986; Graves, 1983; Willinsky, 1990) point to this phase of the writing process as critical.

> The importance of revision is not the succession of drafts, but the act of "revision," of using one's text as a lens to resee one's emerging subject. When children merely add on and on and on, they do not stop to hear and see what their writing is saying. (Calkins, 1986, p. 86)

Mr Jensen's students create text, but because it is simply added together, they miss the important opportunities to revise or resee it as what they know and what they want to say evolves.

Another issue is student "voice." Giving students a voice in their writing is a central feature of new visions of writing instruction (Atwell, 1987; Calkins, 1986; Graves, 1983; Michigan State Board of Education, 1988). Graves (1983) argues that voice is an essential dimension of writing: "The voice is the dynamo of the writing process, the reason for writing in the first place [and] the voice starts with the choice of the topic" (p. 31).

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[25] As if to put the point on the "process" of writing a book, recall Mr Jensen's direction from the vignette above: "Remember, if you have four paragraphs, you need to have four illustrations."

Students exercise their voice at various points during the project. For example, Mr Jensen asked each writing group to name their chapter and suggest alternative organizations for the book. But in several aspects of the project, students' voice was muted. For example, they had no voice in choosing the pioneer theme and apparently little voice in the selecting the topics they wrote about. It also appears Mr Jensen decided when the pieces were finished. In making these decisions, Mr Jensen streamlines the book's production; left to their own resources, students might not have been able to complete the project. But there are consequences. For Mr Jensen may have displaced his students' interest in and commitment to the project. During other observations, students had a great deal of trouble settling down to their work. Few seemed interested in the project or their piece of it. Though Mr Jensen continually reminded them that the purpose was to produce a book for younger children, most students acted as though this was just one more school assignment to work on, hand in, and move on.

These observations cloud the effect of Frank Jensen's effort. Mr Jensen has created space within the school day for writing. He gives students an opportunity to write freely and regularly in journals and to write in a substantive setting for the pioneer book. These efforts might have encouraged him to rethink not only his approach to writing, but to other subject matters as well. So far, they have not. The journal activity lasted for six weeks. Mr Jensen discontinued it then saying that he wasn't sure it was "all that beneficial." The "big book" activity was also a limited effort. Mr Jensen thinks he might do a similar project next year, but he made no plans to extend the notion of writing across subject matters any further in his existing practice.

A mixed view of teaching and learning writing. One wonders what this experience means to Frank Jensen. Does it signal a fundamental reordering of his attention to writing reforms? A gentle inclination? An isolated exercise? What will his writing instruction look like in the future? These are difficult questions. There is some indication of new purposes, new roles, and new norms of interaction. But at this point, they seem

fledgling at best. For trying something new occasions no discomfort or questions about what Mr Jensen knows or can do. Instead, he pronounces himself satisfied. The pioneer unit went "very well" and, if he does it again, he will do it "exactly the same." Ironically, the journal activity, which one could argue most directly challenges Mr Jensen's conventional views of teaching and learning, is of uncertain "benefit" and is unlikely to reappear. This response is also ironic in another way. Given Mr Jensen's strong affinity for things affective, one might suppose he would see journal writing as an invaluable piece of encouraging student self-esteem. That he would be willing to drop it after a short run, seems curious.

Responding to Reforms in the Context of Schooling

The discussion thus far has focused on the relationship between reforms and Frank Jensen's current practice and has been centered in the context of his classroom. But Mr Jensen, like Bonnie Jones, also works in a larger context. Despite the "bubble of privacy" and "special dispensation," he must negotiate an array of regularities and relationships. In contrast with Bonnie Jones, however, Mr Jensen feels very little pressure to respond to these factors. He structures the Challenger program, delivers instruction, and determines the results with little interference.

Managing the Regularities

Frank Jensen can not completely ignore the regularities of content coverage, time, and testing. But he is not much constrained by them.

Like teachers everywhere, Frank Jensen plans and delivers subject matter lessons. The difference is that concerns about covering a prescribed amount of content--a specified set of lessons or the "3/4ths of the textbook" Bonnie Jones understands as the norm--do not arise. Mr Jensen may feel some compunction to cover as much content as possible. But he holds firmly to the affective mission of the Challenger program and he feels no anxiety about allotting big chunks of the instructional day, as in the hockey vignette, to make an affective point. Other teachers might feel compelled to make up for "lost" time.

Mr Jensen does not. He claims the time given to affective exercises is as valuable as any other. So whatever content he does not teach one day is squeezed into a smaller time, pushed to the next day, or dropped.

Related to this point, the rushed feeling of many elementary school classrooms does not exist in Frank Jensen's room. While teachers like Bonnie Jones, complain constantly of too much to do in too little time, Mr Jensen makes no such complaint. He once noted "sometimes you just don't get through everything." But during class, he rarely mentions time or the press to finish a lesson. Students and activities take a leisurely pace. The lesson where students were allowed more than an hour to identify guide words for 10 terms is not unusual.

Frank Jensen also takes a casual attitude toward testing. Though his students were identified for the Challenger program by their scores on a standardized intelligence test, assessment does not figure prominently in Mr Jensen's world. He administers the district-mandated ASAT test to all his students and the state-mandated MEAP to his fourth graders. He evades specifics about their performance, however, preferring generalities like "they did okay" or "they didn't do quite as well as last year." His students apparently do neither significantly better nor worse than their regular classroom peers. This condition has no appreciable effect on Mr Jensen: He makes no obvious adjustments to his instruction in preparation for these tests or in response to the scores.

Managing Relationships

If managing the regularities of school causes Frank Jensen little concern, neither does managing relationships.

Unlike Bonnie Jones, Mr Jensen rarely receives any criticism from peers. His students can be difficult to deal with and Mr Jensen claims few teachers would be anxious to have them in their charge. Consequently he brooks no challenge from those who might criticize his methods. When a colleague questioned something about his program a few

years ago, Mr Jensen said he responded, "What, do you want your kids back?" The teacher demurred. No teacher has questioned him since.

The Donnelly-King principal, Mr Allen, also maintains a hands-off approach. Part of this reflects his belief that veteran teachers need little administrative oversight. But in Mr Jensen's case other factors are at play. Mr Jensen's students are more unruly than their peers in hallways, the cafeteria, and during assemblies. But Mr Allen seems to accept this, perhaps trading off having them all in one classroom with Mr Jensen taking responsibility for them. Frank Jensen understands this and expects no questions of his practice from this quarter.

Neither does Mr Jensen expect any questions or criticism from his students' parents. He cultivates a positive relationship by sending home monthly newsletters, inviting parents to class, and calling them at home with good reports about their children. It is not clear what parents think about the program or of what their children might do in a regular classroom. Perhaps they understand and believe in the Challenger philosophy which places affective growth above cognitive development. Or perhaps they are simply pleased that their children were identified for a special gifted program. In any event, parents rarely ask what students are learning and are an unlikely source of influence on how Mr Jensen plans and delivers his instruction.

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Frank Jensen ascribes his lack of constraint to the "special dispensation" and "bubble of privacy" surrounding the Challenger program. That may account for some of it. Also contributing are the norms of schooling. Teaching is an insular job and teachers routinely operate with little interference from administrators or peers (Lortie, 1975).

But another factor may be Frank Jensen's modest actions. Bonnie Jones finds herself renegotiating regularities and relationships largely <u>because</u> of her ambitious undertakings. Reading and discussing trade books and providing opportunities to build conceptual understanding by using manipulatives creates time, content, and assessment pressures;

using textbooks in non-conventional ways creates problems with peers and parents. Ms Jones felt some constraints during her skills-based days. Attending to reforms, however, exacerbates them. Frank Jensen, by contrast, has a much easier time. Though his talk sounds like the reforms, Mr Jensen's actions cause little dissonance. In fact, so loosely-jointed is his teaching practice, that even his more ambitious response to writing reforms resulted in no particular attention. How Frank Jensen responds to reforms then reflects the choices and decisions he arrives at largely on his own.

Cross-Teacher and Within Teacher Variation

Two levels of comparison run throughout this chapter. One compares Frank Jensen's responses across individual reforms. The other compares his responses with Bonnie Jones's. Significant variation exists at both levels.

The Variation Within Frank Jensen's Responses

Frank Jensen's responses to reading, mathematics, and writing reforms can be compared on four dimensions: relationship to past practice, learning, daily instruction, and assumptions about teaching and learning. There are broad similarities. For example, Mr Jensen sees little new to learn about subject matter or pedagogy nor does he feel the need to question his basic beliefs. These tendencies hold across all reforms. Differences along other dimensions arise, however, as one examines Mr Jensen's individual responses.

Frank Jensen's talk echoes reading reforms. But Mr Jensen blurs the key distinction between skills-based approaches which emphasize word recognition and skill acquisition and constructivist approaches which emphasize comprehension and constructing meaning. His eclectic view glosses the difference: Reading is not skills-based or constructivist, but both. This view influences the relationship between reforms and his past practice. Mr Jensen believes reading reforms confirm and support his extant beliefs and practices. Reforms use new language, he contends, but they express things he has thought and done for some time.

Frank Jensen's reading instruction modestly reflects reforms. New practices--literature-based and strategy instruction primarily--have been added-on. These actions are notable, but do not signal a profound change in modal practice. The dominant strains--skills instruction, text-based lessons, single interpretations--would impress most observers as more familiar than novel.

Two dimensions of Frank Jensen's response to reading reforms carry through his other responses. One is the belief that he already possesses all the knowledge and skills required by reforms. The other is that he feels no need to re-think his beliefs about teaching and learning. After an initial burst, Mr Jensen's interest in reading waned. He stopped going to conferences and workshops and now attends local inservices only when required. More importantly, he feels there is nothing new to learn. He acknowledges picking up some new language and activities, but Mr Jensen routinely dismisses these as significant influences. Given this stance, it is no surprise that Mr Jensen is not re-thinking his assumptions about teaching and learning reading. Reforms have induced no particular questions or concerns. Mr Jensen believes he is doing the reformers' work. Why would he question the assumptions that got him where he is?

On most counts, Frank Jensen's response to mathematics reforms parallels that in reading. First, he blurs distinctions. Differences between traditional views of mathematics as rules and procedures and constructivist views of mathematics as problem-solving are papered over. If mathematics reforms offer anything new, it is in addition to, rather than distinct from, conventional approaches. Second, he believes reforms justify his current practice. Mr Jensen has no quarrel with reforms. He believes new approaches are valuable; he simply believes he is already doing them. Third, Mr Jensen sees as little new to learn in mathematics as he does in reading. He has attended fewer mathematics inservices than reading, but the sense that he already knows what he needs is common. Finally, given his belief that he is already doing the reforms, Mr Jensen feels no compulsion to question his assumptions about teaching and learning mathematics.

There is one significant difference: Frank Jensen's mathematics practice is even more conventional than his reading practice. New activities are fewer and appear even more tacked-on. Mr Jensen's talk about "patterns" and his "game day" problem-solving exercises, for example, seem more decorative than functional. If his efforts toward reading have been modest, they are superficial at best in mathematics.

Writing is another story. There Frank Jensen acts as if reforms matter. He makes no special claims about his knowledge or past practice. Instead Mr Jensen adopts a measure of the writing reforms without question or qualification. He provides journal writing time, introduces the writing process, and includes writing in a cross-disciplinary project. Rather than adding-on pieces onto a pre-existing practice, Mr Jensen is creating a new practice. For here he adopts key reform elements and a key stance toward writing, that is, students need more and richer opportunities to write. Mr Jensen handles some activities awkwardly. And he completely misses the reformers' point about teaching mechanics in the context of students' work. But given that he ignored writing and writing reforms for years, Mr Jensen has taken big strides.

One must remember, however, that Mr Jensen is starting with a fresh slate: Writing of any sort has not had much attention. And this fact makes his lack of interest in learning puzzling. Mr Jensen admits reforms differ from his past practice. But even in this new and unfamiliar territory, he avers no doubts. He claims no uncertainty about his knowledge of writing, his instructional planning, or the outcome of his efforts. Any questions which developed may have been answered by his wife. She follows new ideas in literacy, attending conferences and workshops and promoting new views throughout the district. Mr Jensen acknowledges her assistance. But he makes no claims to new learning. He manages opportunities to learn about writing much as he does those in reading and mathematics: He ignores them.

If Frank Jensen's actions raise no questions about his knowledge, neither do they raise questions about his basic beliefs. Instead, he manages writing in safe and familiar ways.

In the pioneer project, for example, he defines the subject matter, limits students' choices and interactions, creates a writing "process" designed to streamline the product. As a fledgling effort, it is not surprising that he would guide with a heavy hand. But Mr Jensen may have managed it too well. By transposing his conventional assumptions about teaching and learning, he reduces the chances of anything "going wrong." He also reduces the chances of developing his efforts much further.

Two conclusions emerge in this look across Frank Jensen's responses. One is that his responses are unpredictable. For example, who could have foreseen Mr Jensen's embrace of writing reforms? Given his modest responses in reading and mathematics and no obvious pressures to change, one might have bet Mr Jensen would continue to ignore writing. And yet he didn't. This example suggests responses are unpredictable across reforms and across time. Mr Jensen manages most reforms toward conservative ends. But he may not always do so.

A second conclusion is that Frank Jensen's will and capacity figure strongly in his responses. Mr Jensen believes he already knows all that he needs. Reformers would undoubtedly disagree. They might argue that if Mr Jensen knew and understood more about the reforms, he would realize he had much to learn and do to update his practice. But that argument presumes a willingness to act. His recent response to writing reforms implies Mr Jensen can and will take bold steps. His responses in reading and mathematics, however, suggest much less ambitious outcomes are equally possible.

The Variation Across Teachers

Frank Jensen's responses vary across reforms. They also vary from the responses of Bonnie Jones. Given that they teach in the same organization and have access to the same learning opportunities, the breadth of variation seems curious. Why that might be is the subject of Chapter 6. Here I explore the variation across these teachers' responses.

Frank Jensen's generally modest efforts toward reforms stand in stark contrast with Bonnie Jones's ambitious responses. This generalization holds across reading and mathematics reforms. But the situation reverses in writing.

Differences in their responses to reading and mathematics reforms surface along several dimensions. First, Frank Jensen and Bonnie Jones view the relationship between reforms and their practice differently. To Bonnie Jones reforms represent new approaches she should try and old approaches she should abandon. Frank Jensen holds a different view. Distinctions between old and new are unimportant, for he contends that all approaches are part of a larger "process" and thus are equally useful. From his perspective, reforms simply provide more ammunition for his "shotgun" approach.

A second difference can be seen in how each teacher approaches learning. One example is the initiative each takes. Bonnie Jones propels herself into new learning opportunities, attending workshops, inservices, and courses within and beyond the district. Frank Jensen is more restrained. He attends the required district workshops and inservices, but little beyond that. A second example is the degree of attention each gives to learning. Bonnie Jones continues to learn about reading and mathematics reforms. Frank Jensen's interests are more transient. In each case, his initial interest faded quickly as he was drawn to fresh initiatives. One last example involves how learning plays into each teacher's responses. What Bonnie Jones learns threatens her skills-based approaches. She persists, however, constantly seeking new ideas and practices. Frank Jensen has learned nothing that either challenges his past practice or provokes him to consider substantially new practices. Instead, what he hears sounds like things he already knows.

A third difference emerges when one looks at daily instruction. Both teachers' practices reflect old and new elements. Though more true in reading than mathematics, skills-based instruction in Bonnie Jones's classroom is more exception than rule. The reverse is true in Frank Jensen's classroom. There, conventional practices are well-established and it is reform elements which are the exception.

A fourth difference concerns assumptions about teaching and learning reading and mathematics. The disparity between reforms and her practice pushes Bonnie Jones toward deep and difficult questions. Again, this seems more apparent in reading than mathematics. But in both cases, her determined efforts suggest she is not content with superficial changes. Mr Jensen, by contrast, believes his reading and mathematics practice reflect reforms. He has made some changes in his daily instruction. But those changes mount no challenge to his fundamental beliefs about teaching and learning.

The situation is reversed in writing. There, Frank Jensen's ambitious response contrasts with Bonnie Jones's more cautious efforts. Reforms do not stir any anxiety about what he knows and he seems confident that his existing beliefs about teaching and learning will suffice. But Mr Jensen takes big steps toward a new writing practice. Bonnie Jones, by contrast, doubts her abilities as a writer and as a teacher of writing. She is willing to confront those doubts and learn more. But her approach is considerably more circumspect.

Conclusion

These cross-teacher and within teacher comparisons lead me to three conclusions. One is that Frank Jensen is more receptive to reforms than change. Talking to him, one senses Mr Jensen's excitement with and commitment to new ideas. Below the surface, however, a different image emerges. There ideas blur. Teaching is didactic. Learning is passive. Mr Jensen is drawn to the bright light of reforms, but his interest fades well before substantive changes are made. Writing may prove a different case, for the changes there seem dramatic. Where his initial effort will lead, however, is unclear.

A second conclusion is that Frank Jensen takes few risks. In spite of his talk, and whether he means to or not, Mr Jensen shields himself from virtually all risk. He does this in two ways. One is by blurring distinctions. In asserting that new ideas reflect those he already holds, Mr Jensen glosses over differences between ideas and between reforms and his practice. Doing so buffers potential threats and permits Mr Jensen to maintain his

reform patter and his conventional practice. His "special dispensation" and "bubble of privacy" provide a second means of protection. Whether these notions exist in any form outside Frank Jensen's mind is debatable. What counts, however, is that he acts as if they do. Mr Jensen presumes the Challenger program carries special exemption from outside interference. The presumption works: Mr Jensen has considerable classroom latitude. The "special dispensation" and "bubble of privacy" allow him to create an entirely new writing practice. But they also allow him to avoid teaching writing for years and to avoid any standards or accountability now. Mr Jensen's strong steps toward writing reforms is admirable. But he could abandon them and face no questions or sanctions. By blurring distinctions and asserting his autonomy, Frank Jensen insulates himself and flattens out potential risks to his instruction. He also makes himself invulnerable to deep and powerful change.

This last point suggests one other: Frank Jensen is satisfied. As modest as his efforts seem to an outsider, Mr Jensen is sanguine. Bonnie Jones's dissatisfaction is apparent and it feeds her ambitions. By contrast, Mr Jensen believes his efforts meet reformers' intentions. There are no open questions, no issues left unresolved. Mr Jensen's pedagogical comfort hints at no compelling reason to question his views or to make profound changes in his practice.

Prologue

The Hamilton School District, Sanford Heights Elementary School, and Sheldon Court Academic Center

Derry is a laissez-faire district. Textbook adoptions and standardized testing suggest a district presence. But a closer look shows teachers like Frank Jensen and Bonnie Jones hold considerable classroom autonomy. The two teachers in this second set, Marie Irwin and Paula Goddard, work in a very different district context. Central office controls reach deeply into Hamilton teachers' classrooms. The district instructional guidance system figures prominently in Marie Irwin's and Paula Goddard's responses. But so do their respective school contexts. In this section, I describe the relevant school and district contexts and responses to reforms.

Marie Irwin and Paula Goddard teach in Hamilton, a large metropolitan school district, but under very different circumstances. Ms Irwin teaches 25 sixth graders at Sanford Heights Elementary, a sleek, modern building nestled into an attractive upscale neighborhood in the northwest corner of the city. Virtually all the 300 or so students are Caucasian and from middle to upper-middle income families. Ms Goddard, by contrast, teaches at Sheldon Court Academic Center (SCAC), an "alternative" school with an almost exclusively African-American student body. SCAC is located in an old, but well-maintained building that formerly served as a Catholic school. The inner-city neighborhood around SCAC, however, testifies to all of the problems of urban life. Abandoned houses and vehicles, unemployed men and women, drugs, crime, and violence all compete for attention. Many of Ms Goddard's 30 second graders come from this neighborhood; others are bussed from other Hamilton neighborhoods to SCAC each day. Whether from the immediate vicinity or not, the 350 SCAC students share a common lot; they are from poor or working poor families.

As disparate as these situations are, no one even mildly acquainted with urban schooling should be shocked. In fact, Hamilton, unlike many other cities, has managed to

stay solvent throughout the recent economic downturn. Industries have remained open and productive. Unemployment is low and the incomes of both skilled and professional workers are competitive. Yet all is not well in Hamilton, particularly for the schools. A succession of superintendents have passed through the district. Each has left many unfufilled promises and unrealized plans. Voters have turned down school funding increases the last several years. Plans for new construction and the expansion of programs have been shelved. Art, music, and gifted and talented programs have been eliminated and those teachers laid off. Finally, a reduction in force is expected for the coming year and, until final decisions are made, all Hamilton teachers will receive pink slips.

These problems are not new. A financial scandal in the early 1980's rocked the community. The school board, hoping to restore some order, hired a reputedly hard-nosed superintendent. He pursued an aggressive program designed to redress cumulative administrative and financial problems. But he also directed a profound change in the district's instructional program.

The new superintendent believed as strongly in instructional accountability as he did in fiscal responsibility. He introduced and secured board approval for a strong instructional guidance system in the mid-1980's. The several components included: mandated use of district-adopted textbook series in core content areas along with required instructional time allotments, a pacing scheme for reading and mathematics instruction and assessment, a monitoring system whereby teachers had to keep and turn into their principals detailed charts of which lessons they taught and how students performed on textbook chapter and unit tests, and a district developed essential skills test in reading and mathematics for all students K-12.[1] The program emphasized basic skills instruction and holding teachers accountable. Teachers used to wide-ranging curriculum and instructional autonomy had to adjust to new limits.

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[1] All Hamilton students take the district developed Essential Skills test and the nationally normed California Achievement Test. Students at grades 4, 8, and 10 also take the state MEAP test.

The superintendent left Hamilton, but the instructional guidance system and the basic skills orientation have remained virtually unchanged. Hamilton teachers and administrators have ignored reforms calling for more adventurous instruction. State efforts to promote a new conception of reading, for example, fell on barren soil. Teachers taught from their skills-based textbooks, logged pacing chart data, tested frequently, and maintained an ever-increasing paper trail to the central office.

But cracks are developing in the strong district presence. One set of cracks resulted in the creation of the Sheldon Court Academic Center. A coalition of African-American parents, concerned that their children were not being well served by city schools, petitioned the school board for an "alternative" school. Their efforts succeeded and seven years ago, SCAC opened through the combined energies of parents and a selected teaching faculty. The school and staff are not bound by the district instructional guidance system. They can, and have, used district textbooks and tests, but they do so by choice. Interestingly enough, the SCAC curriculum is significantly more geared toward basic skill instruction than are other city schools. That decision seems to have paid off: The scores of SCAC students on standardized tests are among the highest in the district.[2]

Creating alternative schools has undercut the instructional guidance system. So too has a new attention to curriculum reform. This started a couple of years ago. As national attention to reforming mathematics instruction grew, district administrators scheduled inservice sessions and purchased kits of manipulatives. Teachers were still required to follow the pacing of their textbooks and to concentrate on computational skills, but they were encouraged to attend the inservices and to use the manipulatives to supplement their textbook instruction. Though it was outside the parameters of the instructional guidance scheme, district administrators also encouraged teachers to learn about and implement new

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[2] Since SCAC's inception, the school board has further undercut the pervasiveness of the instructional guidance system by creating a series of magnet programs at the middle school level..

ideas about writing. A new English textbook series was adopted which promoted "real," writing assignments and use of the writing process.

What has been only a series of fissures may be about to crack wide open. Until recently, district administrators largely ignored the new state reading policies. Attention to the basic skills curriculum and concern about the Essential Skills test undercut any serious effort to revamp the district reading program. Until Public Act 25, that is. That policy's clear connection between improved MEAP scores and state funding has pushed a reluctant central office to reconsider. Two new literature-based textbooks are being piloted in selected schools--Ms Irwin and Ms Goddard are among the pilot teachers. This single act has cut the instructional guidance system from its mooring. During the two-year pilot, there will be no pacing guidelines, no pacing and test score charts, and no essential skills test. Pilot teachers have been instructed to teach the material, which includes a textbook, trade books, and student journals, and assess their students as they deem appropriate. Ms Irwin, who bristles at the confines of the central office scheme as much as any teacher, is thrilled. Her long experience in the district, however, tells her that this is a temporary respite. She fully expects some version of the instructional system will be recreated, but she is hopeful that it will be a more sensible and sensitive version.

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Marie Irwin has taught under the central office instructional plan since its inception. Paula Goddard is under no obligation to attend to the district instructional plan, yet she teaches under an equally strong institutional mandate--the SCAC basic skills program. Given the organizational differences, one might expect Ms Irwin and Ms Goddard to respond differently to reforms than the two Derry teachers. The cases support that conjecture: Though there are similarites across all four teachers' responses, notable differences emerge. But the second form of variation, the variation across an individual teacher's responses, also surfaces. And interestingly enough, the variation among the Hamilton teachers' individual responses to reading, writing, and mathematics reforms is at

least as great as that of the Derry teachers. In the cases which follow, I describe how each teacher responds to the three reforms and how their responses vary across teachers and within teachers.

Chapter 4

The Center Holds:
The Case of Marie Irwin

Teaching in a different school and district context, one might expect Marie Irwin's responses to differ from those of Bonnie Jones and Frank Jensen. They do. For example, unlike Bonnie Jones who rejected a new reading textbook and Frank Jensen who uses it as part of a melange, Marie Irwin locates her new textbook at the center of her practice. Yet the same time, she regularly supplements textbook lessons with classroom novels, emphasizing the power and grace of a well-told story.

That approach--adding elements of reform (e.g., classroom novels) onto a strong pre-existing traditional practice--characterizes Marie Irwin's response to reforms across her practice. New ideas, materials, and activities are present. But they generally appear in small pieces as add-ons or supplements to a practice rooted in conventional methods and outcomes. Ms Irwin is no revolutionary; she is not out to transform her practice as Bonnie Jones is. But neither is she as feckless as Frank Jensen. Instead, Marie Irwin is a solid, no-nonsense teacher who views reforms cautiously and is willing to make small changes when convinced students will benefit.

Marie Irwin's responses vary from the Derry teachers'. They also vary across writing, mathematics, and reading reforms. In fact, her individual responses vary even more than those of Bonnie Jones and Frank Jensen. The organizational context Marie Irwin works in figures into her responses.

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A tall, Caucasian woman in her late-40's, Marie Irwin, exudes a calm determination. Her voice, deeply quiet, is authoritative; her eyes are quick to smile, but she rarely laughs aloud; her movements are fluid and efficient. She never raises her voice, threatens, or cajoles. She is quiet confidence, business with a kind face. Ms Irwin enjoys the respect

and support of her principal and colleagues, but trusts her own instincts first and foremost. "I learn a lot from my own teaching," she said, "I learn a lot from what I do that is successful and what isn't, what I'd like to do again and what I would change." "I teach myself a lot," she concludes.[1]

Ms Irwin began teaching sixth grade at Sanford Heights Elementary in 1985 after an 18 year hiatus. She started a career as an upper elementary teacher, but left after a couple of years to begin a family. Four years later, she returned to education as a part-time teacher of adults. She taught basic skills in reading and mathematics, advised students working on GED degrees, and directed the city adult education program. When the job at Sanford Heights came up, she jumped. "I always knew I'd return to the classroom," she said, "I always wanted to come back to elementary school." Ms Irwin continues her work with adults. Two days a week, she leaves her sixth graders to teach evening classes in basic reading and mathematics skills to adult learners at a local community college.

A tour of Marie Irwin's classroom surfaces a mix of old and new ideas. Reforms are clearly evident: Trade books line classroom shelves. A large box of mathematical manipulatives sits on the floor near her desk. Posters outlining the writing process are displayed on a classroom wall. Yet these artifacts exist within a landscape of tradition. Dwarfing the writing process posters is a display of more than 30 small, hand-made posters defining parts of speech--noun, helping verb, predicate adjective, subject pronoun--and sentence structures--declarative sentence, run-on sentence, sentence fragment. Other posters detail phonics practices: dividing words into syllables, vowel sounds, long vowels, accent marks, schwa sound. Prominently displayed are four lists of the students who have passed the school mandated "math facts" tests.[2]

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[1] Unless otherwise indicated, all quotes are Marie Irwin's and come from interviews conducted between 1991-1993.

[2] These are timed tests administered at each grade 4-6. By sixth grade, students are expected to correctly compute 100 problems in four minutes on individual addition, subtraction, multiplication, and division tests. This is a building-wide requirement (as opposed to a district mandate) and was instituted at the principal's request because of comments made by middle school teachers and principals about in-coming

This coexistence of old and new is telling. Marie Irwin describes herself as a "traditional" and "old-fashioned" teacher. Observations support that self-assessment: Each school subject is treated as a distinct entity, instruction is didactic and rarely strays from textbook lessons, learning is an individual task . Yet both her talk and practice suggest that Ms Irwin gives some attention to reforms. Traces can be seen between the lines across the school day. Trade books are used and reading strategies presented. Students write in journals and author publishable pieces. Even in mathematics, reforms whisper: Students learn about estimation; they use manipulatives.[3]

Marie Irwin's teaching has changed in response to reforms. But she manages that change in ways that neither threaten nor challenge her long-held views of subject matter, teaching, and learning. Change, when it occurs, happens at the margins of her practice. The center holds.

Responding to Reforms

The cross-teacher and within teacher variation evident in the earlier cases re-emerges here. Marie Irwin's responses share some commonalties with both Frank Jensen and Bonnie Jones. For example, like Bonnie Jones, Ms Irwin is more responsive to reading than writing reforms. She shares even more similarities with Frank Jensen. Neither teacher sees a big gulf between her or his practice and reforms nor does either believe she or he needs to learn much new in order to effect changes. Both teachers hold firmly to traditional pedagogical assumptions and practices.

At the same time, there are important differences. Marie Irwin's approach to reforms is decidedly more cautious than Bonnie Jones's. Where Ms Jones is reconstructing large parts of her instruction, Ms Irwin essentially takes an additive approach, adding small

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seventh graders' inability to calculate quickly and accurately. Ms Irwin supports the effort and claims that it "increases accuracy and speed in all math areas."

[3] Like the Derry teachers, Ms Irwin responds to more than reforms in reading, writing, and mathematics. She also attends to the new state health curriculum (the Michigan Model) and school-wide initiatives in cooperative learning and team-building.

pieces to her extant practice. This approach is also distinctly different from Frank Jensen's. For though her talk sounds less reform-minded than his, the changes in her practice are more evident and appear more firmly rooted. Marie Irwin represents a sort of middle ground between Bonnie Jones and Frank Jensen. She works toward less ambitious goals than Bonnie Jones. But unlike Frank Jensen, she follows through on the commitments she makes.

If Marie Irwin's responses to reforms vary from other teachers, they also vary across reforms. As we have seen in the earlier cases, teachers do not attend to reforms in predictable or consistent ways. Thus, while Ms Irwin tends to treat all reforms as add-ons, important differences emerge. For example, some reform-minded writing activities are now a regular part of the school day. But she segregates these from her formal English instruction. By contrast, Ms Irwin ignores most of the mathematics reforms. She occasionally adds-on an isolated estimation or problem-solving exercise. More often, though she omits them in favor of conventional didactic instruction. Reading reforms are treated in yet a different way. There, the lines between reform-minded and traditional practices blur as Ms Irwin works toward a new set of instructional objectives.

The case of Marie Irwin provides another illustration of how teachers' responses vary. But it is also instructive in another way. For Ms Irwin works in a much different organizational context than Bonnie Jones or Frank Jensen. District and school influences are much more pronounced in Hamilton than in Derry. The norms and expectations, regularities and relationships evident in the district instructional guidance system are stronger in character and effect than anything Bonnie Jones or Frank Jensen faces. Marie Irwin could not simply substitute trade books for the basal as Bonnie Jones does because textbook units are the basis for pacing charts. Nor could she give over large amounts of time to affective lessons as Frank Jensen does because she must pace her lessons. Unlike either teacher, she must administer and record the results of numerous textbook and standardized assessments. The assigned textbooks, pacing charts, and frequent testing of

the district instructional guidance system bound Ms Irwin's actions in ways her Derry peers do not experience.

The organizational constraints in Hamilton are powerful. But their influence is not absolute. Factors like Ms Irwin's knowledge and beliefs about teaching and learning, her disposition toward some reforms and not others, and her personal experiences figure into what she is willing and able to do. For as prescriptive as the Hamilton instructional system is, latitude at the classroom level is apparent.

In the next sections, I look at Marie Irwin's response to the same set of subject matter reforms as in the previous chapters: writing, mathematics, and reading. I look at how Ms Irwin learned about the reforms, what her view of the subject matter is, illustrations from classroom practice, and what all this means for her view of teaching and learning.

Responding to Writing Reforms

No where is Marie Irwin's general approach of adding-on more evident than in her response to writing reforms. Old and new practices coexist in most areas of her practice. In writing, however, a strong demarcation exists between traditional and reform-minded writing practices. Writing reforms such as journal-keeping and creative writing are evident. But Ms Irwin separates these practices from her primary instruction which focuses on mechanics.

Learning about reforms. Marie Irwin hears the buzz of writing reforms. New district-adopted textbooks and school-level initiatives provide most of the opportunities for her to learn about reforms. The new English textbook (Silver, Burdett, & Ginn, 1990) introduced ideas like the writing process. "We're expected to do it as part of our English program," Ms Irwin said, "the textbook is geared to it." To learn about this, she attended the publisher-sponsored inservices and made a careful study of the textbook. A school-level literacy program also pushes Ms Irwin to consider new ideas about writing. At Principal Tim Nettle's urging, the Sanford Heights faculty agreed to support daily reading and writing requirements for all students. The writing requirement can take either of two

forms. "Journals" are spiral-bound notebooks in which students make entries of their choice. "Publishing center" refers to the school-wide requirement that every student submit at least one piece of writing to be published and displayed in the school lobby. Teachers schedule a daily time, typically 15 minutes, for work either in journals or on publishing center pieces.

Writing reforms like the writing process, journal-keeping, creative writing are new for Marie Irwin. But if she is uncomfortable or uncertain about them, she neither acknowledges it nor takes any additional steps to address these feelings. Ms Irwin recognizes that opportunities to learn more exist. She does not pursue them. Instead she seems satisfied with the knowledge she holds and familiar sources such as textbooks.

A compound view of writing. Marie Irwin recognizes new ideas and approaches to writing as something different from her long held view. In that view, writing was called "English" and focused on the formal study of mechanics--grammar, parts of speech, sentence construction. Ms Irwin still holds to this view.

> I think grammar is important and I don't think you can write well if you can't put together a good sentence and I don't know how students can learn to capitalize and punctuate if it isn't taught....I do the writing, and I put a lot of energy to that. But I would never not teach grammar. (interview, 1/25/93)

Few reformers would urge Ms Irwin to abandon all teaching of grammar. But they would suggest teaching grammar as part of a real writing task rather than as a discrete activity (Calkins, 1986; Graves, 1983). Calkins puts the point bluntly: "The research is conclusive. Teaching formal grammar has no effect on the quality of student writing" (p. 195). Continuing, she explains, "English is a skill to be developed, not content to be taught--and it is best learned through active and purposeful use" (p. 204). The Michigan Essential Goals and Objectives for Writing (Michigan State Board of Education, 1988) supports this view:

> Limit instruction in grammar and mechanics in isolation, because application is dependent upon the students' abilities to express themselves in an organized way. Some knowledge of grammar is useful, but too much time spent on the study of grammar steals time from the study of writing. Time is much better spent on

> writing and conferring with the teacher or other students about each attempt to communicate in writing. (p. 5)

It is not clear whether or not Ms Irwin has ever heard these arguments; she has read neither Calkins's book nor the Michigan policy. She has heard calls to de-emphasize traditional English instruction, but she is not persuaded.

Marie Irwin's strong feelings about teaching English have not caused her to ignore new ideas about writing. She recognizes that her students have not done much writing in the past. What writing they did do was short and perfunctory--writing lists of sentences with appropriate punctuation, re-writing sentences with the correct part of speech. She fully supports the school writing initiatives. Ms Irwin willingly schedules time each day where students can write in their personal journals or work on a piece of writing for the publishing center. This is not always easy. In the press of a busy day, finding time for free writing is difficult, but Ms Irwin works to create it:

> I would much rather have a student's original work published and have them miss 10 minutes of math or English than never have them have the opportunity. They will remember that book that they published in the sixth grade more than they will a lesson on how to divide fractions. (interview, 5/4/92)

Providing students with opportunities to write beyond their "regular" assignments is important. In Ms Irwin's view, however, they are supplemental rather than integral to her English instruction. Of the school writing program, she said: "I don't see it as an instructional kind of thing, I see it as an opportunity for [students]...to voice things they want to say." Ms Irwin views writing and English as parallel activities. Both are important; but they do not intersect.

A look at classroom writing practice. The segregation of reform-minded and traditional approaches is evident in Marie Irwin's daily instruction. The mainstay is textbook instruction in English mechanics--grammar, parts of speech, punctuation. The textbook features a unit on the writing process (i.e., pre-writing, writing, revising, proof-reading) and offers abundant suggestions for "real" writing activities. The text is organized into two parts, however. The first proposes reform-minded activities; the second looks like

a standard English grammar. Ms Irwin acknowledges that she does not use the text as it was presented in the district inservice:

> When we were first introduced to this textbook [at a district inservice], we were told that...the emphasis should be on the writing and we should not put grammar in the primary role. [But] I do, because I think grammar is important and I don't know how you can write well if you can't put together a good sentence. (interview, 1/25/93)

Ms Irwin says she teaches chapters from both sections. The following vignette, however, is typical of the lessons I have observed: They focus on discrete grammar skills and seem some distance from reforms.

Ms Irwin directed students to take out their English books (Silver, Burdett, & Ginn, 1990). "What we've been talking about are verbs," she said, "Remember yesterday we began talking about the three forms of verbs. Does anyone remember what they were called?" A few students volunteered partial answers. Ms Irwin summed their responses: "Okay, the forms are the present, past, and past participle. And remember that when you use irregular verbs, they change as you go from past to present."

Ms Irwin directed students' attention to page 130. Present, past, and past participle forms of the verbs "break" (break, broke, broken) and "choose" (choose, chose, chosen) were displayed. She asked, "Can anyone recognize a pattern in that group of verbs?" Tommy said, "You add an ending to the past to get the past participle." "And what is that ending?" asked Ms Irwin? "E-n," the boy said.

"Okay," said Ms Irwin, "Now let's look at the next set of verbs (become, became, become). What is the pattern here?" Jill responded, "The past participle is the same as the present." Ms Irwin nodded and said, "Good. Now if everyone will look at the third box (say, said, said). What's the pattern there?" Jean offered, "The past and the past participle are the same." (observation, 1/15/92)

Ms Irwin then wrote examples on the board (e.g., I break a glass, I broke a glass, I have broken many glasses) and asked students to do the same. Later, she directed their attention to a worksheet where they were to fill in the appropriate verb form. For example:

Nature _____ forth a number of wonders.	(bring, brought)
This delicate creature has _____its cocoon.	(break, broken)
Finally the caterpillar has _____a butterfly.	(become, became)

Such lessons typify her instruction. In fact, grammar is so important, Marie Irwin and some of her Sanford Heights colleagues use an ancillary grammar program, Daily Oral Language (1990), to provide extra practice. A brief vignette gives the flavor of this program:

In the middle of the board at the beginning of the day was this list:

1 Clean your desk.

2 she had lain the groceries on the counter but had forgot to put the

ice cream into the freezer

betty her cousin should have visited the us

3 Work on spelling.

Most students were cleaning papers, books, and the like from their desks. Others were working on the second assignment, "correcting" these sentences.

After the Pledge of Allegiance and morning announcements, Ms Irwin turned to the sentences on the board. She described the corrections while she made them on the board--"Capital S on 'she', 'laid' instead of 'lain', a comma after 'counter', change 'forgot' to 'forgotten', and a period at the end." Chris asked if "laid" and "forgot" were acceptable. Ms Irwin said, "Oh, you changed the verb tense. They don't want you to do that." The boy nodded and "corrected" his paper.

Ms Irwin turned to the next sentence--"Okay, capital B on 'betty,' a comma after 'betty' and another one after 'her cousin,' and capitalize and put periods after 'u' and 's.'" Clarence immediately raised his hand and explained that he had interpreted the letters "u" "s" to be "us" rather than "U.S." "I just took out the 'the,'" he said. Other students reported similar interpretations. Ms Irwin smiled and said, "I thought you might get fooled by this one." Clarence demanded, "So is it wrong?" Ms Irwin replied simply, "Yes." Clarence looked annoyed, but did not challenge her. To the class, Ms Irwin said, "I took these right off the paper, so you can see if you can do them correctly." She then directed students to take out their spelling books. (observation, 4/22/92)

Whether from the textbook or the ancillary program, Marie Irwin teaches grammar as decontextualized bits, important for its own sake. She seldom makes connections between these lessons and other student work. The instruction is teacher-centered and didactic. Ms Irwin leads the class through each exercise. Students participate, but passively. The purpose of the lessons is to determine the "right" answer--the correct punctuation symbol, the appropriate verb tense. There is little room for interpretation as the exchange between Ms Irwin and Clarence attests. Here Ms Irwin is unprepared to even entertain the idea that a different construction of the sentence is as viable as the one listed on the "paper." That Clarence's answer did not match the given response was sufficient justification for calling it wrong.

These vignettes illustrate Marie Irwin's "English" instruction. She handles "writing" much differently. Ms Irwin typically provides the first 10-20 minutes of the school day for journal and publishing center activities. "Journals" are spiral bound notebooks each student keeps. Occasionally Ms Irwin assigns a topic for students to write about. During Peace Education week, for example, she posed this question: "How can we find peace in our world, lives, school, or classroom?" She then used the responses to frame a short discussion. More often than not, however, journal writing is open-ended; students can

write whatever they like. Ms Irwin regularly reads entries, but she assigns no grades and she rarely adds comments. Publishing center writing is also left largely up to students. They choose their own topics and storylines, determine what genre to use, decide how to structure the piece (e.g., characters, plot, point of view).

Students may work on either journals or publishing center pieces during the scheduled time. The only requirement is that they work quietly and individually. Ms Irwin takes a non-directive role. She typically walks around the room, stopping occasionally to talk quietly with individual students. The conversations are short and often related to mechanics--how to spell a word or use a punctuation symbol. Occasionally she edits a piece of writing a student intends to submit to the publishing center.

An additive view of teaching and learning writing. Marie Irwin's writing instruction represents a mix of practice. The journal and publishing center writing are much different than anything she has done in the past. Here Ms Irwin accepts the call for more and more engaging writing activities. But she interprets no substantial challenge to her extant practice. Ms Irwin makes time for students to write and she conducts her regular English instruction. The two activities do not interact. Reform-minded activities appear. But Ms Irwin manages them as separate and distinct pieces.

Reforms have had seemingly little effect on Marie Irwin's beliefs about teaching and learning. She sees benefit in students expressing their views through writing. And she takes a less didactic role as teacher during the writing exercises. But these changes have not pushed deeply into Ms Irwin's practice. Instead she holds tightly to traditional notions about knowing grammar and to conventional views of teaching and learning writing.

Responding to Mathematics Reforms

Marie Irwin approaches mathematics reforms even more cautiously than those in writing. She has added bits of reform-minded content, but in the main, her practice is traditional drill and practice. There is a difference, however. For while she is at once

comfortable with and hesitant to make changes in her mathematics instruction, Ms Irwin has recently been reflecting on it and she reports a stirring interest in change.

Learning about mathematics reforms. What Marie Irwin knows about mathematics reforms and how she learned it is unclear. For her ambivalence toward learning more about writing reforms carries over into mathematics. Through faculty room talk, she learned that the mathematics portion of the MEAP test has been revised and that more emphasis is being placed on "problem-solving" and the use of calculators. She knows nothing, however, of the new state mathematics policy or of national reform efforts like the NCTM Standards. Ms Irwin does remember attending "two or three inservices" in the late 1980's when the current textbook and ancillary manipulatives kit (Silver, Burdett, & Ginn, 1988) were adopted.[4] She knows that district inservice programs are routinely offered and that university courses are available. She chooses not to attend. And in contrast with reading and writing reforms, Ms Irwin can not count on school-level resources to help her. The staff interest in literacy does not extend to mathematics:

> I don't think there's been the building-wide emphasis on math as there has been on writing, and certainly on reading....I don't think it was of any concern. I think people were fairly comfortable with how things were and what was being done. (interview, 1/28/92)

Ms Irwin adds. "We've been using this series for probably four or five years," she said, "I'm pretty comfortable with the sequence I follow, the approach I use."

A changing view of mathematics? Until recently, Marie Irwin ignored mathematics reforms. The "sequence" she follows and the "approach" she uses support a traditional view of mathematics. That view emphasizes swift and accurate computation and memorization of the algorithms for addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals. Students "have to know how to do the math,"

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[4] The Silver, Burdett, and Ginn textbook is an interesting mix of old and new. Attention to reforms is evident in two ways. First, there are lessons on reform-minded topics such as estimation, mental math, and problem-solving. Second, there are references to guide teachers' use of manipulatives. The bulk of the text, however, has a traditional cast--discrete lessons focused on rules and procedures and pages of practice exercises.

she said. And "doing" the math means being able to perform computations quickly and correctly.

New ideas and practices have been in the air since her return to the classroom, but Marie Irwin has felt no need to respond. One reason is that, contrary to reformers' claims, she believes reforms are not really about the subject matter of mathematics. "The content just isn't that different," she said, "math is math." Ms Irwin understands reforms to be about new techniques or "fads." Estimating is just another step in finding the right answer. Calculators are just another way of doing computation. Manipulatives are just another way to represent a problem. She does not disagree with these practices, she simply views them as superfluous. For example, Ms Irwin feels that while manipulatives are important at lower grades, once students reach sixth grade, they are no longer "appropriate":

> I certainly felt they were appropriate for younger grades. But I felt that by sixth grade skill mastery was such that a manipulative wasn't necessary to teach something that they probably already had at least a basic understanding of. (interview, 1/28/92)

If reforms are perceived as "just other ways of doing the same thing" then it makes some sense to ignore them. There is little incentive for Ms Irwin to do otherwise. The district instructional monitoring system is geared toward a conventional view of mathematics. Ms Irwin's students seem to respond to her instruction and they perform well on all manner of assessment. Why rock the boat?

But the story does not end here. Recently, Ms Irwin revealed that she is rethinking her views on mathematics and teaching mathematics:

> There has been some change in my personal acceptance of what mathematics is and what's going to happen in the way of mathematics for these students....I'm probably going to make myself accept that and make more of an effort and teach it more effectively. (interview, 5/4/92)

Change in her "personal acceptance of what mathematics is" is developing on a couple of fronts. Ms Irwin now questions the need to review computation algorithms for eight weeks at the beginning of each school year. "There's always going to be students who aren't going to have it, and I know they're going to need it," she said, "But that doesn't

mean the whole class needs to go over it." Ms Irwin will not abandon memorizing multiplication tables, practicing algorithms, and the like. But she is reconsidering how these might be more "effectively" taught. Another change she contemplates is more use of mathematical manipulatives. In the past, Ms Irwin saw manipulatives as "play things, toys." "I used to be hesitant to use those things," she said, "but I'm starting to change my mind and see the effect they might have. I do think they have their value."

De-emphasizing computation and using mathematics manipulatives are frequently cited as central to a new view of mathematics (Michigan State Board of Education, 1990; National Council of Teachers of Mathematics, 1989; National Council of Teachers of Mathematics, 1991). Where Ms Irwin's questions will take her is unclear. She may be on the brink of asking some very hard questions of herself and her teaching. But she may find that the answers will require more learning and even more changes.

A look at classroom practice. Marie Irwin's talk reflects a nascent interest in mathematics reforms. Her practice does not. Virtually all of her lessons come directly from the Silver, Burdett, & Ginn (1988) textbook and focus on rules and procedures. Even when lessons concern topics ostensibly related to reforms, the instruction is didactic and the learning is centered on right answers. Consider a recent lesson on estimation.

Ms Irwin distributed a worksheet, keyed to the textbook, on estimating quotients. She asked, "What is a quotient?" and "What is estimating?" Students answered: "The answer to a division problem" and "Rounding off to the nearest number." Ms Irwin then talked through the example written out at the top of the worksheet.

Estimate 516 ÷ 9.7

$9.7\overline{)51}$

$10\overline{)516}$ Round the divisor to its greatest place.

$\underline{\quad 5}$

$10\overline{)516}$ Find the first digit of the quotient.

$\underline{\quad 50}$

$10\overline{)516}$ Write zeros for the remaining places.

516 ÷ 9.7 is about 50

Turning to the first problem (90 ÷ 8.8), Ms Irwin said, "All right, the divisor is 8.8. Round that to the largest place in your head." "Nine," a student called out. "How many agree?" asked Ms Irwin. Hands flew into the air. "All right. I would like you to re-write the problem as 90 divided by 9. Now divide 9 into 90. That goes..." "Once," another student volunteered. "Right," said Ms Irwin, "Now you just fill out the rest with zeros." (observation, 1/28/92)

The class worked through the next few problems in similar fashion--Ms Irwin read the problem and asked how the divisor (and dividend, if appropriate) would be rounded. Students seemed to understand the operation; they readily volunteered answers and asked no questions. Concerning the problem 130 divided by 12.7, however, an exchange between Ms Irwin and a student, Danny, went this way:

> Ms Irwin--Look at the next divisor. What is the highest place in 12.7?
> Linda--Ten.
> Ms Irwin--Okay, so you put a one in the tens place. (pause) So 12.7 becomes 10.0.
> Danny--Why wouldn't you put 13?
> Ms Irwin--That's a good point. But in this lesson, we're putting a zero in after the first digit.
> Danny--Oh.
> Ms Irwin--Do you see what we're going? (Danny nods.) What you suggest is right, but it doesn't follow the procedure. (pause) You'll need to know it this way for the end of the chapter test. (observation, 1/28/92)

Later, I asked Ms Irwin about this exchange. She said,

> His answer wasn't wrong in terms of checking his division. But it was not right following the procedure. It would've been marked wrong on the [test] because you only need a non-zero number in one place. Everything else has to be zeros. And then that's confusing too. (interview, 1/28/92)

I said that it had confused me. Ms Irwin continued,

> I know it, I know it. But if I said that was okay then when I give them the test at the end of the chapter, which is a standardized test, these kinds of answers aren't going to be there. So I hope that I made it clear to him that his thinking wasn't wrong, that it made sense. He just didn't follow the process. (interview, 1/28/92)

Estimation is a key construct in the mathematics reform literature. Authors of the Michigan Essential Goals and Objectives for Mathematics Education (Michigan State Board of Education, 1990) observe that "three-fourths of the everyday use of mathematics is without pencil and paper" (p. 5). They propose that, "mental arithmetic and estimation receive more attention and are given greater importance" (p. 5). Estimation also figures prominently in the NCTM Standards (National Council of Teachers of Mathematics, 1989)

> Instruction should emphasize the development of an estimation mind-set. Children should come to know what is meant by an estimate, when it is appropriate to estimate, and how close an estimate is required in a given situation. If children are encouraged to estimate, they will accept estimation as a legitimate part of mathematics. (p. 36)

That a lesson on estimation is included in Marie Irwin's textbook and that she teaches it implies some attention to reforms. Yet her instruction takes a pedantic turn. The nominal title of the lesson is "estimating," yet there is a single right answer to each problem. Instruction focuses on identifying basic terms (e.g., quotient, estimating) and practicing procedures (i.e., rounding decimals) rather than helping students develop a rich understanding of the concept. The sole instructional representation is a worksheet; no reference is made to "everyday" applications, no alternative representations are offered. Finally, the measure of the lesson is narrowly defined--performance on a standardized test. When Danny offers an alternative answer, Ms Irwin acknowledges it. Yet the standard she applies to it is not mathematical sense or common consensus, but instead, whether it reflects an up-coming test.

A changing view of teaching and learning mathematics? Marie Irwin does not like teaching estimation, problem-solving, and other reform-minded ideas. Her discomfort rises whenever she moves into this unfamiliar territory. Ms Irwin is a thorough professional, however. If estimation and problem-solving lessons arise in a regular textbook unit, she will teach them.

> I hate problem-solving. I just hate it. I wasn't good at it when I was a kid and it's probably that I'm still not. But it's obviously the direction that math is going and it's a skill that these kids are going to have to learn. (interview, 5/4/92)

When unfamiliar lessons are optional, however, Ms Irwin avoids them. An extensive mathematical manipulatives kit accompanied the textbook Marie Irwin uses. The teacher's guide cross-references textbook lessons and manipulatives--beans and cups, base 10

blocks, fraction bars, geo-boards.[5] The references are common, but clearly optional. Ms Irwin usually opts out.

Marie Irwin recognizes that mathematics reforms challenge her practice. But to this point she has ignored them. She has sought no opportunities to learn about reforms and she has instituted no substantive changes in her teaching. Ms Irwin will do a reform-minded activity like the estimation lesson. But she teaches it as she would any skill: She emphasizes following the procedure and getting the right answers. Not surprisingly then Ms Irwin shows little interest in examining her beliefs about teaching and learning mathematics.

But a change may be developing. Ms Irwin reports asking herself: "What could I do, what would make [mathematics] more tangible? What would help [students] understand [it]?" It is not clear what impels these questions. But part of her answer is to use manipulatives.

> There are references in the teacher's edition [to using manipulatives]. It's not like those aren't there. You know you hit the page on polygons and it says, "Use the geoboards." But in the past I probably would have looked at that and said, "I don't need to do that." This year I said, "Well, maybe that would be effective. I'll try it." (interview, 1/28/92)

Ms Irwin claims the lesson went well. In her typical taciturn style, she said simply, "It worked. They did okay." Encouraged, she avers plans to teach her fractions unit using fraction bars.[6]

Responding to Reading Reforms

Marie Irwin responds to reading reforms in a way that is different again from her responses to writing and mathematics reforms. Ms Irwin manages writing reforms by segregating them. She manages mathematics reforms by ignoring them. By contrast, Ms Irwin takes a decidedly more expansive approach toward reading reforms. She uses new

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[5] Geoboards are square 6" x 6" boards with small nails arranged in a grid. Students stretch rubber bands around the nails to form a variety of geometric shapes.

[6] Ms Irwin's use of manipulatives is by self-report. I have not observed her using them in a mathematics lesson.

texts, instructional strategies, and grouping arrangements. And she teaches toward purposes different than those commonly found in basal readers. But Ms Irwin contends these changes are nothing new. Reforms offer no challenge because they represent ideas she has long held.

Learning about reforms. Marie Irwin has had numerous opportunities to learn about reading reforms. She discounts many of them, especially those at the state level. She is more receptive to those opportunities closer at hand.

One of the least important influences is the state policy. Of the new reading definition, Ms Irwin said simply, "I've seen it." She adds, "I'm aware that it's out there," she said, "but I don't think about it in terms of my planning. I teach reading from what I think is important."

Ms Irwin is similarly unaffected by the new MEAP. She knows the test has been revised and reflects more emphasis on comprehension than discrete skills. She also knows that the results are taken seriously by her principal, district administrators, and many of her peers. But her students do not take the test. And Ms Irwin reports no particular concern about the test:

> As a building, we might just have some exposure to the fact that the fourth graders are taking the test. But generally, it will be the third grade teacher who will hear if there's an area that needs to be focused on because they're the ones who are preparing these kids. (interview, 1/25/93)

Marie Irwin is concerned that her students score well on the district Essential Skills and California Achievement tests. The influence state reformers hoped a new test would generate, however, is lost on Ms Irwin.

More influential are those initiatives closer to home. In what may become a profound move, the Hamilton district plans to adopt a literature-based textbook series (Spillane, 1993). Two textbook programs, Silver, Burdett, & Ginn (1991) and Houghton-Mifflin (1991), are being reviewed. Ms Irwin is piloting the SBG text, Wind by the Sea. Both series speak to reform ideas. For example, reading selections are based on children's

literature and reading strategies (e.g., SQ3R, classifying, context clues) are presented in the context of stories. Moreover, each series includes classroom sets of novels[7] and encourages teachers to use them freely. Ms Irwin attended the publisher-sponsored inservice sessions. She reports, however, the biggest benefit is her own study of the textbook and teacher's guide.[8]

New ideas about reading are also part of the Sanford Heights Elementary School program. Principal Nettles urged the staff to adopt programs designed to promote a "literate environment." One of those is a Stop Everything and Read program. Here teachers schedule a 20 minute period each day for silent reading. What students read is optional; the only requirement is that they read quietly. Another school initiative features book talks. Each fifth grader selects a book to read aloud and talk about with a K-2 classroom. The student must rehearse beforehand and field questions. The classroom teacher "evaluates" the presentation, noting, for example, whether the student "spoke loudly and clearly," "read with expression," and "enjoyed the book." One other program makes every fourth grade student responsible for taking 2-3 kindergarten children to the library for an orientation tour.

Marie Irwin might have interpreted the conceptions of reading embodied in the new state policies, the new reading series, and in programs like Stop Everything and Read as a direct challenge to her view of reading. Until recently, the old district reading series defined her reading practice. That practice centered on discrete skills, bland reading basals, and ability-based reading groups. Ms Irwin taught this way before she left the classroom and she found it no different upon her return.

Constructivist reforms developed in the state policy and instantiated in literature-based textbooks call for a much different approach. But Marie Irwin does not read them that

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[7] The four novels Ms Irwin received are: The Big Wave, Charlie Pippin, Summer of the Swans, and The Facts and Fictions of Minna Pratt. Publisher developed teachers' guides accompany these novels.

[8] The phenomenon of teachers learning from textbooks is addressed in Cohen & Ball (1990), McDiarmid et al. (1989), and Stake & Easley (1978).

way. First, she contends these ideas are not new. The new definition of reading and the use of literature, for example, represent ideas and practices she has long held. These reforms confirm rather than challenge her teaching practice. "I've always done it this way," she said, "Why is this [supposed to be] so different?" Second, Ms Irwin feels she has little to learn and that she has access to all she needs. Marie Irwin belongs to no professional organizations, reads very little professional literature, and attends no professional development opportunities outside textbook inservices. What she learns about reforms comes from local sources and her own experience. She attended the SBG inservices and she carefully read the textbooks and teacher's guide. Beyond that, Ms Irwin counts on her principal to relay necessary information:

> There are really not too many teachers who are going to sit down and read the guidelines....It's really up to the district or the administrator they work for to relay that information....In this building we have extremely strong leadership and we are aware of what we are supposed to do. (interview, 5/4/92)

Ms Irwin embraces some parts of the reform agenda. But she interprets reforms as extensions of views she already holds. She sees little new to learn and she is confident that she can learn all that she needs from a few local sources.

A complex view of reading. Marie Irwin's view of reading has two distinct dimensions. One centers on skills instruction and the belief that learning to read means practicing and accumulating discrete skills. The other dimension emphasizes reading "real" literature and appreciating good, well-written stories. Such a compound view does not easily fit into standard categories of reading (Harste & Burke, 1977; Richardson et al., 1991) which pose these as disparate and incompatible approaches. It also does not reflect the view of most elementary school teachers, who generally adopt skills-based approaches alone (Harris, 1993). Ms Irwin believes, however, that one dimension complements the other. She said, "I wouldn't want to teach the textbook [i.e., reading skills] without the novel option."

The relationship between reading skills and reading literature may be complementary, but they are not equal partners. Textbook study of reading skills remains the heart of Ms Irwin's view of reading. Literature is an important part of reading. But it is only a part. "I think of [classroom novels] as a supplement to the textbook," she said, "but not to replace it....The text is based on skills. Novels add [among other things] reading for fun."

Reading skills are central to Marie Irwin's view of reading, but her sense of "skills" differs from many in the reading field. Classroom observations show that she teaches both "skills" (i.e., discrete processes of decoding text such as identifying prefixes and suffixes) and "strategies" (i.e., cognitive processes for making sense of text such as predicting, summarizing, and classifying). Reformers make much of this difference (Richardson, et al, 1991). Ms Irwin has little patience with such distinctions. Instead she uses the term "skills" to reflect both conceptions.[9]

> I used to see skills isolated, separate from the readings [in old the textbook] and not incorporated in the reading....The way [they're] presented in this book, I see them as really incorporated....There is still skills instruction, but the skills are tied more directly to the story. (interview, 1/28/92)

Ms Irwin applauds this change. It "just makes sense" to her that students' skills improve when they can see them used in a real piece of text. The new reading textbook then represents both a positive and a comfortable change; the old, familiar skills are there, but they appear in a new and more engaging context.

Reading skills define the center of Marie Irwin's view, but not its entirety. A dedicated skills teacher, Ms Irwin nonetheless feels basal readers discount reading good stories.

> You know I don't know enough about how we got from reading to reading as learning skills. I don't know where that transition occurred...that skills became so important and reading itself has lost ground. (interview, 5/4/92)

Agitated by a sense that reading had been reduced solely to a mass of discrete skills and boring basal selections, Marie Irwin decided to act. With her principal's encouragement,

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[9] There is no reason to conclude that this is an unenlightened view. The Michigan Essential Goals and Objectives for Reading Education (Michigan State Board of Education, 1986), for example, states, "Strategies and Skills are used interchangeably throughout this document" (p. 10).

she applied for a $600 district grant to purchase and use trade books in place of the old Ginn (1987) basal.[10] Her rationale: "I was feeling that reading was getting away from reading, that there wasn't enough reading taking place during reading class." A third grade colleague agreed to join Ms Irwin and, for a semester, both taught reading from classroom novels.

Students' positive responses confirm Ms Irwin's belief that reading literature is important to their experiences as readers. But nothing in those responses lead her to believe, as it has some reading reformers and teachers, that the textbook could be dispensed with. Instead she remains convinced that textbook instruction, supplemented with literature, reflects the proper direction for reading instruction.

A look at current reading practice. Marie Irwin's twin interests in reading skills and reading literature are less distinct in practice. Textbook lessons highlight reading skills and strategies, while lessons using classroom novels emphasize language and story-telling. In both settings, however, a mix of old and new practices can be observed.

Elements of Marie Irwin's reading practice reflect reforms. One example is her use of trade books. A typical lesson follows.

> Ms Irwin directed students to take out their copies of The Black Pearl, a pencil or pen, and a sheet of paper. She asked students to write the title of the book and the chapters they were examining that day (#4 and 5) at the top. She said:
>
> > Without looking in your books, I want you to write down whatever you can remember from chapters 4 and 5. This is not for a grade, but to trigger your thinking...just write down what you remember...this is not a test. If you can't remember anything, please write that down as well...just write, "I don't remember."
>
> Students immediately began writing. Most wrote continuously for the approximately 10 minute period. Only one or two students wrote, "I don't remember." (observation, 1/23/91).

Marie Irwin believes the whole, unabridged stories in trade books offer students a significantly different experience than basal readers. Reformers (Goodman, 1988; Goodman et al., 1988) concur. They would also applaud her use of reading strategies.

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[10] Other Hamilton teachers received grants for similar projects. The success of these grants, Ms Irwin believes, helped pave the way for the literature-based textbook pilot program.

Here Ms Irwin asks students to summarize previous chapters. Later in the lesson, she emphasized another reading strategy, identifying metaphorical language.

Ms Irwin read the phrase "wound like a snake." She asked "What picture do you get in your mind...What do you think of?" Several students responded. Ms Irwin described the phrase as a "special technique that authors use." She wrote "simile" on the board and explained that similes compare two different things, joining them through the words "like" or "as." By comparing a channel (of water) with a snake, she said, "You can see what the channel looks like because you know what a snake looks like." Later, after a physical description of one of the main characters, Ms Irwin asked if students could form a picture of him in their minds. Several nodded (observation, 1/23/91).

Strategy instruction appears in trade book lessons. More often, however, Marie Irwin uses novels to add another dimension to her practice--engaging her students in a well-told story. She frequently stops to emphasize a well-turned phrase or an unexpected plot twist. For example, at a particularly tense moment, Ms Irwin paused:

> You know what I like about this author? He kind of tells you a little to make you want to read more. That's a pretty good writing technique; it teases you a little bit. (observation, 1/23/91)

Reading strategies are more often evident in textbook lessons. Many lessons feature discrete reading skills such as identifying prefixes and suffixes. But others focus on strategies such as understanding literary devices. A recent lesson began this way:

Ms Irwin distributed a worksheet related to the story the class had been reading.[11] She read from her teacher's guide: "The sea rushed up the shore like a liquid army. Foot by foot it captured the gleaming sand." She asked, "In these sentences the sea is being compared to something. What is it being compared to?"

Students--To an army.
Ms Irwin--Good. Can you get a picture of it in your mind? Does the sentence create an image? (Yes) What do we call that?
Randy--Figurative language.

Ms Irwin nodded and directed students to the first sentence on the worksheet: "The giant wave hit the shore like a hundred cymbals."

Ms Irwin--What is the sentence talking about?
Sam--A wave.
Ms Irwin--A giant wave. Good. What does the wave sound like?
Sarah--Cymbals.
Ms Irwin--Okay, what image does that create?

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[11] The worksheet was a copy of the large flip chart page displayed on the side of the room. The print on the flip chart is too small for students to see from their desks. Ms Irwin finds that students' concentration improves when they have text in front of them. Both the worksheet and flipchart are part of the SBG reading program Ms Irwin is piloting.

Sarah--Like a humungous wave that goes biiing!
Ms Irwin--Good. That's an interesting way of saying this.

Ms Irwin then read the next sentence, "The angry seas rose up and tossed the boat violently."

Ms Irwin--What is this sentence about?
Tina--Seas.
Ms Irwin--Okay, what do seas do?
Larry--Toss the boat.
Ms Irwin--What does the sentence tell us about the seas? What image do you get?
Randy--I get the image that the sea just jumps up and throws the boat.
Sue--I see a big hand throwing the boat on the land.
Suzanne--I see Gilligan's Island and the waves are going all over the place.
Ms Irwin--Okay, okay. But what kind of seas do you see?
Tony--Stormy.
Ms Irwin--Good. So now write "The waves were stormy" (in the space after the sentence)[12] (observation, 4/22/92).

Other reforms are evident in these examples. Marie Irwin no longer divides her students into ability-based reading groups with differentially leveled texts. Whole class instruction around a common text is now the norm. Ms Irwin also provides opportunities for students to talk about their ideas. Not long ago she stressed silent, individual work. Today, students more actively participate in their learning.

Gone are the ability-based reading groups, the sole reliance on the textbook, and the endless worksheets. But has Marie Irwin's reading practice changed? Some of the content is different. New strategies like "summarizing" are evident and students do their work in new contexts. Yet much remains unchanged. Marie Irwin's instruction continues to be teacher-centered, textbook-based, and didactic. Lessons come primarily from the teacher's guide and textbook and are delivered in recitation form.[13] And classroom talk usually converges on right answers. Ms Irwin acknowledges this:

> The content has changed a lot, but my approach to teaching has not changed. I still follow the basic format in a lesson that fits a recommended format.[14] The

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12 I later learned this was the "answer" provided in the teacher's guide.

13 Marie Irwin generally follows the recommended lesson plans located in her teachers guide. She does not follow them blindly, however. She sometimes replaces and sometimes skips textbook exercises altogether. Ms Irwin also occasionally changes the order in which units are presented. When she does this in subject matters like reading, which are monitored by the district, she feels obligated to inform the principal even though he has never questioned her decisions.

14 This reference is to a Madeline Hunter inservice she took. The Hunter Instructional Theory into Practice (ITIP) program emphasized a standard approach to planning and delivering lessons.

> way I structure my classroom or the way I manage my classroom has been basically the same for a long time. (interview, 5/4/92)

In fact, Ms Irwin contends that one of the most attractive features of the new SBG textbook is that "it's set up to follow through just about the way that I do things."

Marie Irwin's reading instruction is more sensitive to students' experiences and understandings. Learning skills and extracting the right meaning from text, however, remain the primary goals. She said, "I want [students] to arrive at the suggested meaning that is in the [text]book. So I try to get them as close to that as possible." In a recent lesson, Ms Irwin gave students two worksheets.[15] Students had read a mystery story. The first worksheet asked them to interpret a series of clues. After the lesson, Ms Irwin described the task this way:

> The students could answer depending upon what they thought the question meant. So the directions weren't really specific. And as they were working on it, they would come up to me and say, "Is it this or is it this?" And my direction was that you could put them both down. I wasn't going to grade it, so it wasn't that important to me. (interview, 1/28/92)

The second worksheet listed questions designed to extract the main ideas and events of the story. Here, Ms Irwin said:

> I want them to be able to determine for themselves how accurate their answer is compared to the given answer...they're analyzing the accuracy of their own response....The answers to the story are generally pretty cut and dry. There's not a whole lot of room for interpretation so the closer they come to the book, the more right they are. (interview, 1/28/92)

Marie Irwin wants her students to read widely and to appreciate the telling of a good story. But learning to read is a function of eliciting the "right" answers from text. She underscores this point: "I'm trying to encourage students to think," she said, "[but] sometimes their thinking is right and sometimes it is not right." Ms Irwin endorses reading reforms which promote, among other things, comprehension and constructing meaning. In practice, however, students are encouraged to construct the "right" answer.

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[15] Both worksheets were part of the SBG (1991) textbook program.

A conventional view of teaching and learning reading. Big portions of Marie Irwin's reading practice are different today. She uses new texts and new instructional strategies. She organizes whole class instruction and provides students more opportunities to discuss their ideas. Moreover, these efforts developed less from outside pressures than from Ms Irwin's interests: She wrote the proposal to purchase trade books and she volunteered to pilot the new reading series. She willingly took on additional work in order to promote deeply held beliefs.

And those beliefs have not changed. Despite her reform-like efforts, Marie Irwin maintains she does only what she thinks is important. Reforms may confirm her beliefs; they do not engender them. Ms Irwin's beliefs include using richer texts, organizing common instruction, and the like. But they also include conventional textbook skills, didactic instruction, and extracting the right answers. The changes Ms Irwin introduces strengthen her practice. They do not challenge it. New activities appear, but they do so within a solid, pre-existing, and conventional framework.

Responding to Reforms in the Context of Schooling

Thus far, I have examined Marie Irwin's responses in the context of her classroom practice. But the classroom is only one relevant site. School, district, and community contexts also figure into her responses.

Managing the Regularities of Schooling

Marie Irwin teaches in a district that, unlike the Derry district Bonnie Jones and Frank Jensen teach in, defines a number of instructional parameters. The Hamilton instructional guidance system tells her what to teach, how long and in what order to teach it, what materials to use, and how to assess what students know.

In such a comprehensive system, one might guess that typical anxieties over time, content coverage, testing are eased. Ms Irwin acknowledges that some comfort comes from a scheme which outlines so many of the expectations she faces. Nevertheless she

finds she must still negotiate a number of issues related to the day-to-day priorities of teaching.

One of those issues is time. The district monitoring system divides the school day into instructional units with fixed time allotments for each subject. Sixty minutes are apportioned for reading, 45 minutes for mathematics, 30 minutes for English, and so forth. Ms Irwin wryly notes that the entire scheme adds up to more than the length of a school day. Like teachers everywhere, Ms Irwin must manage the problem of too much to do in too little time. She states the matter plainly:

> You are always taking time away from something else. You have to take five minutes here and five minutes there and five minutes from somewhere else to get [for example] fifteen minutes to write in [student] journals. So the amount of time in all the other subject areas is reduced, which reduces either instruction or practice so there's got to be some loss that way. (interview, 5/4/92)

As she describes it, the rationality of the system breaks down in the crucible of the classroom. Despite the system's "guidance," Ms Irwin finds she must constantly make real and difficult choices about what to do, how long it will take, and what will have to be sacrificed.

Knowing what is expected, having objectives mapped out on a pacing chart, and becoming familiar with a textbook might help Ms Irwin understand what kinds of time and content compromises she can make within the monitoring scheme. And after doing so over a period of years, Ms Irwin acknowledges that she has reached a certain level of comfort with the way she manages her instructional time. But what will happen if, for example, Ms Irwin changes her mathematics instruction? Won't using more manipulatives and teaching more problem-solving mean more pressures? (Heaton, 1994). As it stands, the time and content area requirements established under the central office instructional scheme already demand more than a school day. How will Ms Irwin manage to include these reforms?

Marie Irwin's fledgling interest in changing aspects of her mathematics practice has implications for a second factor--content coverage. District pacing charts, keyed to textbook units, enumerate the content in reading and science as well as mathematics. Yet

just as the instructional time allotments add up to more than a school day, Ms Irwin feels that the pacing charts require more content than can be reasonably taught in a school year. Consequently she must make adjustments to the content she covers:

> I think we pace our instruction specifically in math to make sure that we are getting that quantity of work done....We are very aware that we have to turn those [monitoring] sheets in. I think we're all aware of what we have to teach, what objectives are tested, what we can leave out in order to cover the maximum amount of material. (interview, 5/4/92)

Pacing charts make using trade books difficult. During the year she received grant money to purchase and use trade books, Ms Irwin continually ran up against the familiar issue of what to teach and what to leave out.

> We are still trying to adjust to using [trade] books in cooperation with our [textbook] series. There was a lot of concern about getting the series done and the skills done and what we could get away with not doing because obviously doing [trade] books took time. (interview, 5/4/92)

Ms Irwin hopes the new reading series will moderate some of these pressures. "The new series is based on literature and therefore time for literature is written right into the program," she said, "Our old series had six units, this series only has four. That allows for time to read a book." In addition to this inventive packaging, the publisher's instruction to not worry about completing every lesson in every unit eases the press of covering material. The textbook consultant has told teachers to "pick and choose lessons." Ms Irwin still finds she must make difficult choices and that "sometimes it's hard to choose because there are so many good things to do." But she relishes this flexibility. She shakes her head and wonders, "Why didn't somebody think of this before?"

One last regularity is assessment. The district instructional guidance system emphasizes testing. In the course of a year, Marie Irwin administers chapter, unit, and accumulative review tests, the district Essential Skills test, and the California Achievement Test.[16] The foci of each of these tests are reading and mathematics, and the tests are heavily oriented toward assessing basic skills.

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[16] Ms Irwin does not administer the MEAP assessment as it tests only at grades 4, 7, and 10

Ms Irwin thinks the district does too much testing, but she does not disagree with the focus of these tests. "We all feel that it is still important to test the skills," she said, "You need to know whether the students are growing in that area." Yet Ms Irwin has some emerging concerns. She worries that skills-based assessments may not accurately assess what her students learn through reading trade books or through using mathematical manipulatives. District tests, she observes, have been "strictly skill oriented" and "very narrow in their approach." Ms Irwin's students, like their Sanford Heights peers, traditionally perform well on standardized assessments. She wonders what will happen to those scores if she decides to make changes in her practice.

Managing Relationships

Marie Irwin cites the Sanford Heights school community as a rich source of structure and support. The school-wide reading and writing initiatives are a particular source of pride. Students benefit from the additional opportunities to read and write. The faculty also benefits as teachers feel less isolated and more willing to talk and share ideas. The growing sense of community initiated with the literacy programs manifests in active staff participation, in staff development activities, and in the eager response to piloting the new reading text. The net result is that Ms Irwin feels a solidarity among the Sanford Heights staff.

Many teachers would envy the professional relationships Marie Irwin enjoys. As she manages changes in her teaching practice, however, some aspects of those relationships may become problematic.

Take the case of mathematics. Ms Irwin acknowledges that until recently she ignored mathematics reforms. One reason may be the district monitoring system which stresses skills and procedures. But another stems from her peers. Over the last eight years, literacy goals have preoccupied the Sanford Heights staff; mathematics has gone unattended. Ms Irwin knows that a few teachers at Sanford Heights actively incorporate mathematics reforms into their teaching. She hints that the building and district ennui fed her own

discomfort with mathematics and tacitly sanctioned her inattention to new ideas and practices.

Marie Irwin, on her own, is now questioning her prevailing approach to mathematics and she is considering changes. But how will these changes be received? Will her peers support a decision to de-emphasize computation practice in favor of other topics? How will her principal react if she accomplishes fewer units as she spends more time in those she does teach? And how will district administrators respond if Ms Irwin's pace falls off? Though the district rhetoric is toward site-based management, curriculum control has been held at the district level for many years. Ms Irwin does not expect that to change.

One other set of relationships Marie Irwin must manage is with parents. The middle class Sanford Heights parents are strongly supportive of education in general and of the school in particular. They like the additional reading and writing opportunities the school-wide literacy initiatives provide. But they also like the consistently high standardized test scores. Ms Irwin recognizes that Sanford Heights parents are "test-wise" and anxious that scores remain high. Ms Irwin wonders what implications venturing into new forms of instructional practices could have on her students' test performance. At this point, Ms Irwin is not overly concerned. As she considers changing her mathematics practice, however, concern for parents' reactions could weigh heavily.

The school and district contexts Marie Irwin works in then differ in several ways from those familiar to Bonnie Jones and Frank Jensen. District text, time, and test mandates intrude deeper in Hamilton than in Derry. Parent interest is also deeper and more influential. And Ms Irwin's Sanford Heights colleagues support and encourage her.

But in other ways, Ms Irwin shares a bond with the Derry teachers. For example, she must still manage concerns of context, time, and assessment. Moreover, she appears to have some measure of classroom discretion. For even in a district as tightly structured as Hamilton, teachers have some room to make autonomous decisions. For example, Ms Irwin acknowledges she does not use her English textbook as district administrators

suggest. Nor does she make much use of the manipulatives kit that accompanies the district mathematics textbook. These actions are clearly more circumscribed than those of Bonnie Jones and Frank Jensen. But they become important as one attempts to account for teachers' responses to reforms.

Cross-Teacher and Within Teacher Variation

One way to describe Marie Irwin's responses is to compare them with other teachers'. Another is to compare them across reforms. Similarities and differences surface in both sites. The variation among the three teachers is evident, but even more than in the previous cases, so too is the variation within Ms Irwin's practice.

The Variation Within Marie Irwin's Responses

I compare Marie Irwin's responses along four dimensions: relationship to past practice, learning, daily instruction, and assumptions about teaching and learning. There are some broad similarities. For example, in no case does Ms Irwin pursue many opportunities to learn nor does she question her basic assumptions about teaching and learning. These similarities noted, numerous differences arise in the way Ms Irwin views reforms vis-a-vis her past practice and in the way she incorporates reforms into her daily instruction.

Marie Irwin segregates writing reforms. She accepts that students do not do enough writing, and she is willing to provide time, opportunities, and encouragement. Yet she maintains her commitment to traditional grammar instruction where knowledge comes in discrete bits, instruction is didactic, and learning is largely passive. Writing reforms provoke no uncertain feelings about what she knows and does nor do they challenge either Ms Irwin's current approach or her underlying assumptions about teaching and learning writing. She adds journal writing and publishing center activities to a busy schedule. But these activities are treated as unrelated to the formal study of English grammar. Ms Irwin is willing to accommodate new writing activities as long as they do not impose on her established practice.

Marie Irwin manages mathematics reforms quite differently. For example, Ms Irwin's response to writing reforms has been modest, but she has not hesitated to act. By contrast, Ms Irwin knew about but ignored mathematics reforms for several years. She knew ideas about problem-solving and mathematical manipulatives were circulating, but whenever possible she avoided them. This behavior raises a second difference. Ms Irwin does not view writing reforms as a challenge to her knowledge and practice, but she does view mathematics reforms this way. She ignores them in practice, but Ms Irwin understands reforms lay in directions much different from her practice.

Ms Irwin has not sought opportunities to learn about either mathematics or writing. And up to this point, she has not found that reforms push her to reconsider her views of teaching and learning these subjects. But Ms Irwin's response to mathematics reforms is in flux. The questions she is raising could mean profound changes in her daily instruction and her assumptions about teaching and learning. Her questions about computation suggest Ms Irwin is thinking about what knowledge her students need. Her experiments with manipulatives suggest she is thinking about alternative instructional representations. Both are powerful ideas and could generate big changes. But they could also mean big questions. For even if Ms Irwin is willing to make big changes, it is not clear that she has the capacity. Her subject matter knowledge is weak and she has avoided opportunities to learn more about mathematics and new instructional approaches. The little bit she has picked up at inservices seems insufficient if she is to engage profound changes.

Marie Irwin's response to reading reforms is different yet again. Here the changes made run throughout her practice rather than being segregated. Trade books, reading strategies, and the like are not separate activities, but instead are part of an overall view of reading. Ms Irwin makes distinctions between teaching textbook skills and teaching literature. But they are distinctions within a larger practice which has moved decidedly closer to reforms.

Changes are less obvious below the surface, however. And it is in this sense, that Marie Irwin manages reading reforms much as she does those in writing and mathematics. For she interprets no challenge to her knowledge and practice, she sees little need to learn more, and her basic beliefs about teaching and learning reading remain firm. Ms Irwin is changing the broad surface of her reading practice, but the core remains solid.

I draw two conclusions from this analysis. One is that Marie Irwin's responses are unpredictable. Her developing interest in mathematics serves as a powerful example of the changeable nature of responses across reforms and time. The questions she raises suggest a far different response than developed in reading and writing. Given her personal discomfort, her long-term avoidance, and no consistent support for change, few would have predicted this recent development. Marie Irwin may be generally cautious, but one can not assume this will always be true.

The second conclusion is that while outside pressures and supports can be influential, Marie Irwin's capacity and will figure into her responses. For while Ms Irwin works within a well-defined system, she appears able to exert a considerable degree of will. Her use of trade books and her questions about mathematics challenge the Hamilton instructional guidance structure. Taking these steps requires a determination that is surprising in two ways. First, there is little incentive to do so. The extant system seems created more for compliance than initiative. Second, Ms Irwin's actions are also surprising given her uncertain knowledge. Though for different reasons, Ms Irwin has shown no particular interest in learning about reading, writing, or mathematics reforms. That she would take such ambitious steps, particularly in mathematics, testifies to her strength of will.

The Variation Across Teachers

I now compare Marie Irwin's responses with those of the Derry teachers. Given the different school and district contexts, one would expect different responses to surface. They do. But so do several similarities. Considering how Marie Irwin's responses

compare with Bonnie Jones's and Frank Jensen's helps illustrate the several ways teachers may respond.

Echoes of the previous cases ring in Marie Irwin's response to writing reforms. Like Bonnie Jones, Ms Irwin adds-on new writing activities while maintaining a distinct English practice. Like Frank Jensen, she views reforms as no particular challenge to her knowledge or instruction. These new activities are unlike any she has experienced. But Ms Irwin acknowledges no need for further professional development and she plans no future changes. Unlike Bonnie Jones who recognizes the disparity between her practice and reforms and plans to address it, Marie Irwin has made all the changes she intends to and is satisfied with the results.

The nascent change in Marie Irwin's responses to mathematics reforms complicates any comparisons. She ignored reforms for years, preferring to maintain her traditional practice. In that sense, her response recalls Frank Jensen's passive conduct and contrasts sharply with Bonnie Jones's ambitious efforts. Ms Jones is after big changes and she uses the reforms as both a vehicle and a justification for big changes. She uses her new mathematics textbook, but as only one piece of a complex instructional program. Marie Irwin, by contrast, preserves the bulk of her traditional practice, hugging the textbook and opting out of anything that appears too different. Marie Irwin's response to mathematics reforms echoes Frank Jensen's: Both teachers manage reforms by ignoring them. But there is an important difference. Frank Jensen is convinced that no gulf exists between his instruction and the reforms and that, by extension, there is little new to learn. Marie Irwin recognizes that her practice stands some distance from reforms. She has done little to address this, but in acknowledging a difference between her instruction and that proposed, she puts herself in a much different position than Mr Jensen.

As in writing, Marie Irwin's response to reading reforms reflects some commonalty with both Bonnie Jones and Frank Jensen. Like Bonnie Jones, Ms Irwin has embraced reform-minded changes--whole class instruction, reading strategies, trade books--and

changed the character of her instruction. But they haven't threatened her underlying beliefs. And in that sense, Marie Irwin's responses recall Frank Jensen's. First, neither teacher believes reforms represent a fundamental challenge. Marie Irwin interprets reforms, be they new state policies or new school-wide programs, as consistent with ideas she has long held. She uses new curriculum materials, but doing so casts doubt neither on her view of reading nor her approach to instruction. Second, neither teacher pursues opportunities to learn more about reading. Frank Jensen attended an early state reading conference in addition to the district and publisher-sponsored inservices, but his interest quickly waned. Marie Irwin's interest has not reached beyond publisher inservices. Third, neither teacher is managing fundamental changes in her instruction. Instead, each adds-on a measure of reading strategies and trade books. These actions change the complexion of their reading practices (Ms Irwin's more than Mr Jensen's), but the center remains intact. Thus while Marie Irwin and Frank Jensen's reading practices look quite dissimilar, as sites to compare reform responses, they share several commonalties.

Conclusion

Taken together, I draw three conclusions about Marie Irwin's responses to reforms. The first is that, while Ms Irwin is not adverse to reforms, neither does she seek them out. She believes her practice is essentially sound, and profound changes of the sort Bonnie Jones is after do not interest her. Ms Irwin is willing to try new approaches, especially in reading and writing. But when she perceives a threat, as in mathematics, her instinct is to avoid it.

This observation suggests a second conclusion: Marie Irwin is satisfied with her responses. As evidence, one might cite her disinterest in learning about reforms and in questioning her beliefs about teaching and learning. A better conclusion though would be that her satisfaction varies. Ms Irwin seems quite pleased with her current writing/English practice. She is also sanguine about her reading practice, especially now that a literature-based series will be adopted. Mathematics provides the contrast. For here, though she

ignored reforms for years, she now entertains questions which imply a measure of dissatisfaction or concern.

Finally, there is the matter of willingness to take risks. Again, I conclude that this varies by subject matter. Ms Irwin seems cautious by nature. In that sense, her accommodation of writing reforms seems an apt example: She adopts a couple of new activities while preserving her extant practice. The new activities are strong representations of the reforms, but Ms Irwin manages them in ways that do not challenge what she already knows and does well.

Similarly, Marie Irwin has made no profound changes in reading or mathematics. But in both cases, she has taken risks. Acting on her belief that students need to read literature, she won a grant to purchase and use trade books. From the safe confines of district textbooks, pacing charts, and assessments, this could be perceived as an enormous risk with few ostensible rewards. Remember this happened well before the district began piloting literature-based texts. Ms Irwin knew she had her principal's support. But she had no idea how district administrators might react. The other risk Marie Irwin engages is in mathematics. Her actions have been tentative; raising some questions, using manipulatives a few times. And it is not clear where Ms Irwin will take this. But one should not miss the point that simply raising questions about her mathematics practice is a big personal and professional risk. Ms Irwin does not know much mathematics and she carries years of anxieties about it. Moreover, she can not know how those around her will react. Given her colleagues' indifference and the district emphasis on basic skills, she is likely to stand on uncertain ground.

Chapter 5

Seeking a Balance: The Case of Paula Goddard

Paula Goddard finds the call to reform compelling. But only recently. Until two years ago, she taught reading, writing, and mathematics in conventional ways and she saw no reason to change. Since then, she has up-ended her reading and mathematics practices and is attempting the same in writing. Ms Goddard does not manage these reforms in the same ways. Nor does she manage them in ways that mirror any one of the other teachers. Instead, the case of Paula Goddard provides yet another instance of the variation in responses within and across teachers.

Two points distinguish this case. One is context. Paula Goddard is attempting ambitious changes in several areas. This point is notable in and of itself. But it is even more so given her school context. For Sheldon Court Academic Center (SCAC) is dedicated to teaching disadvantaged children basic academic skills. Parents, staff, and administrators hold that mission high. Until two years ago, so did Paula Goddard. Now she has questions. And those questions urge her to push beyond basic skills, asking more of her students, more of the materials she uses, more of herself.

The second point involves the vagaries of change. For Paula Goddard's response to mathematics reforms is an example of a teacher reversing course--moving from a conventional practice toward a reform-minded one and then back. This action represents another kind of reform response. It also reiterates the complexity and dynamism of teachers' responses.

In reforms, Ms Goddard sees an opportunity to question her practice, learn about new instructional approaches, take risks and make changes. Like Bonnie Jones, she has become an eager reformer. But more than Ms Jones, Paula Goddard feels tugged between reforms and the status quo. As both are insistent, Ms Goddard continually strives to find a balance.

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A Caucasian woman in her early 40's, Paula Goddard has taught second graders at Sheldon Court Academic Center (SCAC) for five years. Before that, she did long and short term substituting until her children came of school age. Ms Goddard is of quiet manner and voice. She has a warm eyes and a generous smile. She is confident and comfortable in front of her class and she directs students and activities with efficiency and purpose.

Paula Goddard runs a tight ship. Lessons move quickly, and little time is wasted during or between assignments. Ms Goddard also acts swiftly to halt any student indiscretion. SCAC has an extensive student disciplinary code and Ms Goddard strongly supports it. Infractions of any kind are assessed "checks" which, as they accumulate, result in increasingly strong punishments.[1] Ms Goddard believes this system promptly and effectively eliminates discipline problems. The net result: "We actually get to teach in this program."[2]

The structured disciplinary system is a central tenet of the Sheldon Court program. Another is a basic skills curriculum. Traditional courses in reading, mathematics, and grammar define the school day. Skills-based textbooks and worksheets define the content; seatwork and recitation define the instruction.

Paula Goddard believes the disciplinary and curriculum mandates contribute equally to the school's success. That success is measured by consistently high rankings on local,

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[1] Ms Goddard and her aide constantly monitor student behavior and assess "checks" for inappropriate actions (e.g., talking, not attending to work, fooling around, not facing front). If a student accumulates five checks in one day, she or he is given a "punch." Four punches in one week is a serious offense and the student is "homebound" for one day (i.e., the student must complete all assigned work under parent supervision at home). After three homebounds, a student is placed on probation. With the next homebound, the student will likely be expelled. Ms Goddard often loses at least one student a year to expulsion.

[2] Unless otherwise indicated, all quotations are Paula Goddard's words and come from interviews recorded between 1991-1993.

Ms Goddard said one of the benefits of teaching at SCAC is that parents "take care" of disciplinary problems. This may be true, but she still seems to spend a good deal of time assessing and keeping track of "checks" and filling out the raft of forms at each stage of the disciplinary process.

state, and national assessments, strong support by the school's parents, and the long waiting list of applicants. Recently, however, concerns about the basic skills program have emerged. Neither parents nor staff question the school's disciplinary structure, but Ms Goddard reports that she and some of her peers worry about the exclusive emphasis on discrete reading, writing, and mathematics skills. Students' performance on standardized tests may be high, said Ms Goddard, but there is a concern that "students may not be able to think for themselves."

That concern emerged in recent textbook adoptions. The Sheldon Court academic program is textbook-centered. Teachers draw on ancillary materials, but the textbook, determines their planning and instruction. At SCAC, "revising the curriculum" means reviewing, piloting, and adopting new textbook series. In the last two years, new adoptions have been made in English, science, and social studies. This year, Ms Goddard and some of her colleagues began piloting two new reading series. Each adoption introduced a range of reforms. The writing process, hands-on science, and literature-based reading are promoted in one form or another in the new texts. In each case, these reforms offer ways of thinking and talking about instruction different from that of the original basic skills mission. Not surprisingly then one sees a mix of old and new, form and reform.

Consider Paula Goddard's classroom. Near the hall door are two sets of posters. One set, reflecting recent reading reforms, outlines the elements of a "story grammar"--i.e., characters, problem, events, ending. Next to it are detailed charts explaining standard punctuation symbols--quotation marks, question marks, periods, exclamation points. On shelves in the back of the room are boxes of mathematics manipulatives (e.g., geoboards, beans, cups, base 10 blocks) neatly stacked and labeled. The heavy covering of dust, however, suggests no recent use. Emphasizing that point are the open and well-used boxes of mathematics flash cards. On the wall opposite these shelves is displayed a poem Ms Goddard proudly noted had recently been composed by the class.

One, two
Use your glue.

Three, four
Touch the floor

Five, six
Fix the bricks

Seven, eight
Don't be late

Nine, ten
Get the pen.

This piece represents the students' first effort as a class to produce a common product. Ms Goddard discovered this exercise in the reading textbook she pilots. It was a big success. "The kids really liked doing it," she said, "I never thought they would be able to do such a good job." Interestingly enough, when she created the poster version to put on the wall, Ms Goddard underlined the phonetic sounds. "I just couldn't resist," she said. Further along this same wall, posters illustrate the sequence of events from the story "The Tortoise and the Hare." Students created these accounts in small groups, a form of organization Ms Goddard had not used before. "I didn't know how they were going to do together," she said, "And they worked it out by themselves. I was really surprised." These ventures into cooperative groups and student construction of stories, however, exist alongside bins for "homework," "seatwork," and "boardwork" which overflow with worksheets of subtraction problems, alphabetizing exercises, and punctuation drills.

That old and new coexist along the walls of Paula Goddard's classroom makes sense. Ms Goddard taught only basic skills for several years. She knew what she was responsible for and she was confident in her abilities. She honors the successes of SCAC's basic skills orientation and the commitment of the staff who made those successes possible. She will not abandon it easily. But Ms Goddard is excited by the call to reform. She is asking difficult questions of her teaching; she is seeking new answers, a new balance. Her responses look uneven and awkward at times. And much of her practice has

a conventional cast. But given the context she teaches in, the distance she must travel, and the uncertain support she faces, Paula Goddard is taking big steps toward reforms.

Responding to Reforms

This case offers one additional example of how teachers' respond to reforms and how those responses vary. There are notable similarities as one compares Paula Goddard's responses across reforms and with other teachers.[3] But as before, it is the differences which stand out and define the variation.

Today, Paula Goddard's instruction most closely resembles Marie Irwin's. In reading, both teachers supplement the textbook with trade books. In writing, both have added opportunities to write while maintaining a conventional grammar practice. And in mathematics, both emphasize conventional knowledge and skills.

These similarities are not insignificant. But they obscure profound differences in the way each teacher responds to reforms. For given where she started and the context in which she teaches, Paula Goddard manages reforms in ways most similar to Bonnie Jones. For example, both teachers believe reforms challenge their extant practices and understand that change involves re-educating themselves. Both attempt ambitious changes in their reading and mathematics practices and both currently struggle to recast their writing instruction.

There are differences. One is that Bonnie Jones continues to push her practice toward mathematics reforms. Paula Goddard started, but stopped after a year. Another difference involves learning about reforms. Bonnie Jones has aggressively sought opportunities to learn. Paula Goddard would like to attend more, but finds it difficult. Finally, except for reading, Paula Goddard's responses to reforms do not push as deeply into her practice as Bonnie Jones's do. Where Ms Jones is reconsidering fundamental assumptions about

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[3] Like each of the previous teachers, Ms Goddard attends to more than reading, writing, and mathematics reforms. She also manages the state health curriculum and a school-wide initiative in cooperative learning. Ms Goddard was recently elected to the SCAC Building Improvement Team, a piece of the district site-based management initiative.

teaching and learning, Ms Goddard generally stops at changes in her daily instruction. In that sense, Paula Goddard is more like Frank Jensen and Marie Irwin. These teachers have made some changes in their instructional routines. But neither has pushed on the basic assumptions behind their thinking and practice.

The cross-teacher variation lies at one level. At another is the variation in Paula Goddard's responses to individual reforms. For example, Ms Goddard embraces reforms in reading and writing. Her reading practice shows deep changes in purpose, instruction, and text. Similar changes may occur in writing. But to date, Ms Goddard's response has been additive; new practices supplement rather than supplant traditional grammar instruction. Her response to mathematics reforms shows yet another variation. For here Ms Goddard has reversed course. Drawn to manipulatives-based reforms two years ago, she changed much of her conventional skills-based approach only to return to it a year later.

Looking at teachers' responses in the context of their classrooms is instructive. But the classroom is not the only relevant frame. Understanding how teachers respond to reforms also demands understanding the local environment. Paula Goddard teaches in a context far different from Bonnie Jones, Frank Jensen, and Marie Irwin. Sheldon Court Academic Center is different in several ways. It has a prescribed mission and student population. It has a staff united by and supportive of the mission and students. It has deep parent support and involvement. SCAC is part of the Hamilton district and follows most of it's guidelines. But the students, staff, and parents consider it a world apart.

The potential influence on Paula Goddard's responses is considerable. Textbooks, tests, and parent and student expectations explicitly support the school's basic skills mission. These forces shape SCAC and its success. Paula Goddard appreciates the direction and certainty the SCAC mission provides. This creates a double challenge. For embracing reforms means Ms Goddard must be willing and able to challenge not only her own practice, but the explicit and commonly held practices of the school. "We have it a little tougher," Ms Goddard explained, "Because we not only have to change what's in our

classrooms, but we have to convince everybody else in the building that this is the way to go" (interview, 3/19/92). It is an enormous challenge. And not surprisingly, Ms Goddard often seems more adrift than anchored.

Responding to Reading Reforms

Paula Goddard has made the most obvious changes in reading. Two years ago, she described herself as a "very traditional" reading teacher. Then she grouped students into homogeneous reading groups to read from vocabulary-controlled basals, assigned mountains of seatwork exercises, stressed discrete word recognition and word attack skills, and gave little attention to what students brought to or understood from their reading. Learning to read meant practicing dozens of skills and sub-skills.

Reforms challenge this approach and Paula Goddard believes she has made "big changes" in response. There is evidence for this claim. Whole class instruction, reading strategies, literature-based text, trade books, and connecting reading with other subject matters now appear as functional parts of Ms Goddard's reading practice.

Learning about reforms. Ms Goddard learns about reading reforms from several sources. One is the new state definition. She first heard about the state effort in the mid-1980's. Ms Goddard remembers Ann Laurel, the school reading teacher, talk about "a new definition of reading, what the emphasis was on." But it meant little. The reforms were offered as something teachers might think about, but nothing more. "I was still teaching pretty traditionally," Ms Goddard explained.

A second encounter with the definition proved more influential. When she volunteered to pilot the Houghton-Mifflin (1991) reading series,[4] Ms Goddard enrolled in a reading education course at a local state university. She had been slowly working through a masters' degree in elementary education. This course fit her program. But it also offered a

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[4] Some SCAC teachers, like Ms Goddard, are piloting the Houghton-Mifflin text. Others are piloting a Ginn (1991) textbook. Ms Goddard favors the Houghton-Mifflin textbook contending that the stories are "more interesting" and the reading strategies are "more clear."

quick route to new ideas about reading. It proved to be more than that. The instructor covered a range of literacy reforms--whole language, reading strategies, the writing process--using the new state definition and goals and objectives of reading as the principal texts.[5] The experience was eye-opening:

> It just kind of opened up a whole new idea of what reading is....I hadn't put that much thought into [the new definition]. Then I took the class and thought, "Whoa." That professor tore it apart and said, "This is what it really means." (interview, 3/19/92)

The reading course had a powerful effect. For not only did the instructor offer a different vision of reading instruction, but she pushed students to reflect on their own reading practices. Ms Goddard learned that research no longer supported her skills-based instruction. She remembers feeling surprised and angry that she had been trained to teach in ways that now seemed unproductive.

The reading course and literature-based textbook pilot opened questions about Ms Goddard's past practice. But they also allayed some fears. For example, though she is increasingly drawn to approaches like "whole language," Ms Goddard has concerns. Colleagues at another Hamilton school had whole language "just thrown at them." They felt unprepared and confused and the initiative died an anguished death. Ms Goddard has been leery since. Taking the reading class and trying ideas from her new textbook (which she asserts is not whole language, but is "close") calmed some of her fears:

> The literature-based [reading text] has allowed us to be a little more free. And what's nice about it is the textbook said we could do it. I mean it's there in the textbook. I mean it's not like you're working on a project that you feel is important, but that's not in the basal....Now you've got permission to do it because it's in the textbook. (interview, 3/19/92)

Paula Goddard's experiences with the reading course and new textbook were fortuitous--one apparently reinforced the other. Ironically, however, it was a personal experience that cemented her commitment to teaching reading differently. That event, her

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[5] Ms Goddard reports reading the National Commission on Reading report, Becoming a Nation of Readers, (Anderson et al., 1985) and literature on different approaches to reading and writing.

daughter's positive experience in a whole language classroom, affected her deeply. Virtually a non-reader before, Ms Goddard's daughter blossomed in the new program. "I've seen the benefit [of reading reforms]," Ms Goddard said. Seeing the impact on her child persuaded her that she might have a similar effect on her students.

Reforms call for Paula Goddard to know and do new and different things. She understands she has much more to learn. She would like to join the state reading association and attend conferences and workshops. But a growing family and an excess of after school meetings drastically reduce her time. Beyond the university course and textbook, Ms Goddard relies on district workshops and reading "a lot of stuff on my own."

A new view of reading. Paula Goddard describes her skills-based view of reading as "the old way of teaching reading." "The kids learned how to read skill sheets," Ms Goddard said, "Reading was not fun. Kids dreaded it." The content of reading instruction was defined by three sources--the Ginn (1986) textbook, the teacher's guide, and an ancillary phonics program (Modern Curriculum Press, 1987). These sources promoted what Richardson et al. (1991) have called a "skills/word" approach. Word recognition and decoding skills formed the heart of this view; comprehension tended toward the literal (e.g., identifying characters, setting). But even a literal re-telling of a story was secondary to the sense that reading decomposed into discrete skills. Ms Goddard describes it this way:

> You go through skills everyday with kids if you're doing the basal program....I mean, we may go over ten skills in reading a day if I were teaching from the basal. Then we choose a day to read the story for fun and maybe ask a few comprehension questions like, "What was this guy's name" and "What did this guy do" and "What color was his room?" Just real basic comprehension questions. And then we'd be back to skills. (interview, 11/17/92)

Ms Goddard did not question this approach. "[It was] the way I was taught," she said, "That's the kinds of reading we had...that's the kind of reading I thought was valuable." This view fit well with the SCAC emphasis on basic reading skills.

Her view began to change about a year ago. Ms Goddard describes a confluence of factors as influential--piloting the Houghton-Mifflin reading program, a university reading course, and her own child's experiences in a "whole language" classroom. Her developing view is multi-faceted, but revolves around reading strategies, comprehending text, and integrating reading across the curriculum.

Paula Goddard sees a distinction between reading "skills" and "strategies." Among other things, "skills" refer to the discrete word recognition and decoding tactics prominent in reading basal and phonics programs. Examples include identifying prefixes and suffixes, recognizing and pronouncing vowel and consonant combinations, alphabetizing words. Ms Goddard still believes these skills are important and she will not abandon them. In fact, one reason she likes the new Houghton-Mifflin textbook is its presentation of skills. Rather than worksheets of decontextualized drill, skills are now taught within the stories students read. "Now the skills that we are teaching make more sense," Ms Goddard said, "because the children see them right in the story." As an example, she cites the text's treatment of quotation marks:

> The story ["The Tortoise and the Hare"] had a lot of dialogue. And so there's a lot of quotation marks. So they took that particular skill and put it with the story so the kids could pull that out and say, "Yeah, the tortoise is saying something. Those are quotation marks." It's [the skill] related to the story. (interview, 3/19/92)

Reading "strategies" are something different. In Ms Goddard's view, strategies are less about understanding individual words than about understanding text. As she and the students work through stories, Ms Goddard teaches strategies like previewing and surveying the text, distinguishing between text structures, and accessing prior knowledge (Paris et al., 1991).

> The goal is really an understanding of the different kinds of texts...and comprehension, so I stress more of the story....The goal really is for them to understand the story and there's less emphasis on skills. (interview, 11/17/92)

Paula Goddard's changing view of reading also includes a new concern for the kind of text students read. Once satisfied with basal readers alone, Ms Goddard supplements the

new textbook with trade books. A trial run at the end of the school year produced good results. "I got really excited," she said, " and so did the kids....There's less emphasis on skills...but it's just as valuable. The kids learned just as much." Ms Goddard explains that trade books are more "versatile" than the textbook. She took a strategies approach to teaching the text, but she also created several cross-disciplinary activities that integrated reading, writing, and art. Ms Goddard will not abandon the textbook in favor of trade books as Bonnie Jones did, but she feels she's found a valuable new element to supplement her reading practice.

As Paula Goddard redefines reading, she has an ally in the school reading teacher, Ms Laurel. They share a common view that embraces the possibilities reforms promise, but reserves judgment in the event that reformers are wrong:

> [Ms Laurel] likes the idea that there's a balance....She doesn't want to say let's go all whole language. She's more like what I'm saying, let's be sure the kids also know the skills...because we don't know. Five years from now, [researchers] might say, "Whoops. [Whole language] wasn't that valuable." And you've got five years of kids that don't know the skills. And that can happen. (interview, 5/18/93)

Like veteran teachers everywhere, Paula Goddard and Susan Laurel know that the glitter of reform can quickly fade. Ms Goddard is making some very big changes in the way she approaches reading. But she will hold onto a slice of the past for "balance."

A look at classroom reading practice. Paula Goddard's view of reading is changing. So too is her instruction. A recent lesson on reading expository text illustrates several reform-minded changes.

Ms Goddard directed students to the story "Air Is All Around You" in their literature-based reading textbooks (Houghton-Mifflin, 1991)[6] and the accompanying journal/workbook.

> Ms Goddard--We're going to do a little reviewing of this story. Then we'll learn some more about it when we read it. What is the topic?
> Quinn--Air
> Ms Goddard--What is it about? Why is this story different?
> Jamar--It's important.

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6 The Student Resource Journal accompanies the textbook. In some ways it looks like a conventional workbook--a variety of exercises coincide with each story. Ms Goddard defines a workbook as a collection of skills exercises unrelated to the stories. In her eyes, the Journal is much different.

Ms Goddard--Okay, but so are the stories. How is this one different?
Nicole--They were fiction and fantasy. (The previous unit featured stories about fantasy characters.)
Shanequa--This is information text.
Ms Goddard--Okay, what have we talked about? What topics?
Jamar--Dinosaurs
Ebony--Stars.
Ms Goddard--(attends to some disruption) Class, all eyes up here. The topic today is air. And we're looking today for main ideas. So get ready to do some strategies. I want you to look at the title, then look at the pictures, and then write something down you'd like to know about the story. (pause) All right. What is the title?
Ebony--Air Is All Around You. (observation, 1/17/92)

This introduction highlights three reforms. First, it reflects the notion that all students can learn and that all students should have access to the same curriculum (Anderson, et al., 1985). Ms Goddard organizes her students for whole class instruction around a common text. Four of her students receive extra reading assistance from the school reading teacher. But in this lesson, they read and respond to the same story as their peers. Second, Ms Goddard sets a context for the reading by asking students to compare the topic and genre of this reading with those of earlier readings. Third, strategic reading is emphasized. At the end of the introduction, Paula Goddard surveys the text. Gaining information about text through reviewing features like titles, pictures, headings, and the like is a common reading strategy (Paris et al., 1984; Paris et al., 1991).

Strategy instruction is central to Ms Goddard's new instructional approach and her new purposes for reading. Those purposes emphasize comprehension. An example is the reading strategy known as KWL. KWL is an acronym for what students Know, what they Want to know, and what they Learn (Ogle, 1986). This strategy helps increase students' comprehension by teaching them to question text. Ms Goddard uses a version of this technique in the following vignette:

After surveying the text, Ms Goddard turned students' attention to their journals.[7] She told them to record any questions they had in the first section and what they found out, after reading the story, in the

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[7] On this day (the second day devoted to this topic, but the first reading of the story), students recorded responses to two questions in their journals:

1. Read the title and first page of the selection. Then look at the pictures. Think of some questions about air that you think this selection will answer. Then write them on the lines below.

second. Ms Goddard asked for "sample questions." Two were offered--"When you go in outer space, can you see with a telescope?" and "How do you go into outer space?" After each, Ms Goddard urged the student to "think about air." She offered these examples--"Does air weigh anything?" "What is the experiment in the picture about?" "What does the orange have to do with air?" She then asked for more examples from students. They responded--"Is there any air in space?" "Is there any air in water?" "If there wasn't any air, what would we do?" "Is there air in a bubble?" "Is there air in a balloon?" Ms Goddard praised all of these questions but the last. To that question she said, "I think most of us know the answer to that." (observation, 1/27/92)

After reading the story, Ms Goddard returned to the questions students wrote. She allowed them five minutes to record whether or not the text had answered their questions. Students worked diligently. Ms Goddard then asked if students would "share some of the questions and answers you wrote." Before beginning, however, she advised, "Now proof-read what you have written to see if it makes sense. And ask yourself, 'Is this something I want to share?'" In the ensuing discussion, Ms Goddard praised all student efforts, but said little about the substance of the questions or answers. Some examples:

> Tiffany--(reading her question and answer) "What was the experiment about?" It was about air is all around us.
> Kendrick--"How can people breathe when they is [sic] in outer space?" They breathe with air in tanks.
> Wardell--"Is air in a big bubble?" It was in a bubble. (Ms Goddard interjected, "Air is the bubble.")
> Ebony--"Is there air in water?" There is air in water.
> Doris--"If there wasn't air in the world, what would people do?" The story did not answer my question.
> Ms Goddard--Is that right? (A boy raised his hand and said, "We'd die!") Right.
> Janay--"I wonder if air is in space?" The story did not answer my question.
> Ms Goddard--I think it did, Janay. (The girl looked up and said, "No?" Ms Goddard nodded.) (observation, 1/27/92)

One other reading strategy evident in this lesson is accessing prior knowledge. Before reading the story aloud, Ms Goddard brought out several pieces of chart paper. The previous day, she and the class talked about two questions in preparation for this story: How do we know air is there everyday? How do we use air? Student responses filled the chart paper. Under the first question were these responses: flags flapping, blowing bubbles, wave hand, the air we breathe, clouds moving. The second question featured these responses: breathing, blowing balloons, blowing out candles, paper airplanes, drying clothes, sailing a boat. Ms Goddard displayed the charts and quickly read through them. There was no further discussion. She later told me the class had spent 20 minutes

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2. After you read the selection, look at your questions. Were any of them answered? If so, write the answers on the lines below.

developing these ideas as a "warm-up" for the story. She said, "You need to get out their ideas, their prior knowledge, for the story to make sense to them."

Paula Goddard learned about exploring students' prior knowledge and other reading strategies in her reading course. But she counts her textbook as an invaluable aid. "God I've learned a lot using the textbook...This series is big into strategies and it's real new for me to teach the strategies," she said.

Moving from a skills-based to a strategies-based practice is a profound change. But other reform-minded changes are also evident. One is the public or social nature of reading. Reformers (Cazden, 1992; Goodman, 1986; Kulleseid & Strickland, 1989) encourage teachers to consider reading as a social as well as individual activity. Ms Goddard's students have many opportunities to express their ideas. She often solicits multiple responses and, as in the KWL strategy, students' questions and their answers receive a public airing. In addition, she encourages students to form relationships around text. At the end of this lesson, for example, she allowed students to "share read" with a partner. One last reform involves writing. Connecting reading and writing is a common theme in the reform literature (Anderson, et al., 1985). The KWL strategy is one vehicle. After surveying the text, students list the questions that occur to them; after reading, they write their answers. Ms Goddard emphasizes the connection between reading and writing by modeling the KWL strategy in front of the class.

Whole class instruction, setting a context for reading, teaching reading strategies, making reading more public, and encouraging writing are significant moves away from skills-based practice. Still vestiges of "the old way of teaching reading" remain. Many of Ms Goddard's questions are low-level and call for a "right" answer. Students' talk is primarily in response to these questions; there is little lateral talk, student-to-student. The opportunity to write is limited to developing questions and seeking answers.

Conventional instruction is even clearer in this vignette:

Ms Goddard led students into the classroom from outside. As students stood in line to hang up their coats, Ms Goddard directed their attention to the "boardwork" assignment:

Boardwork--Underline the soft c or g

1. We like to read big books about giants.
2. Are you going to play games in the gym?
3. He came to school with a new red pencil.
4. Cindy likes to cook rice on the stove.

While students worked, Ms Goddard distributed the "seatwork" assignments: two pages from the phonics workbook (Modern Curriculum Press, 1987), two pages from the spelling workbook (Houghton-Mifflin, 1985), and a math skill sheet on addition and subtraction (Frank Schaffer Publications, 1984). She said, "I'm going around checking for handwriting to see if you're using all the things we learned in penmanship." Students generally worked quietly and industriously.

After the opening exercises, Ms Goddard directed students to the boardwork assignment. She began by reviewing the "soft c and g rule": These letters are "pronounced softly if they are followed by a vowel." She then called on individual students to identify the "soft c or g" in each sentence and to explain their choices.

Ms Goddard--Kendrick, read the first sentence and tell us if there is a soft c or g.
Kendrick--(reads) "We like to read big books about giants." Giants.
Ms Goddard--How did you know?
Kendrick--The g is followed by an i.
Ms Goddard--Good. Jamar, read the next sentence.
Jamar--(reads) "Are you going to play games in the gym?" Gym.
Ms Goddard--Okay. How did you know?
Jamar--The g is followed by a y.
Ms Goddard--Good. And is this an asking or a telling sentence?
Jamar--Telling?
Ms Goddard--Telling? What?
Jamar--Asking.
Ms Goddard--Okay.

This pattern continued through the rest of the sentences. Students were attentive and responsive; hands waved continuously in the air.

After completing the boardwork review, Ms Goddard dismissed students by rows to deposit their work in the "boardwork" basket in the back of the room. As they took their seats, she turned their attention to the "seatwork" assignments. (observation, 11/17/92)

Here are all the elements of skills instruction: discrete word attack skills taught in decontextualized fashion, an emphasis on getting the right answer, teacher-centered and didactic instruction. Learning to read in this context means learning letter sounds in order to correctly identify and pronounce words. Consideration of text and ideas lies some distance away.

But these points are quibbles when one considers the distance Paula Goddard has traveled. Under the basic skill regime, students alternated between ability-based reading groups and individual seatwork. They read only what their groupmates read: vocabulary-controlled basals of dubious interest. Their talk was generally limited to the turns taken

during round robin reading; text was not "discussed" and seatwork exercises were done silently.

A new view of teaching and learning reading. Paula Goddard's reading instruction reflects a mix of practice. Taken together, however, the evidence suggests a profound shift is occurring.

Ms Goddard's response has been ambitious. The changes take her far from her familiar skills-based practice. These changes demand she re-educate herself. Beyond these changes, it appears Ms Goddard is also rethinking her basic assumptions about teaching and learning. She teaches toward new purposes--making meaning from text rather than accumulating skills. She treats students more as active learners than as passive recipients. She still emphases "right" answers. But Ms Goddard more often accepts the possibility that multiple answers exist.

Elements of Paula Goddard's practice still look quite traditional. In fact, she consciously and intentionally reserves part of each school day for skills instruction (e.g., phonics). But as she redefines her reading practice, skills play a new and diminished role. Ms Goddard no longer defines her practice exclusively in terms of discrete skills. She believes some skills instruction gives her practice a necessary "balance." But it is a balance which tilts decidedly toward reforms.

Responding to Writing Reforms

Paula Goddard's approach to writing is also changing. Here too, Ms Goddard hears the call to reform and she asks hard questions of her past practice. In this area, however, she seems less sure of herself: The uncertainty is stronger, the changes are more fragile, the mix of old and new is more evident.

Learning about reforms. Like the other teachers, Paula Goddard has not seen or heard about the state writing policy. Instead, Ms Goddard's introduction to writing reforms began with the school adoption of a new English textbook (Houghton-Mifflin, 1990). Like the old text, this book covers mechanics. But it also promotes reform-minded

ideas--the writing process, peer editing, creative writing. The publisher-sponsored workshop stressed these practices which contrast sharply with the grammar-based instruction Ms Goddard and her peers have practiced for years.

Ms Goddard claims to embrace these ideas, but only in the last year. Reminiscent of her initial response to the state reading reforms, she ignored the reform-minded sections and continued her conventional grammar instruction. As her interest in reading developed, however, Ms Goddard began thinking more about writing. She has concerns though. On teaching the writing process, for example, she said, "It's a hard process to get into because it's so different from the basal....I would really like to see how other people do it [the writing process]."

Opportunities to "see how other people do it" are available. Ms Goddard has attended inservice sessions on the textbook and on using student writing portfolios. She would like to do more; she knows conferences, workshops, and university courses are available. But as with reading, Ms Goddard's interest in opportunities to learn outstrips her time and energy.

A changing view of writing? Several parallels between Paula Goddard's response to writing and reading reforms emerge. First, her past practice focused on discrete skills. Writing meant practice and mastery of mechanics--grammar, punctuation, sentence construction. Second, she interprets reforms as a direct challenge. Ms Goddard does not view her past reading and writing practices as wrong. But she does see reforms leading in distinctly different directions. A third parallel is Ms Goddard's use of new textbooks as a vehicle for change. The new reading text stresses reading strategies, using literature, integrating reading and writing. The new English textbook features the writing process and "real" writing tasks.

Interestingly enough, Ms Goddard may have anticipated some of these reforms. A year before the new textbook, based on "something I read," Ms Goddard discovered writing "journals." These are spiral-bound notebooks in which students record their ideas,

stories, pictures. "There's a real value in having kids write and read in their own language," Ms Goddard explained, "It's fun to see how that emphasis on writing has really turned them into writers."

It's not clear that the students consider themselves writers. But they have many more opportunities to write now. For as in reading, Paula Goddard seems to be changing her purpose for teaching writing. She still holds learning mechanics and technical competence as goals. But these goals are no longer sufficient: Ms Goddard wants students to become clear and purposeful writers. Where grammar rules and usage once dominated her instruction, she now supplements those topics with concern for content and expression:

> Now I ask them, "What did you want to say here? What did you really mean?" Last year, I would have never done that. It would have been all skill sheets, bonus sheets, doing this little ditty or that. (interview, 3/19/92)

Paula Goddard may be moving toward a new view of writing. Her talk reflects less emphasis on skills and more emphasis on meaning. But she worries about accomplishing this. For example, she wonders about holding students "accountable" for doing their best work and about grading students' work for "content" or "effort." She also wonders about a wholesale shift from a skills-based approach to a writing process approach:

> It's real hard to know when to expect them to write in complete sentences and to have the right content....[The writing process] is a real hard process to get into because it's so different than the [old textbook]. You need to find out what's valuable there. (interview, 11/17/92)

Ms Goddard values her students' efforts and enthusiasm. But she fears the writing process may not produce much more than "cute writing." Her compromise: provide students numerous writing opportunities, but hold them to strict standards of grammar.

> I tell my kids I'm looking for sentences. Did you answer in complete sentences? Did it make sense? You get so many points. Did you capitalize and period? Putting periods in, I even bring that into it. (interview, 11/17/92)

As with reading then, Paula Goddard asks questions and considers alternatives to her extant views. But she also finds that questions and alternatives come with no easy answers and that balancing competing interests is no mean feat.

A look at classroom writing instruction. Paula Goddard's writing instruction mirrors her talk. Both conventional and reform-minded practices are evident. Students have more, and more realistic writing opportunities. At the same time, students study conventional grammar apart from their writing. Unlike Ms Goddard's reading instruction where new practices are displacing old, in writing, old and new practices are equally evident.

Attention to reforms is most obvious in Paula Goddard's use of writing journals. First, journals reflect the call to provide students an opportunity to write each day (Calkins, 1986). Though there is no set time, Ms Goddard creates a 10-15 minute journal period each day. Second, journals offer students an occasion to exercise their "voice" (Calkins, 1986; Graves, 1983). Ms Goddard occasionally assigns topics. More often, however, the choice is open-ended. Students' stories, poems, and letters, all colorfully illustrated, fill the pages. Ms Goddard does not grade these entries. Instead she reads them and writes a response once a week. "The kids love it," Ms Goddard said, "it's a chance for them to talk about themselves. And they like it when I write back." Third, in Ms Goddard's class, journals are a vehicle for making writing public. Sharing one's writing with others is a common theme in the reform literature (Atwell, 1987; Calkins, 1986; Graves, 1983; Michigan State Board of Education, 1988). Her students can keep their work private, but Ms Goddard encourages students to share their journals with one another as well as with her and, at least once a week, she asks five students to read entries to the class. There is no lack of volunteers. Finally, as a "real" writing task, journals provide an informal assessment of students' writing progress. As she reads entries, Ms Goddard notes students' ability to express their ideas clearly and to use mechanics (e.g., grammar, punctuation, capitalization) properly. She now wonders if journals don't provide a better context to assess these things than worksheets:

> The problem [is]...they can do it on the worksheet. I can give them a worksheet on capitals (capital letters)...[and] they can zip right through that. Good, they know the skill. But, no, they don't know the skill because they're not using

> it...[but] I didn't know they couldn't use it because I didn't have enough writing to show me that they weren't using it.....Now I can see it everyday. (interview, 5/18/93)

Journals provide fertile ground for reform-minded practices. But new practices also occur at other points during the school day. The "journal" accompanying the new reading textbook also offers students a place to write. It has a workbook-like feel to it: Writing tasks are largely convergent and students are rarely asked to write more than a few sentences. In Ms Goddard's eyes, however, it is a significant improvement over the old workbook which offered only fill-in-the-blank and multiple-choice questions. More ambitious opportunities to write are also present. For example, after a recent unit on adventure stories, Ms Goddard asked students to write their own adventure stories. This activity reflects her sense that "bigger" pieces of writing help students develop their ideas about characters, setting, and plot.

These efforts stand in some contrast to Paula Goddard's recent writing instruction. As little as two years ago, students wrote virtually nothing. Worksheet tasks might demand students re-copy a sentence using the correct part of speech or punctuation symbol. But more often they presented multiple choice questions and students simply circled the correct response. Ms Goddard notes, "We taught all these skills, but we never used them. The kids never wrote."

Discrete skill instruction remains a significant piece of Paula Goddard's writing practice. Worksheets on parts of speech, grammar, and punctuation from the English textbook are a regular part of each school day. In fact, she feels grammar skills are so important that she and some of her peers adopted the same Daily Oral Language (DOL) program Marie Irwin and the Sanford Heights staff use.

The DOL program highlights grammar and punctuation skills. Sentences with various errors provide the fodder. During a recent observation, Ms Goddard listed these sentences on the board:

1. The Mayflower sailed on Sept 6 1620
2. The people on it wanted beter lives in america

3. The trip from england were long and hard
4. all of a sudden someone seed land

Ms Goddard directed students to "correct your sentences." Ten minutes later, she called Joey to the board. The lesson followed this way:

> Joey put a period after "Sept." When Ms Goddard asked why, he explained that this was an abbreviation and "always has a period." He then added a comma after "6," and a period at the end of the sentence. Ms Goddard pronounced this correct. Tunise corrected the second sentence. She added a "t" to "beter," capitalized "america," and put a period at the end. As the girl worked, Ms Goddard asked her to explain each change. She did so apparently without error. Noting the changes each student made and asking for an explanation continued as Amanda and then Janay corrected the last two sentences. There was no discussion during this exercise nor were there any questions from the other students. Instead they reviewed their own work, making corrections or marking a large "C" next to those that were correct. (observation, 5/18/93)

Ms Goddard contends these activities "strengthen [students'] skills." But, she also acknowledges that similar items appear on the district Essential Skills test and the California Achievement Test. The DOL and textbook exercises then serve as "good practice for the tests."

A changing view of teaching and learning writing? These vignettes suggest the mixed flavor of Paula Goddard's writing instruction. Mixed practice was also evident in her reading instruction. Here, however, the mix of old and new is more equal. Ms Goddard may be beginning to see ways to connect grammar and writing. At this point, however, they remain largely distinct pieces.

Paula Goddard recognizes a gap between her current practice and the reforms. She pursues some opportunities to learn about reforms and how she might make them part of her practice. Changes in her daily practice suggest she is willing and able to pursue new ideas. And of the four teachers, she alone seems to see the potential for teaching mechanics through writing. Others have added-on pieces. Only Ms Goddard senses that students' journals magnify their use of mechanics as well as their creativity.

Ms Goddard recognizes she has much to learn. She does not view herself as a writer and she has had virtually no training as a teacher of writing. She hopes to learn about conferencing with students over pieces they are writing and by collecting their work in

portfolios. But she wonders where she'll find the time to learn about these practices and to plan and make the necessary changes.

Responding to Mathematics Reforms

Reading and writing reforms have held Paula Goddard's attention this past year. Two years ago, she focused on mathematics. Then Ms Goddard abruptly recast her mathematics program: She set aside a procedural approach based in computation skills and moved toward a conceptual approach based in mathematical manipulatives. Flashcards, drill sheets, and math facts gave way to beans, fraction bars, and tangrams. Individual seatwork gave way to pairs and small groups. Textbook lessons and worksheets gave way to mathematics "stations." A year later, and just as abruptly, Ms Goddard reversed course. The flash cards and worksheets reappeared and the manipulatives began gathering dust. Students went back to their seats and textbooks units became de rigueur. What happened?

Two events triggered Paula Goddard's rush to change. One was a university course in mathematics education. The instructor highlighted ideas and practices current in the reform literature: taking a conceptual view of mathematics, de-emphasizing computation, encouraging student talk and conjecture about mathematics, using alternative representations to illustrate mathematical concepts, organizing math "stations"[8] around the classroom (Michigan State Board of Education, 1990; National Council of Teachers of Mathematics, 1989; National Council of Teachers of Mathematics, 1991). Some of these ideas were familiar. For, while Ms Goddard's mathematics textbook (Houghton-Mifflin, 1985) emphasizes algorithmic knowledge and skills, it also encourages use of mathematical manipulatives. Up to that point, however, Ms Goddard rarely used them. Like many elementary school teachers, she had little coursework in mathematics and little confidence

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[8] A math "station" is a designated area in a classroom where the teacher has placed a variety of materials for students to explore a particular mathematical idea. For example, Ms Goddard reports placing beans and cups in one station to illustrate place value. In another, she placed several items that all represented the number "five." Two days a week, she said, students rotated through these stations in small groups.

in her understanding of mathematics. The manipulatives were attractive. But Ms Goddard was not sure how to use them or what benefit they represented.

In the university course, Paula Goddard heard a convincing rationale for rethinking her mathematics practice:

> When our kids graduate...[employers] aren't going to look necessarily at how well you can do a multiplication problem or an addition problem. They're going to look at...how much are you thinking about this. (interview, 3/19/92)

Ms Goddard also learned that there are "a lot of different ways to teach math"--problem-solving strategies such as estimation and mental math and alternative representations like manipulatives. More important, however, she saw demonstrations she thought she could replicate. She said, "There were some really good ideas on how to teach the different concepts...and I thought [at the time], 'Gee, I can really use this.'" Ms Goddard notes these "good ideas" became more viable when her own children came home excited about the mathematics they were learning in their classrooms:

> [Their teachers] are pushing more estimating and measuring and those kinds of skills rather than memorizing facts. They want [students] to be able to use what [they] know rather than to just know it. (interview, 3/19/92)

As in reading then, the experiences of her children provided Ms Goddard insights into reforms and incentives to pursue them.

At about the same time, Ms Goddard's emerging interest got another boost from a different source. After attending a Math Their Way conference, Ms Hayes, another SCAC teacher, urged Paula Goddard, the other primary grade teachers, and the Sheldon Court principal, Natalie Simon, to adopt the program as a supplement to the textbook. Math Their Way is a manipulatives-based program reflecting the idea that students better understand mathematics concepts and procedures when they can manipulate concrete objects (e.g., beans, fraction bars). Principal Simon gave her blessing as an "experiment." Paula Goddard and two of her six primary grade colleagues volunteered to "try out" the program. Ms Goddard received the Math Their Way materials, but she did not attend any workshops on how to use them. This point seems critical. Ms Goddard has a weak

background in mathematics instruction and an even weaker knowledge base in mathematics itself. She may have assumed that she only needed to follow the Math Their Way teacher's guide. But reform-minded materials often presume teachers have more knowledge than they do (Heaton, 1994; Remillard, 1991).

By her account, the experiment was a success. Students' scores on the district Essential Skills test rose over the previous year and Ms Goddard reports that both she and the students liked the change. "The [math] stations worked well last year," she said, "The stations are fun and they do teach a lot of things."

So why change back to a skills-based approach? Ms Goddard cites two reasons. One relates to testing. Her students out-performed the previous class on the district standardized test, but Sheldon Court scores on the whole went down slightly.[9] Test scores mean a lot to the SCAC staff and parents, consequently falling scores are of immediate concern. Ms Simon, the school principal who originally supported the Math Their Way experiment, did not demand the pilot teachers abandon it. But she did direct all teachers to develop "a list of the basics...objectives for mastery in mathematics" to address the "problem" of low math test scores. For whatever reason, Ms Goddard and her colleagues responded by pulling out their mathematics textbooks. Citing the need to list "everything [students] need to pass in order to get on to the next grade," teachers scoured the text and determined that computation skills and algorithmic knowledge were the most important objectives. Ms Goddard defined the outcome this way:

> These are things that [students] absolutely have to know to get out of second grade. Like counting to 100. Counting by two or....[being] able to add and subtract up through fifteen, a total of fifteen. (interview, 11/17/92)

Whether this activity alone was enough to cause Paula Goddard to reverse course is impossible to know.[10] For it coincided with a second factor--Ms Goddard's realization

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[9] Fourth grade scores on the math section of the MEAP test also dipped. Ms Goddard was not sure what happened on the California Achievement Test.

[10] Ms Goddard reports having no knowledge of recent changes in the state mathematics goals and objectives (Michigan State Board of Education, 1990) and little more than faculty room talk of revisions in

that shifting to a manipulatives-based program consumes a great deal of time and energy. Setting up math stations, allowing students time to work through the activities at their own pace, discussing students' ideas about mathematics--all this took more than Ms Goddard felt she could give. In a tired voice, she said:

> This year I'm following the math book and I'm not doing as much with the manipulatives and stuff as I did last year because there is just so much....It's not that I don't want to do it, but setting up the stations [for example] just takes a lot of time. (interview, 3/19/92)

Had there been no other changes, Ms Goddard might have coped. The onset of the reading textbook pilot, however, discouraged her effort. "The reading is taking over," she said, "I guess since reading is so emphasized this year, I'm not really that up on the math."

Will Paula Goddard return to the reform-minded mathematics practices once the reading pilot is over? The answer isn't clear. Ms Goddard declares manipulatives-based instruction beneficial. But she is not sure it is worth the effort:

> I think the manipulatives are good for the kids and they really teach them a lot. But I think I'm going to get the same results [on standardized tests] doing it this way this year. I think the kids last year had a little more fun with math than they are having this year. But I'm finding the kids are really, they're learning the same, the results are the same. (interview, 3/19/92)

Ms Goddard values her students' classroom experiences. She senses, however, that students are learning as much mathematics through textbook instruction as they did through manipulatives. She has not put aside her interest in reforms; she hopes to "find a balance" in the future.

> Next year, once we settle down with the reading and it becomes more familiar, maybe I can find a balance....It's not like you're either teaching a structured math or you're teaching with the manipulatives. A lot of teachers out there are doing both, you know? They've got the pages [of math skills] and they've got the manipulatives and that's what I'll probably go with. (interview, 3/19/92)

In one sense, Ms Goddard's intuition about her students "learning the same" and getting the same "results" was born out. On tests taken after a year of conventional

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the mathematics section of the MEAP test. She said, "There might be something out there [at the state level]. But I wouldn't know."

textbook instruction, students' test scores rose. "They did very well," Ms Goddard said, "They scored better than the kids (under the Math Their Way program) did the last year."[11] It is not clear how Ms Goddard understands this result or what it will mean as she tries to "find a balance."

Old and new views of mathematics. Paula Goddard's view of mathematics presents an interpretive challenge.[12] Ms Goddard talks positively of her experience with Math Their Way. In that year, she introduced activities and materials reflecting new ideas about mathematics. But did those activities and materials translate into a new view of mathematics? The evidence is mixed. For today Ms Goddard's talk reflects a jumble of old and new.

On the one hand, Paula Goddard seems comfortable with a conventional view of mathematics stressing math facts and procedures. She talks about students mastering "the basics." She saw nothing problematic in her principal's request to define "things that [students] absolutely have to know to get out of second grade." Nor did she question the decision to emphasize traditional objectives. Instead, Ms Goddard participated intently and is proud of the work she and her colleagues produced.

At the same time, her talk is sprinkled with references to reforms. Most of that talk centers on the use of mathematical manipulatives to illustrate procedures like re-grouping for subtraction. Other elements of the reform agenda--encouraging students to develop and discuss multiple conjectures, making connections between mathematics and the "real world," teaching computation in a problem-solving context--are absent.

A look at classroom mathematics instruction. Classroom observations suggest little remains of Paula Goddard's excursion into mathematics reforms. Lessons are

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[11] Ms Goddard did not know what her students' scores were for either year or what the difference was.

[12] I began interviewing Ms Goddard and observing her practice after her switch back to more conventional approaches. Consequently I know her views of reforms through the gauze of her having tried them and since reversed course. The timing of this study undoubtedly figures into my interpretations of what I see and how I interpret what Ms Goddard says about her practice.

typically textbook-centered, didactic, and focused on math facts and procedures. Even when she uses manipulatives, Ms Goddard's instruction has a conventional cast.

A recent observation is illustrative. The lesson began with brief review and a mathematics test.

Before administering the test, Ms Goddard said she wanted to review a couple of things. She wrote "How many more?" on the board and said, "I've written this sentence on the board. You will often see it in your story problems. What does it say?"

Janesa--(reads) "How many more?"
Ms Goddard--So if I have 10 baseballs and 5 bats, how many more baseballs do I have?
Janesa--Five
Ms Goddard--So what does "how many more" mean?
Jimmy--Subtract.

Ms Goddard then moved to another point. She wrote on the board:

4 tens=____ tens ____ ones

She asked, "How we can say 4 tens differently?" A student responded, "You could put 10 in the ones and put a 3 in the tens." Ms Goddard nodded, asked if there were any questions. Seeing none, she handed out the test. (observation, 3/19/92)

The exam was a unit test from the Houghton-Mifflin math workbook. Half the test questions resembled those Ms Goddard reviewed: subtraction problems written with the phrase "how many more"[13] and place value questions where values were redistributed.[14] Problems in addition and subtraction of two digit numbers, measurement, and telling time filled out the two-page test. While students worked, Ms Goddard walked the room reminding them, "It's the same thing we did on the board."

After the test, Ms Goddard directed students' attention to the board where she had written:

> greater < less

5___8

The discussion went this way:

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[13] For example: 37 children walked on the Nature Trail and
52 children went swimming.
How many more children went swimming? _____ more children

[14] For example: 3 tens = _____ tens 10 ones
7 tens 4 ones = _____ tens 14 ones

Ms Goddard said, "I'm going to give you a clue, and you've had this before--the arrow always points at the lower number." She then asked Kesha which way the arrow should point. Kesha said, "Toward the 5." Ms Goddard nodded and drew in the arrow. Ms Goddard then wrote the next example on the board (36____63), and asked Kesha to call on another student. "All right, Stesha," Ms Goddard said, "Which way should the arrow point?" Stesha replied, "Toward the window." Ms Goddard did not question this response. Instead, she nodded, wrote another example (27____36) on the board, and asked Stesha to call on someone. After Stesha used the expression "toward the window," Ms Goddard asked students whether the arrow should point toward the "window" (on the left side of the classroom) or the "calendar" (on the right side). The last example written on the board was 75____26.

Ms Goddard then asked students to look at the "enrichment" sheet she had handed out during the test. She said, "Now we're going to do this with numbers in the hundreds." Several examples were answered (e.g., 354____356, 748____743, 490____489). In each instance, Ms Goddard asked a student if the arrow pointed toward the window or the calendar. Only on the last example (618____718) did a student seem confused. Yvonne incorrectly answered, "toward the calendar." Ms Goddard said, "No, which is greater and which is less?" Yvonne answered, "618 is less." Ms Goddard said, "Okay, so if 618 is less than 718, then the arrow points to the smaller number." (observation, 3/19/92).

The conceptual understanding and "real world" connections mathematics reforms call for are absent here. Instead Ms Goddard emphasizes procedural knowledge and math facts. That conclusion is demonstrated at two points: Ms Goddard coaches students to do "the same thing we did on the board" during the math test and the recitation around the relative size of numbers degenerates to the mathematically irrelevant properties of "toward the window" and "toward the calendar." Instead of developing deeper understandings of powerful concepts, Ms Goddard's students learn "school math"--discrete, decontextualized bits of mathematics to be practiced and mastered outside any meaningful context. Several mathematical concepts are evident: addition, subtraction, place value, number relationships, measurement, time. But each idea is adrift, unanchored to any larger idea or practice other than an up-coming test.

The mathematics is no more clearly anchored when Paula Goddard uses manipulatives. A lesson on money, for example, centers on procedural knowledge (i.e., the absolute and relative value of coins) and makes little connection to real world situations. The lesson revolved around naming and identifying coins individually and in combinations. Ms Goddard used transparent coin pieces on an overhead projector to illustrate her points. An example of the discussion follows:

Ms Goddard--Today we are looking at the quarter and the half dollar. If I wanted to use different coins for 25 cents, what could I use?

Loreen--Two nickels and two more nickels and a nickel. (As the student spoke, Ms Goddard drew five circles on the board and labeled them 5 cents.)
Ms Goddard--Okay, let's count by fives. (She and the class counted aloud to 25. Ms Goddard clapped her hands in time.) Good. Is this money if I just write 25?
Students--No. Cents sign.
Ms Goddard--What other coins equal 50 cents?
Tara--A dime, another dime, another dime, another dime, and another dime. (Ms Goddard drew 5 circles and labeled them 10 cents.)
Ms Goddard--How about another way to say 50 cents?
Nicole--One penny and another penny...(students and Ms Goddard laugh). (observation, 11/17/92)

Ms Goddard and the class went through several combinations. She then turned on the overhead, displayed the coins individually, and asked volunteers to identify them (both front and back views).

In the next part of the lesson, students tore a page from their math workbook (Houghton-Mifflin, 1983). The first side featured photographs of a quarter and a half-dollar at the top and several coin combinations below. They were to add the coins and record the total. On the back, students were to draw lines from the quarter to the various coin combinations that equaled 25 cents (a similar exercise using a half dollar was on the bottom of the page). Students were given approximately five minutes to complete this worksheet. All completed the task, but there was much talking and Ms Goddard assigned numerous "checks."

Aside from the presence of manipulatives, this lesson resembles the first. Real world connections are ignored. Identifying the right answer is emphasized. Neither debate nor alternative points of view are encouraged. Rather than taking a problem-solving approach, these lessons are structured such that only one answer fits. Finally, these lessons give little sense of the social learning advanced in the reform literature or in Ms Goddard's reading practice. Ms Goddard's didactic instruction puts students in largely passive roles, their contributions largely confined to brief responses to her questions. There is no talk between students nor is there any sense that students help one another learn.

But if so much of these lessons looks conventional, what about the use of manipulatives in the second lesson? Use of concrete materials is frequently mentioned in the reform literature (Michigan State Board of Education, 1990; National Council of

Teachers of Mathematics, 1989; National Council of Teachers of Mathematics, 1991). Ms Goddard used manipulatives in the Math Their Way program; she uses them only occasionally now. If this lesson is representative of the "balance" she seeks, one suspects it will not result in a significant change in her instruction.

A conventional view of teaching and learning mathematics. Two years ago, Paula Goddard began overhauling her mathematics practice. Today little seems changed. Her complex response illustrates the fragility of classroom change.

Ms Goddard initially appeared to embrace reforms. She acknowledged a gulf between her extant practice and that promoted in her university course and the Math Their Way materials. She substituted a manipulatives-based view of mathematics for the skills-based approach of her mathematics textbook and skillsheets. And she added-on the use of math stations to her whole class mathematics instruction.

These changes in daily instruction seem profound. Yet one suspects they were built on an unsteady foundation. For Ms Goddard constructed these practices without much knowledge of mathematics or of the new pedagogy. The university course and Math Their Way program opened the possibility for profound change. But when her fledgling innovation was challenged, Ms Goddard did not have sufficient resources to continue. Returning to a conventional practice makes sense given the external pressures. But it also makes sense given Ms Goddard's knowledge and instructional background.

Responding to Reforms in the Context of Schooling

Paula Goddard manages reforms in her classroom every day. But the classroom is not the only relevant context. Also important are the norms and expectations unique to Sheldon Court Academic Center. How Ms Goddard manages those regularities and relationships reflects back on her responses to reforms.

Sheldon Court Academic Center arose from a concern that African-Americans students were not succeeding in public schools. Success was defined as high scores on standardized tests and the means to that success were a strong parental presence, a strict

disciplinary code, and a basic academic skills curriculum. By most accounts, SCAC has succeeded. Students whose circumstances might push them in undesirable directions have a place to feel safe, work hard, and see the benefit of their efforts. Parents and staff, including Ms Goddard, are fiercely loyal to and proud of their work.

The Sheldon Court community is not reticent. As an "alternative" school within the public system, the faculty and principal constantly feel pressed to explain, justify, and promote their work. Parents are active as well. They serve on the school's governing board and expect to receive and give regular feedback on their children's progress. But if there is no complacency here, neither is there much incentive to reconsider or recast the SCAC mission. Reforms are not necessarily discouraged or ignored. But the SCAC community holds tightly to vehicles like the basic skills curriculum which they assume got them where they are.

It is against this background that Paula Goddard's questions about the basic skills curriculum must be judged. She raises no objections to the strict disciplinary code or to the active parental involvement. But in Ms Goddard's classroom and a few others, challenges to the basic skills curriculum are developing. As they do, Ms Goddard feels tugged between reforms and the status quo.

Managing the Regularities of Schooling

Sheldon Court Academic Center's designation as an "alternative" school in the Hamilton system means that it lies outside the district instructional guidance system which plays such an important role in the lives of teachers like Marie Irwin. The SCAC program, however, mirrors the district system in most ways. The district instructional time allotments were adopted. SCAC students take the same battery of standardized tests--the district Essential Skills test, the California Achievement Test, and the MEAP[15]--other Hamilton students do. Teachers must maintain pacing charts in reading, mathematics, and

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15 Ms Goddard's second graders take the Essential Skills and California Achievement Tests, but not the MEAP.

science which record the units taught and students' chapter and unit test scores.[16] The SCAC staff may, and often do, choose textbooks different than district adoptions, but the SCAC instructional program is as textbook-bound as the district's. That fact, combined with the widely supported basic skills mission of the school, means that Paula Goddard faces some significant difficulties, and much uncertainty, in moving toward a more ambitious pedagogy.

One of those difficulties concerns what to teach. Until recently Paula Goddard took her cues from the assorted textbooks on her shelf and she took seriously the task of completing each text each school year. She inevitably faced time constraints, but she felt confident she was teaching the "right" content.

Reforms undermine her comfort. Her university courses, district inservices, and new textbooks send a similar message: Skills-based instructional approaches are challenged by constructivist approaches. Ms Goddard hears those messages and variously embraces them. But doing so offers little consolation. For rather than prescribing what she should do, reforms open up more possibilities. Moreover, reforms have not stilled the voices of convention. Her frustration shows: "There are so many skills and there's so much curriculum that you really don't know what the most important things are." Ms Goddard hopes to "find a balance" between the disparate voices of old and new. Perhaps she envisions some point where reform-minded and skills-based practices fit harmoniously together. For now, however, Ms Goddard straddles a difficult and tenuous gap. "I want the freedom [to follow reforms]," she said, "But yet I want to know that what I'm doing is what...the rest of the teachers will be doing in the second grade." Ms Goddard will make changes in the content she teaches. But she wants help:

> If they're [administrators] going to go into a whole language curriculum, they're going to have to come up with something teachers really feel comfortable with because you don't have the time to do the planning or the research. (interview, 3/19/92)

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[16] These charts go to the school principal, but do not go to the district office as Marie Irwin's do.

Compounding the difficulty of deciding what to teach is the persistent lack of time. Ms Goddard always has more to do than the time allotted. Attending to reforms only exacerbates that problem. In her experience, new reading textbooks, new math programs, and new ways of organizing students for work simply take much more time--more workshop and inservice time, more preparation time, more class time. These demands are, in turn, exacerbated by the family demands of two small children. The strain is palpable. In a weary tone, she said, "There are days when you just want to give them the book and throw paper at them and say, 'I'm sick of this!'" Ms Goddard hopes to attend conferences and inservices on reading and writing. She sees the value of this knowledge. But she wonders where she will find time to attend, much less understand what she learns and make it part of her practice.

A third difficulty is assessment. In Paula Goddard's case, this issue has two dimensions: classroom assessment and standardized assessment.

By second grade, SCAC students expect highly routinized instruction with clear, simple assessments of what they know. Introducing changes, Ms Goddard finds, can be problematic:

> Sometimes [students] don't take it seriously if they aren't graded on their answers. Now the kids have to think differently. Some of the kids didn't want to put in the effort. They were used to filling in the blanks; the skills took very little effort. Now they have to pay more attention. (interview, 9/24/92)

Pushing students to do more is not easy and students have resisted. Ms Goddard can understand this, but it feeds her uncertainties. For what she learned about reforms was directed at changing her views and actions. She recalls no mention of the possibility that students might not readily comply.

Sheldon Court parents and staff place great stock in standardized test scores, especially the district Essential Skills and California Achievement tests. As tests of basic skills, these assessments have been a good match for the SCAC curriculum. Ms Goddard, and the rest of the SCAC community, take pride in their students' success. Ms Goddard understands,

however, that the stronger content and instruction called for in reforms demands a corresponding change in student assessment. Highly visible basic skills tests undercut reform efforts in two ways. First, there is little incentive for teachers, comfortable with the basic skills curriculum, to pay much attention. Second, if test scores decline, pressure to change instruction may not be in the direction of reforms, but instead toward more basic skills. A case in point is the reaction of the SCAC principal, Ms Simon, and her staff to lower math scores. Ms Simon's directive, to develop objectives for mastery, and the teachers' decision (including Ms Goddard) to focus on computation had a decidedly skills-based flavor.[17] Ms Goddard explains the point bluntly, "Unfortunately teachers know what they are going to test on the [Essential Skills] test. And that's what we're going to push."

Managing Relationships

In addition to managing the regularities of content, time, and assessment, Paula Goddard finds she must manage relationships with her peers, principal, and the Sheldon Court parents.

Most of Ms Goddard's peers have taught at SCAC since it opened. Their devotion to the students, the program, and one another runs deep. They sense their status as an "alternative" school with a select student population, full-time aides, strong parent support, and freedom from some district mandates creates jealousies. "[Other teachers] think this is a cush job," Paula Goddard explained. "Cush" job or not, the SCAC staff is close to and protective of their students, each other, and the program.

Paula Goddard has thrived here. The school and students are different from those she experienced as a student. But she reports the adjustment was eased by the clear discipline

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[17] There is an irony here. For the tests which caused the concern--the district Essential Skills test and the MEAP--push in different directions. The district test emphasizes basic computation and procedural knowledge; the MEAP emphasizes problem-solving and conceptual knowledge. Why Ms Simon chose to emphasize the decrease in district scores is unclear, but her decision illustrates the power of local factors to undercut state efforts to leverage change.

and curricular guidelines and her colleagues' ready acceptance. She has been comfortable with her practice and a solid proponent of the SCAC program.

For whatever reason, Paula Goddard's reform efforts have not been openly challenged or criticized. But neither have they always been encouraged or supported. She has an ally in Ms Laurel, the school reading teacher. But more often than not, Ms Goddard feels her interest in new ideas and practices is not shared. For example, an effort to convince her second grade colleague that the new reading series is a good idea fell flat. This confirmed basic skills teacher's response was direct and unequivocal: "I already know how to teach reading. I taught reading all of these years. I know what it is." Ms Goddard encounters similar resistance when she brings up new ideas about teaching writing. Diplomatically, she said, "Some teachers take writing more seriously than others."

The other in-school relationship Paula Goddard must manage is with her principal, Natalie Simon. Ms Simon, an African-American woman in a district dominated by white male administrators, has fought many battles on SCAC's behalf. Paula Goddard recognizes and honors Ms Simon's work. But she perceives the principal as unnecessarily heavy-handed and insensitive to staff needs. Directives like the one concerning falling test scores are common. Moreover, Ms Simon is an inconsistent supporter of reforms. She initially supported the Math Their Way effort, for example. But the first time test scores fell, improving the scores took precedence over her interest in reforms. Ms Simon has not directly challenged any of Paula Goddard's efforts at reform. But Ms Goddard worries nonetheless:

> Is this (changing her practice) going to really work? I mean is this something that I can make work? Or is this something that my principal is going to come in and say, "Well, why aren't you doing this [other thing]? (interview, 3/19/92)

Given the origins of SCAC, Paula Goddard must also consider parents' reactions as she embraces reforms. She believes SCAC parents are strongly supportive of the school and teachers: They support teachers' decisions and actions and they react quickly to address their children's academic and disciplinary problems. For their part, parents want to

see tangible results. High test scores count. But also important is classroom evidence. "Parents get worried," Ms Goddard said, "if the kids aren't doing worksheets and finishing books."

Parents' expectations matter. But as influences on the way Paula Goddard manages reforms, they matter in unpredictable ways. Ms Goddard believes parents will support the new reading text and her efforts to encourage more writing. Yet she also believes parents have certain expectations about the kind of work their children will do. One of those expectations is phonics. "Parents," she said, "want phonics because they like the extra work." It is not clear that Ms Goddard would abandon phonics if she could. But what is clear is that she will maintain at least a semblance of a phonics program until she becomes convinced that parents will understand. A similar situation exists with spelling. Ms Goddard is considering an integrated approach to spelling--teaching spelling as part of reading and writing lessons. She worries, however, that parents will balk. "The parents have to see that the spelling books come home every year," she explained.

Paula Goddard's perceptions may be wrong. To date, there have been no problems. Parents have not complained about any of the changes she has made and those parents who ask, for example, about the new reading textbook, seem satisfied with her response. But Ms Goddard believes parents can be fickle and that should their expectations about the kind and amount of work their children do be upset or the test scores decrease, then she will be called to account.

Taken together, the need to manage regularities and relationships adds yet another layer of complexity and uncertainty to Paula Goddard's management of reforms. "It kinda feels like you are out there by yourself, forging ahead," she mused. At the same time, Ms Goddard appears sufficiently autonomous to pursue a range of classroom changes without sanction or rebuke. Difficult to assess, however, is what she might do given a more supportive and reform-minded environment.

Cross-Teacher and Within Teacher Variation

Paula Goddard's responses to reforms presents yet another opportunity to explore the cross-teacher and within teacher variation.

The Variation Within Paula Goddard's Responses

The four dimensions developed in earlier cases--the relationship between reforms and past practice, learning, daily instruction, and assumptions about teaching and learning--are relevant here as means of comparing Paula Goddard's responses across reforms. Those responses share some similarities. First, reading, writing, and mathematics (until last year) reforms interest and excite her. Embracing them is not easy. But Ms Goddard is charged by the possibilities. Second, she is willing to consider how reforms differ from her practice. In each instance, Ms Goddard accepts that reforms challenge what she knows and does. This point suggests one other similarity: Ms Goddard is interested in learning more. She recognizes that reforms call for her to know and do different things and she seeks opportunities to learn them.

These generalizations describe a teacher engaged in the difficult work of reconstructing her teaching. But they tell only a partial story. For in the details of how Paula Goddard manages each reform are substantive differences.

Ms Goddard ignored reading reforms for years. Today, it is the site of her most ambitious activity. Here she most clearly sees the distinctions between her traditional approaches and those of reforms. She understands that constructivist views of students as constructors of meaning differ sharply from traditional views which emphasize practicing skills and extracting meaning from text. Accepting that difference means reshaping her instructional practice. Ms Goddard has not hesitated. She has sought some opportunities to learn. She is making numerous changes in her daily instruction: new texts, new instructional strategies, new groupings, new forms of discourse. And she is re-examining her long-held assumptions about teaching and learning reading. Traditional practices can

still be seen. But taken together, Ms Goddard's response indicates a profound shift is building.

Paula Goddard seems after similarly impressive changes in writing. Her practice currently reflects a mix of old and new. Writing reforms are evident in the journals and writing assignments she makes. But instruction in discrete grammar knowledge and skills is equally evident. Ms Goddard senses that both are important and that a connection can be forged. She is willing to reconstruct her practice. But at this point, Ms Goddard understands she needs to learn more. She does not consider herself a writer and she has had few opportunities to learn about new writing approaches. She knows more opportunities exist. And she avers plans to attend and to make relevant instructional changes.

Ms Goddard's reading and writing practices are changing. She pushes herself to try new approaches and to hold old approaches up to scrutiny. By contrast, Ms Goddard's mathematics practice is moving away from reforms. The momentum toward reforms has stopped and the reform-minded changes have not held. The manipulatives have been shelved. So too have the big questions Ms Goddard was asking of her practice. Ms Goddard's current practice reflects little substantive change and her energies now seem directed elsewhere.

Two conclusions can be drawn. One is that Paula Goddard's responses are as unpredictable as any other teacher's. The second is that, a strong school context not withstanding, issues of will and capacity surface in her responses.

Paula Goddard's responses not only vary, but they are unpredictable across reforms and across time. Her response to mathematics reforms is a good example. Given her strong initial reaction, her reversal a year later testifies to the volatility of teachers' responses. That she would embrace reading (and later writing) reforms at the same time that she abandoned mathematics reforms seems curious only if one assumes teachers will respond consistently. Most indicators suggest that consistent responses are the exception.

Ms Goddard's varied and unpredictable responses highlight issues of will and capacity. The strong, coherent SCAC basic skills mission would seem to obviate any chance for ambitious reforms. And yet Ms Goddard, like each of the other teachers, demonstrates a measure of classroom autonomy. Her ambitious actions reflect considerable determination, for few of her colleagues appear similarly disposed.[18] But as the case of mathematics suggests, will may not be sufficient; knowledge is also necessary, especially if changes are to sustain. The proof of that observation comes in reading. There Ms Goddard is making at least as strong a bid toward reforms as she did in mathematics. Yet her response, based in part on stronger knowledge and experience, seems deeper and more stable.

Variation Across Teachers

Given her seemingly unique context, one might expect Paula Goddard's individual responses to be radically different from the other teachers. In fact, they share some commonalty with each of the earlier cases. But as they mirror no particular teacher, Ms Goddard's responses must be considered another variation on how teachers manage reforms.

On the surface, Paula Goddard's classroom response to reading reforms most directly resembles Marie Irwin's. Both teachers center their instruction in new literature-based textbooks, use trade books as supplements, abandoned ability-based reading groups in favor of whole class instruction, and teach both reading strategies and skills.

But changes in daily instruction are only one piece of a response. In most other ways, Paula Goddard's response is radically different from Marie Irwin's (and by extension, Frank Jensen's). First, Paula Goddard recognizes the distinction between traditional and constructivist approaches and understands that distinction has important classroom implications. Frank Jensen blurs this distinction. Marie Irwin may understand it, but she

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[18] Reports of other EPPS researchers studying SCAC teachers suggest Paula Goddard is clearly an outlier.

seeks an accommodation, incorporating trade books and the like into her conventional approach. Second, Ms Goddard realizes she needs to learn more. Teaching toward different purposes demands knowledge and abilities she does not have. Marie Irwin and Frank Jensen, by contrast, believe they already possess the requisite knowledge. Finally, Paula Goddard is willing to entertain questions about her pedagogical beliefs. Embracing reforms involves more than changing textbooks and adding-on a few new strategies. Unlike the other two teachers, Ms Goddard understands that reconstructing her practice means reconstructing who she is and how she understands her role as a reading teacher.

The differences among Paula Goddard, Marie Irwin, and Frank Jensen are substantial. But this does not mean Ms Goddard is a clone of Bonnie Jones. Ms Jones no longer relies on textbooks, she has virtually eliminated discrete skills instruction, she teaches reading throughout the school day. By comparison, Paula Goddard's efforts seem pale. But two conditions must be considered: Bonnie Jones has been working with these ideas considerably longer than Paula Goddard and she has done so in a context where teachers have considerably more autonomy. Ms Jones's colleagues may not understand or support her efforts, but the laissez-faire context provides great freedom of movement. These conditions suggest the possibility that Paula Goddard's responses may be as ambitious as Bonnie Jones's.

Paula Goddard's response to writing reforms reflects two commonalties with the teachers in this study: Each views reforms as different from her extant practice and each (except for Frank Jensen) adds new ideas and approaches onto a skills-based practice. Beyond that, Ms Goddard's response is more similar to Bonnie Jones's than the others. For these two teachers are dissatisfied with their current knowledge and want to learn and do more. Frank Jensen and Marie Irwin, by contrast, seem satisfied with their current knowledge and practice.

Finally, there is Paula Goddard's complex response to mathematics reforms. We have seen numerous examples of teachers' responses changing over time. But in each instance

the direction of change is toward reform-minded practice. Ms Goddard's response represents retrenchment: An ambitious response followed by retreat to more familiar terrain.[19]

This response is distinctly different from those of the other teachers. Bonnie Jones appears headed toward continuing change. Frank Jensen appears satisfied with his current efforts. Marie Irwin is entertaining questions that could mean substantive changes. Paula Goddard, by contrast, seems caught between competing impulses. Her informal assessment and students' improved test performance convinced her that students learned mathematics during the Math Their Way year. But test scores improved again when she returned to a more conventional approach. Ms Goddard argues that she could not justify her students' enthusiasm for the manipulatives-based program with the time and energy necessary to effect it. Her talk about finding a "balance" suggests she is not done with reforms. But at the same time, she avers no immediate plans to learn more or try anything different.

Conclusion

I draw three conclusions based on this analysis of Paula Goddard's responses across reforms and with other teachers. The first is that, while she uses no phrase like "cycle of change," in many ways Ms Goddard is as attentive to reforms as Bonnie Jones is. In fact, she may be more so. Remember, her strong responses to reading and writing reforms occurred as her efforts in mathematics began to unravel. One might suppose she had had enough. But Ms Goddard persisted and, though it is unclear how she will find a "balance" in mathematics, she seems determined to effect big changes in reading and writing.

A second conclusion is that Paula Goddard remains dissatisfied with her practice. She is especially interested in new ideas about her most recent project--writing. But Ms

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[19] Richardson and her colleagues (1991) suggest this is a common phenomenon and that one reason "weak and ineffectual" attempts at change occur is because teachers try to use new materials and activities without understanding the content and pedagogical thinking behind them.

Goddard continues to read and think about her reading practice. She also expresses some dissatisfaction with her mathematics practice; she claims an interest in doing more with reforms. In this case, however, her students' newly improved test scores, her principal's uncertain support, and the limits of time and energy would seem to undercut any significant efforts toward reforms.

This last observation underscores my third conclusion: Paula Goddard is willing to take risks. Beginning with her initial foray into mathematics reforms, and continuing through her offer to pilot the reading textbook, and now in her attention to writing reforms, Ms Goddard has shown a determination to raise questions and make changes. This is unusual behavior in any teaching context (Lortie, 1975). It is particularly so at SCAC where adventurous instruction is has so clearly been outside the limits of the school mission.

Chapter 6

Variation in Teachers' Responses to Reforms

On one reading, these cases present a success story. Teachers' practices have changed in response to reforms. Before encountering reforms, these four teachers' reading, writing, and mathematics practices reflected conventional skills-based approaches: Knowledge consisted of discrete, hierarchical skills; teaching was textbook-based and didactic; learning was passive. Today, constructivist approaches are evident in some form in each teacher's classroom. Curriculum materials are more complex and more engaging. Teaching is less about telling and more about understanding. Learning opportunities are more varied and learners are more active. While many observers conclude that conventional practices persist, these cases can be read to suggest that teachers can and will change in substantive and ambitious ways.

Another reading, however, proves more puzzling. Reformers hope their efforts will not only change teachers' practices, but change them in consistent and coherent ways. The effect seems just the reverse: Reforms appear to support greater variability rather than greater consistency. Teachers' practices were more similar before the reforms than now. Today one can see examples of profoundly different teaching, where teachers and students engage in new ideas, new texts, and purposes. But one can also see teaching that looks profoundly familiar--worksheet knowledge, drill and practice, single interpretations. And one can see a lot of teaching that looks superficially different; a new text or a new instructional strategy, but directed toward conventional ends. This mix suggests reformers have gotten more than they bargained for. Teachers' practices have changed, but not all of them, and not necessarily in the same powerful ways.

Some of this variation could be anticipated. Research and common sense suggest that teaching varies across teachers. It is a small leap then to presume that different teachers will approach reforms differently and work toward different ends. We do not understand this phenomenon very well for analysts have tended to view variation as an aberration

(McLaughlin, 1990). Recent studies are more helpful as they take variation as the norm and open it up for examination (Cohen et al., in preparation; Jennings, 1992; Porter et al., 1988; Schwille et al., 1983).

Even less visible and understood is the variation within teachers. For how are we to understand a teacher, like Bonnie Jones, who embraces reading reforms, making deep and profound changes in her purposes, materials, and instruction, at the same time she ignores writing reforms? Or Frank Jensen, who gives reading and mathematics reforms the slightest attention in his practice, but then constructs a reform-minded writing practice? Or Marie Irwin's tentative, but potentially powerful, questions about mathematics while she manages reading and writing reforms toward more conventional ends? Or Paula Goddard's ambitious moves toward reading and writing reforms after abandoning similar moves in mathematics?

In describing and comparing teachers' responses to reading, writing, and mathematics reforms I observed both similarities and differences. The similarities are considerable. Teachers' talk has changed: They use the language of reforms and talk about teaching and learning in new ways. Teachers' practices have also changed: They are using new textbooks, adding-on new instructional strategies, allowing students more intellectual space.

In this chapter, I note the relevant similarities, but I choose to focus on the differences. For as one looks inside apparent similarities, important differences emerge. Teachers do not use new textbooks in the same ways, new strategies toward the same ends, nor do they treat all students as curious and capable thinkers. These and other differences provide a useful site to explore the sense teachers make of reforms and how they modify or maintain their instructional practices.

How then can we account for responses that vary across teachers and within teachers? In Chapter 1, I offer several discrete explanations. Some concern the nature of policy and the special problems of subject matter reforms. Others involve features of the organizations

teachers work in and the autonomous nature of teachers' labor. Still others highlight issues of learning and teachers' individual capacity and will. Evidence of each percolates throughout the cases. One might construct accounts or explanations which feature any one over the others. But these factors explain neither discretely nor generically. Instead, more complex, but more satisfactory, explanations come when one looks at them in interaction and in context. The variation in teachers' responses reflects policy and organizational factors. But only as these factors interact with an individual teachers' knowledge, beliefs, and experiences. By describing, comparing, and now explaining the differences in teachers' responses, I hope to deepen our understanding of the relationship between instructional policy and classroom practice.

Responses to reforms vary across teachers and within teachers. In the next section, I summarize the relevant differences along both axes--across teachers and within each teacher. For clarity's sake, I then cleave the explanations for each type of variation into two distinct sections. In the first, I offer explanations for the variation across teachers' responses. In the second, I focus on each teacher individually and explain the variation in their responses across reforms. I conclude the chapter with some thoughts about possible implications.

Exploring the Variation in Responses Across and Within Teachers

Before developing the explanations, let me broadly summarize the relevant differences between teachers and within their respective practices. In the cases, I describe each teacher's responses to reform on four dimensions. In comparing these responses, differences emerge along each dimension.

One dimension is the relationship between reforms and past practice. There I look at how teachers interpret reading, writing, and mathematics reforms vis-a-vis their pre-reform views of those subjects, and their approaches to teaching them. The principal difference is between teachers who interpret reforms as challenges to their extant views and practices

and those who do not. Considerable cross-teacher and within-teacher variation exists along this dimension.

For example, Bonnie Jones interprets reading and mathematics reforms as fundamental challenges to her respective practices. By contrast, she ignored the potential challenge of writing reforms for several years. The case of Frank Jensen presents something of a mirror image. Mr Jensen avers that reading and mathematics reforms merely confirm his extant practices. He also admits no disparity in writing, but the fact that he had no writing practice until a year ago indicates a change of some proportion. Marie Irwin presents a different variation. On other dimensions her responses in reading and writing vary, but she acknowledges no challenge from these reforms. Mathematics is different. For though she loathes the subject, she accepts that mathematics reforms advocate very different approaches than she now takes. Finally, Paula Goddard acknowledges differences between her extant practices and reading and writing reforms. The case is less clear in mathematics. Two years ago she recognized a difference, but her subsequent retrenchment muddies that distinction.

The second dimension is learning. The emphasis there is on how teachers view their current knowledge and skills in relation to the knowledge and skills demanded by reforms. There is significantly less variation along this dimension. Teachers suggest they either have much to learn about each reform or they are satisfied with their current knowledge and skills.

Bonnie Jones eagerly seeks opportunities to learn about reading and mathematics reforms. That eagerness now extends to writing. Frank Jensen, by contrast, contends there is little new to learn. In fact, in the area of biggest change for him, writing, he has not attended a single professional development opportunity. But he has an inside source--his wife, the district's reading coordinator. Like Mr Jensen, Marie Irwin also ignores virtually all non-required learning opportunities. This is not too surprising given her confident reading and writing practices. It is more so in mathematics where she professes

an emerging interest in reforms despite a weak subject matter background. Finally, Paula Goddard, like Bonnie Jones, seeks multiple opportunities to learn about reforms. But today this is more true for reading and writing than mathematics.

The third dimension is daily practice. Here I offer vignettes of teachers' practices highlighting instances of reform-minded and conventional instruction. Those reform-minded changes that appear (or not) in a teacher's daily practice vary across subject matters. No teacher has so successfully ignored reforms that her practice is unchanged. But in some instances, there is virtually no change; the teacher may have made some small adjustments, but her practice essentially reflects the skills-based approaches of the pre-reform period. In other cases, changes are more substantive. And in still others, the changes signal profound shifts in the ways teachers think about and approach teaching and learning. The point is, however, that the same teacher may make very different kinds of changes depending on the subject matter.

Bonnie Jones is making ambitious changes in reading and mathematics, changing the full scope of text and materials, instructional approaches and grouping patterns, purposes and rationales. By contrast, her writing practice is defined by traditional grammar instruction with a few reform-minded activities added-on. Frank Jensen's "shotgun" approach guarantees some evidence of everything that crosses his desk, though this is more true in reading than in his largely conventional mathematics practice. In both cases, however, the changes seem more superficial than substantive. In writing though, Mr Jensen is taking steps toward providing students more powerful and engaging experiences. Marie Irwin shows a different pattern. The most substantive changes have occurred in reading. There she is using new texts, new strategies, and new ways of grouping students. But there, as in writing where the changes are fewer and more segregated, Ms Irwin works toward conventional ends. Ironically, it is in mathematics where Ms Irwin has made the fewest changes, that she is considering what could be the most profound. Paula Goddard's response is the reverse. She made her initial foray into mathematics

reforms, changing texts, activities, and student interactions. Today, however, her mathematics practice looks as conventional as Marie Irwin's or Frank Jensen's. In reading (and more recently, writing), however, Ms Goddard is after big changes.

Finally, I look at teachers' assumptions about teaching and learning. In those sections, I consider whether teachers' responses indicate questions about, and shifts in, their pedagogical beliefs. The differences lie between teachers whose responses seem so profound as to call their beliefs about teaching and learning into question and teachers whose responses stop short.

The degree to which teachers are willing to re-examine their beliefs about teaching and learning varies, but only in two cases: Bonnie Jones and Paula Goddard. Though her writing practice is still quite traditional, Bonnie Jones's responses to reading and mathematics reforms suggests she is making fundamental changes in her approaches to teaching and learning. Paula Goddard is making a similarly profound shift in reading. Her mathematics and writing practices have not changed at that level. Frank Jensen, despite his venture into writing, seems comfortable with his beliefs across subject matters. Marie Irwin does as well. But her nascent questions about skills-based practice could lead to much deeper questions about teaching and learning mathematics.

This summary highlights four points relevant to an explanation of the variation across and within teachers. First, along each dimension responses run from profound shifts to superficial adjustments to the status quo. Not only do teachers' responses vary, but they vary across a fairly wide scale. Second, while there are similarities between teachers along one or more dimensions, no two teachers' responses are the same along every dimension. For example, Paula Goddard's daily reading and writing practices look quite similar to Marie Irwin's. But along most other dimensions, their responses look quite different.

This second point suggests a third: Teachers' responses are unpredictable across subject matters. Consider two brief illustrations. First, though reading and writing seem of the same cloth, teachers respond differently to reforms in these areas. Second, though

much has been written about elementary school teachers' (especially women's) fear of mathematics, the only teacher in this study to effectively avoid mathematics reforms is male. Neither of these examples generalize far beyond this study. But they suggest that common opinion may be less reliable than is thought.

Finally, if teachers' responses are unpredictable across subject matters, so too are they unpredictable over time. This point bears some attention for time figures prominently in this study. First, the variation described, especially within individual teachers' practices, would have been muted had I not studied these teachers over several years. For example, Bonnie Jones ignored writing reforms even while she responded aggressively to those in reading and mathematics. Similarly, Marie Irwin's fledgling interest in mathematics reforms comes after years of avoiding them. Studying these teachers over an extended period allowed me to see contrasts I would have missed given a shorter time frame. Second, considering time helps illustrate the development of teachers' responses. Bonnie Jones and Paula Goddard are still developing their responses to all three reforms. By contrast, Frank Jensen's flirtation with reading and mathematics reforms was more short-lived. His active interest in each ended a year or so after his initial encounter. Finally, the erratic nature of change can be seen when one looks at teachers' responses over time. Reformers aver that change is difficult, occurs in fits and starts, and takes time. But illustrations are few.[1] Here the best example is Paula Goddard's response to mathematics reforms. For what might seem erratic and inconsistent makes more sense as one looks through the perspective of time.

In the next section, I offer explanations for the variation across teachers' responses. My intent though is not to explain every difference along every dimension and for every teacher. Such an account might be valuable, but is beyond the scope of this dissertation.

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[1] A fine example is Heaton (1994).

Instead I aim more broadly, drawing from illustrative examples from across the dimensions.

Explaining the Cross-Teacher Variation in Responses

What explains these teachers' responses and the variations among them? Let's consider a specific reform. The new Michigan reading policy outlines a constructivist view of reading. The policy re-defines reading and lists new goals and objectives. It also led to an extensive revision of the state reading assessment test. Each of the four teachers has read the new definition and has seen or heard about the new state test.

But each teacher responds differently. The two Derry teachers who work in the same school show the widest difference. Bonnie Jones embraces the state policy. Constructivist approaches challenge her long-held skills-based practice, but she does not balk. Instead, she realizes there is much for her to learn and she aggressively seeks opportunities inside and outside her school and district. With that knowledge, Ms Jones makes substantive changes in her daily classroom instruction. Many, like substituting trade books for textbooks, promote deep changes. Her strong response indicates Ms Jones is changing her basic assumptions about teaching and learning reading.

Frank Jensen, by contrast, takes a grab bag approach. His talk echoes the policy, but his practice is a hodge-podge of old and new. Unlike Bonnie Jones, Mr Jensen sees no important differences between reforms and his extant practice and he feels he has little to learn: Reforms justify his shotgun approach and his interest in student affect. The few changes in his daily practice--using an occasional trade book or mentioning a reading strategy--are add-ons. Though eclectic, the bulk of his practice is decidedly conventional. Mr Jensen's encounters with reforms have been casual and have not prompted him to question his assumptions about teaching and learning.

The two Hamilton teachers' daily instruction shows some similarities. But in most other ways, their responses show important differences. Marie Irwin sees no profound challenges in reforms and little new to learn. She has made notable changes--

supplementing the textbook with trade books, teaching reading strategies, abandoning ability-based reading groups. But Ms Irwin stopped thinking about reading once she made these changes. Today she is satisfied with her practice and she entertains no questions about her basic pedagogical assumptions.

Initially Paula Goddard ignored the state policy. Today, she endorses it. Like Bonnie Jones, she embraces constructivist views, sees a gulf between them and her extant, skills-based practice, and believes she has much to learn. Given where she started, the changes made are several and cut deeply. Her response has meant profound changes in her daily practice and in her assumptions about teaching and learning reading.

Individual Factors

On one reading it is individual factors that seem to matter most: Accounting for teachers' capacity and will, their individual knowledge, beliefs, and experiences, explains the variation across teachers. Consider how these factors play out in each teacher's response to reading reforms.

The death of her child shook Bonnie Jones personally. It also shook her professionally. As she put her life and career back together, she did not like what she saw in her classroom. She had become a "ditto queen." and she felt "burned-out." Moreover she sensed the students were bored with her skills-based instruction and their worksheet lives. She resolved to do something. The new state reading policy provided a focus, something she could "try." She now considers her response the beginning of a "cycle of change."

Reading reforms call for her to know and do very different things. Bonnie Jones knows she has much to learn about text, interpretation, and pedagogy if she is to effect reform-minded changes. This is no mean assignment, for she believes local learning resources are thin and inconsistent. Ms Jones is determined to change, however, even if this means expending considerable time, energy, and money to attend richer opportunities outside the district.

Individual factors also help explain Frank Jensen's response. As a "Challenger type kid," Mr Jensen now believes his affective and cognitive needs were misunderstood. Frank Jensen knows his students need what he didn't get--sensitivity to affect and intellectual flexibility. New language and ideas clearly excite him. But they have no bite. For Mr Jensen perceives no important differences between his instruction and reforms: Reading reforms "fit" and "justif[y]" his approach. His slight response is due to no problem of capacity or will. Mr Jensen knows what he needs and he is doing all that he intends to. With virtually no external pressures, he picks and chooses pieces which support his current practice and advance his affective goals.

The difference between Marie Irwin and Paula Goddard's responses also reflect different knowledge and experience. Marie Irwin is a confident, skilled, and thoughtful reading teacher. She attributes little direct influence to reforms, but she interprets them as consistent with her views. Consequently, she believes she has little new to learn. She attends obligatory district inservices and scrutinizes her textbook, but she finds nothing startlingly new. Ms Irwin believes reading skills and strategies are important and that a textbook approach is appropriate. But not sufficient. Ms Irwin also believes students need literature. She acted on that belief in two ways: She wrote a grant proposal to purchase trade books and she volunteered to pilot a literature-based textbook series. Ms Irwin could easily have done otherwise. The Hamilton instructional guidance system prizes traditional instruction. Ms Irwin willingly pushed against this system.

In Paula Goddard's case neither school nor district influences push consistently toward reforms. With the status quo privileged, Ms Goddard could easily ignore reforms. And until recently she has.

Local resources play a role in Paula Goddard's ambitious response to reading reforms: The literature-based textbook she pilots made real ideas she had heard about but could not envision. Yet it was the knowledge she gained in the university course and her children's

positive experience in a whole language classroom which sealed her interest and encouraged her determined efforts.

These examples might be read in several ways. But one obvious way is that organizational features are largely irrelevant, and that it is individual factors like knowledge, experiences, and willingness to take risks which matter most. Cognitive psychologists tell us that we interpret new information through old, that our accumulative knowledge, beliefs, and personal histories influence our readings of new ideas (Fiske & Taylor, 1984; Nisbett & Ross, 1980; Resnick, 1987). That teachers could read the same policy document, but interpret it in very different ways, then is not surprising.

Organizational Opportunities and Settings

Individual factors like knowledge, belief, and experience figure prominently in each case. What teachers know and are willing to do matters. But not exclusively. For teachers do not read and respond to reforms independent of context. The organizations teachers work in provide opportunities for and settings in which to learn about reforms. Those opportunities and settings influence teachers' responses, but in no specific or uniform ways. Instead, organizations and individuals interact. What teachers know and are willing to do influences their responses to reforms, yet their responses also reflect their interpretations of the opportunities available and settings in which they learn. Teachers respond to policy; but they do so in contexts which they help shape and are shaped by.[2] Explaining variation then demands some account of the interaction of individuals and the organizational opportunities and settings.

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[2] Weick (1969) makes this point about the relationship between individuals and organizations:

> Instead of adapting to a ready-made environment, it is entirely possible that the actors themselves create the environment to which they adapt....[Organizations are] constituted by the actions of interdependent human actors. (p. 27; emphasis in original)

Erickson (1992) argues, "Institutions can be thought of as the conjoint action and meaning complexes of multiple social actors (p. 9). Giddens (1979) concurs suggesting the "fundamentally recursive character of social life...[is] the mutual dependence of structure and agency" (p. 69).

The Interaction of Individuals and Organizational Opportunities

The interaction of individuals and opportunities is defined by a tension familiar to those who study teaching and learning. Put simply: What one teaches is not necessarily what another learns. Organizations offer teachers opportunities to learn, but what those opportunities mean (indeed whether they are even perceived as "opportunities") depends on how individual teachers interpret them.

One opportunity was state policy. The Michigan Essential Goals and Objectives for Reading Education were disseminated in the late 1980's. But teachers read more than state policy, for schools and districts provided multiple opportunities to learn about reading reforms. Local efforts were reputedly aligned with the state initiative. Yet they produced no single interpretation. Instead, teachers interpreted various messages and responded in various ways.

Learning opportunities in Derry and Hamilton. Derry teachers had a variety of opportunities to learn about reading reforms. One was a week-long district inservice. Bonnie Jones and Frank Jensen learned about the state policy there.[3] Other sessions promoted a range of related ideas--using trade books, teaching reading strategies, motivating student as readers, integrating reading and writing. Another opportunity was the adoption of a literature-based textbook series and the publisher-led workshops. Still another was the district reading coordinator who promoted new approaches to reading with individuals and small groups of teachers. School-level resources were also available. For example, classroom sets of trade books were purchased with special school funds.

The Hamilton teachers had fewer opportunities to learn about the policy and related reforms. Marie Irwin and Paula Goddard first encountered the state policy in an afternoon workshop led by their respective school reading teachers.[4] Years later, when the district

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[3] Teresa Jensen, the Derry reading coordinator, shared early drafts of the policy with her husband, Frank. The first time Mr Jensen saw the final draft, however, was during the district inservice.

[4] Unlike Ms Jensen, school reading teachers in Hamilton do little work with teachers. Each was responsible for doing a workshop on the new state policy. But their primary responsibility is working with

began it's literature-based textbook pilot, Ms Irwin and Ms Goddard attended publisher-sponsored inservices. In the years between their first encounter in the late 1980's and the textbook pilot in 1993, neither teacher remembers any particular district reading initiatives.[5] At the school level, however, Ms Irwin and her Sanford Heights colleagues constructed a rich reading and writing program outside the district curriculum. Paula Goddard and her Sheldon Court Academic Center colleagues took no similar actions.

Interpreting the messages. In each setting, the opportunities available were advertised as related to the state policy. But the number and variety of opportunities created the possibility teachers would construct multiple messages.

There was also the potential for mixed or conflicting messages. For example, some presenters during the Derry inservice promoted the need for rich text and advocated use of trade books. Others said that reforms could be effectively promoted through basal readers. A similar mix of messages could be perceived between the Hamilton instructional policy that emphasized basals and the Sanford Heights literacy project, one piece of which allowed students time each day to read whatever they chose. One other example involves the state's efforts. The Essential Goals and Objectives for Reading Education (Michigan State Board of Education, 1986) promotes the notion that students construct meaning based on their prior knowledge and experience and that different meanings can be constructed from the same text. The Constructing Meaning section of the revised MEAP reading test, however, is multiple-choice where only a single answer is correct. The first two examples suggest teachers could alternatively interpret reforms as a fundamental shift or a minor adjustment. The third suggests teachers might walk away not knowing what the reforms meant.

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remedial students. Marie Irwin has little contact with her school's teacher. Paula Goddard, however, reports helpful conversations with the SCAC reading teacher, Ms Laurel.

[5] Spillane (1993) notes that other district-level opportunities were offered, but were neither well supported nor widely available to classroom teachers.

That teachers read multiple and mixed messages helps explain some of the variation across their responses. For example, Marie Irwin and Paula Goddard heard different messages about textbooks and trade books. Marie Irwin heard nothing new. She was an experienced textbook teacher who believed that students should also read good literature. Using trade books (and later, a literature-based textbook) was a change in her daily practice. But she viewed this neither as a challenge to her view of reading nor something she needed to learn a lot about. Paula Goddard, by contrast, heard much that was new. She viewed the new textbook and trade books as a fundamental challenge to her extant practice. Her decision to use these materials represented more than something new for students to read; it also represented a wholesale change in her view of reading and a sense that she needed to re-educate herself.

Multiple and mixed messages also figure into differences between Bonnie Jones and Frank Jensen. Both attended sessions on textbooks and trade books during the district inservice. Bonnie Jones associated basal textbooks with the skills-based instruction she wanted to move away from. The richer literature found in trade books offered her a chance to make an immediate change in her practice. Frank Jensen was not looking to change his practice in any substantive way. He viewed trade books and the proposed literature-based textbook as simply more ammunition for his shotgun approach. Each teacher associated textbooks and trade books with the state policy. But their differential knowledge and beliefs led them to respond quite differently.

That opportunities varied in substance and number across settings helps explain another kind of variation. There are clear differences among the four teachers. But there is also a difference between the two pairs. Put simply, the variation between Bonnie Jones and Frank Jensen is much greater than the variation between Marie Irwin and Paula Goddard. It would be wrong-headed to ascribe too much weight to this point given the limited sample. But one might easily suppose that the relatively richer plate of opportunities available in Derry provided more to chew on than the meager resources

available in Hamilton. Opportunities are significant only if teachers read them as such. But given more and more engaging opportunities, it makes sense that teachers' responses would show greater variation in situations where more choices were available.

The Interaction of Individuals and Organizational Settings

That teachers interpret local opportunities differently helps explain the variation in their responses. Teachers also interpret the organizational settings they work in. And as those interpretations vary, so too do their responses to reforms.

Notable organizational differences exist between the districts and among the schools. One difference is the organizational posture toward teaching and learning. A second difference is the local attitude toward reforms.

The organizational settings in Derry and Hamilton. The Hamilton instructional guidance system reaches far into teachers' classrooms. That system defines content as skills-based instruction in reading, mathematics, and science. It defines the instructional means as textbooks, tests, and paced lessons. Each week, teachers complete monitoring sheets, recording the lessons taught and students' progress. The press is to cover as much material as possible while maintaining high test scores. School principals play a pivotal role in this system. They collect and review the monitoring sheets before sending them to the district office. Principals also deal with any problems--teachers failing to maintain pace, consistently low student test scores. They take this role seriously.

Principals can construct enhancement programs like the Sanford Heights literacy project. This program is interesting for it differs from the general district wariness of reform. District administrators authorized a pilot of literature-based textbooks a year ago.[6] But before that they virtually ignored the state's reading policy (Spillane, 1993).

The tight control and wary attitude toward reform found in the Hamilton system contrasts sharply with the laissez-faire atmosphere in Derry. There, district functions such

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[6] During the textbook pilot, the monitoring system has been suspended in reading. Ms Irwin fully expects it will return, in modified form, once a textbook series has been adopted.

as textbook adoptions, testing, and inservice programs are taken seriously. But teachers have considerable classroom autonomy. Teachers are encouraged to cover material, but there are no pacing charts or monitoring sheets. Standardized tests are administered, but chapter and unit testing is done at teachers' discretion. Textbooks are purchased, but their use is not mandated. The loose district attitude puts more control in school administrators' hands. Some seize it and closely manage their teachers and schools.[7] Others, like Mr Adams, the principal at Donnelly-King Elementary, adopt the district laissez-faire approach. Bonnie Jones's experiences notwithstanding, Mr Adams generally leaves teachers to their own devices.

Derry administrators were notably more enthusiastic about reading reforms than their Hamilton counterparts. Soon after the state policy was adopted, Derry leaders supported a district-wide inservice program, planned a literature-based textbook adoption, and encouraged the efforts of the district reading coordinator.

Teachers interpret the organizational settings they work in. One way is in terms of classroom autonomy. School and district features like textbooks, pacing charts, and standardized tests define some parameters of teachers' work. And in that sense, some teachers have more autonomy than others. For example, Marie Irwin and Paula Goddard could not simply replace their reading textbooks with trade books as Bonnie Jones did nor could they regularly drop reading lessons to develop an affective point as Frank Jensen does. The range of instructional decisions Hamilton teachers can make is more circumscribed than that of their Derry peers. But even in a system as tightly woven as Hamilton, teachers' actions demonstrate a measure of classroom discretion. Marie Irwin, for example, routinely supplemented the banal textbook comprehension questions with more complex ones.

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[7] This observation was made by the previous district superintendent of schools.

A second way teachers interpret their organizational settings is by defining district and school features as enabling or constraining. For example, a veteran Hamilton teacher might perceive the textbook-based pacing system as a constraint, arguing that it takes important decisions of how and when to teach topics out of her hands. Conversely, a teacher interested in trying new reading strategies might perceive a textbook as enabling in that it provides a familiar structure for unfamiliar material. These examples illustrate two distinct, but related points. First, the same resource, a textbook, may be alternatively perceived as constraining or enabling. Second, such designations involve perceptions--a teacher's interpretations of what an organizational resource means, how she might use it, what other changes (if any) need to be made.

That teachers vary in their perceptions of organizational features and classroom autonomy helps explain the variation across their responses. Consider Bonnie Jones and Frank Jensen's readings of the local setting. Bonnie Jones believes her strong response developed in spite of the district. Ms Jones would not agree that Derry administrators support the reforms. In her view, district features like adopting textbooks and administering standardized basic skills tests constrain rather than support her efforts. As an example, Ms Jones cites the rejection of her request to purchase trade books instead of the textbook. She also contends that basic skills tests undercut her efforts to promote high literacy. Of course, Bonnie Jones would feel much more constrained if she actually had to use the reading textbook and if she had to teach directly to the tests. She doesn't. Instead, she uses texts, develops lessons, organizes the class, and assesses students as she deems most appropriate. Bonnie Jones pushes very ambitious changes in her reading practice. She does so because she believes these are what students need. But she also does so because she knows she can. Ms Jones may not feel well supported. But she has the latitude to act on her convictions.

So does Frank Jensen. The "special dispensation" and "bubble of privacy" he believes adhere to the Challenger program allow him maximum discretion in his reading practice.

Mr Jensen senses no external constraints. For example, he uses the new textbook as part of his shotgun approach. But if he decided not to, he would expect no reprimand. Mr Jensen's sense of autonomy also extends to testing. All of his third and fourth graders take the district basic skills test; the fourth graders also take the MEAP reading test, which reputedly advances the state policy. Yet Mr Jensen seems unconcerned about either set of scores or what consequences might develop from a poor showing. External factors then have relatively little influence on Frank Jensen's reading practice. His individual knowledge, beliefs, and experience guide the majority of his instructional decisions.

Understanding how these teachers read the organization helps explain their different responses to reading reforms. For the latitude that enables Bonnie Jones to interpret reforms as a challenge to her extant practice, to seek resources outside the district, and to pursue big changes in her instruction also enables Frank Jensen to interpret reforms as supporting and justifying what he already knows and does. What Bonnie Jones depends on to push her teaching, Frank Jensen depends on to preserve his.

Understanding how Marie Irwin and Paula Goddard read their organizational setting also helps explain the differences in their responses to reading reforms.

Marie Irwin taught textbook reading skills for several years. At the same time, Ms Irwin harbored ideas that students need richer literature experiences than the basal readers provided. Discrete skills were necessary, she believed, just not sufficient. She kept these ideas to herself, however, sensing that the district would not support them. Her interpretation of the state policy combined with her principal's and colleagues' support for a school literacy program encouraged her to express them. Taking advantage of a district mini-grant program, Ms Irwin received money to purchase and use trade books to supplement the textbook. Two years later, when the district began piloting a literature-based textbook/trade book series, she felt her long-held beliefs were confirmed. The system which she once viewed as confining, she now reads as enabling.

Unlike Ms Irwin, Paula Goddard held no deep or hidden ambitions for reading. Instead, she held tightly to the skills-based approaches she had been trained in and which defined the Sheldon Court mission. Rather than a constraint, the textbook-based instructional program made Ms Goddard's work possible. For she knew what to teach, when to teach it, and how to know if she was successful. Against this background, Ms Goddard's initial rejection of reading reforms makes sense: She felt comfortable with and supported by the extant instructional program. She interpreted the light attention given reforms by school and district administrators to mean she should stay the course. It is impossible to know how she would have responded to the literature-based textbook pilot had she not been re-introduced to reforms through the university course and had her children not had positive experiences in a reform-minded classroom. What is apparent, however, is that Ms Goddard perceives the new textbook as a vehicle for enacting changes in her classroom. One key to that perception is her sense that administrators support these changes. But another key is that Ms Goddard imagines herself on the road to becoming a very different reading teacher. In that sense, Marie Irwin and Paula Goddard are worlds apart. For while Marie Irwin interprets the organization as now confirming beliefs she already had, Paula Goddard interprets it as liberating her from her past practice.

Extra-District Resources

One other consideration in explaining the varied responses to reading reforms recognizes that teachers are not restricted to state, district, or school resources. The formal educational governance system in Michigan consists of a state agency, districts, and schools. But the lines of influence are complex, multi-directional, and dynamic. This loose-jointedness suggests a "system" in name only. That system is compromised even further by the extra-governmental "system" represented by organizations which sit outside the formal system. These organizations include professional associations, colleges and universities, and independent research organizations. The opportunities these organizations offer--conferences, workshops, courses, journals--are no less interpreted by individual

teachers than those opportunities closer to them. But to the extent that teachers recognize these as opportunities and do something with them, they may influence teachers' responses.

Examining how teachers interpret extra-district resources helps explain the variation across their responses to reading reforms. These resources offer teachers additional opportunities to build their knowledge base and pedagogical skills. Some opportunities may reinforce local interpretations. But others may offer conflicting messages. As teachers take different advantage of extra-district opportunities, differences across their reform responses make sense. For example, Paula Goddard's response to reading reforms seem more ambitious than Marie Irwin's, in part, because Ms Goddard pursues outside resources. A university course, for example, introduced Paula Goddard to a range of reform-minded practices such as teaching reading across the curriculum and connecting reading and writing, which she incorporates into her daily practice. Differences between Bonnie Jones's and Frank Jensen's responses also owe something to extra-district resources. Frank Jensen attended an early state reading conference, but he reports learning little new. Bonnie Jones, by contrast, seeks multiple opportunities outside the district. From the various state conferences, university courses, and workshops, she learned that textbooks offered weak representations of reforms and that, if she had to, she could teach reading without one. Thus when a textbook series she disapproved of was adopted, Ms Jones felt confident she could substitute trade books for the text.

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In this account of the cross-teacher variation, we see a web of interactions. Teachers read policy, but their readings reflect no single perspective. Individual factors like knowledge, beliefs, and experiences interact with the opportunities organizations (local and extra-district) offer and the settings in which they offer them. Thus teachers read policy as individuals, but they do so in and through organizational opportunities and settings. As individual and organizational factors interact then, variation across a set of teachers'

responses becomes more likely, and explaining that variation involves looking at the ways multiple factors intersect.

Explaining the Within-Teacher Variation in Responses

The variation across teachers' responses to reforms will not surprise many school observers. Explaining that variation is complicated, but recent studies (Cohen et al., in preparation; Jennings, 1992; Porter et al., 1988; Schwille et al., 1983) increasingly document the phenomenon. Less apparent or understood is the variation within an individual teacher's responses across reforms.

We do know some things. We know that most teachers are competent readers and confident reading teachers. We also know that few hold these qualities in mathematics or writing. The four teachers in this study are covered by these generalizations. Yet when we examine the variation across each teacher's responses, we find numerous puzzles. Bonnie Jones avoids writing, in part, because she does not see herself as a writer. Yet she pushes herself as strongly in mathematics as she does in reading. Frank Jensen is just the reverse: He virtually ignores mathematics at the same time he embraces new ideas in writing. Marie Irwin's responses are different yet again. She makes changes in her reading and writing practices, but only in mathematics does she ask questions which could seriously change her traditional mathematics practice. Finally, Paula Goddard's current interests are in reading and writing. But her initial interest in changing her teaching began with mathematics. We know that teachers respond to multiple reforms at the same time and it makes intuitive sense that they might manage reforms in one subject matter differently than another. But what explains this variation?

To explain the cross-teacher variation, I presented several considerations--teachers' individual knowledge, beliefs, and experiences and how, through those factors, teachers read the opportunities available, the organizational settings, and the extra-district resources. I then used representative examples from each teacher's responses. Those same considerations are broadly applicable here. But my task is different. Explaining why a

teacher responds differently to one reform than another requires a close look at each teacher. Thus while I draw from individual, organizational, and extra-district considerations, I construct explanations around each teacher's individual responses.

Organizational Opportunities and Setting: The Hamilton Response Across Reforms

Before developing explanations for Marie Irwin and Paula Goddard's varied responses across reforms, let me sketch the features of the Hamilton district context relevant to the three reforms.

As noted, the Hamilton response to reading reforms is considerably less enthusiastic than Derry's. The response to mathematics and writing reforms is also muted. In both cases, the principal approach is to adopt a new textbook series. These texts offer some evidence of reforms. For example, the mathematics textbook comes with a manipulatives kit and the English textbook has a section on the writing process. Publishers offer workshops for teachers. But teachers have few other district resources as there is no district mathematics or writing coordinator.

School-based resources are also scant. For example, there are no head teachers in writing and mathematics. Marie Irwin and her Sanford Heights colleagues promote writing through the school-wide literacy project, but there is no comparable effort in mathematics. Paula Goddard and her primary grade colleagues at Sheldon Court received the Math Their Way materials. But they had no professional development opportunities to support them. There has been no school-level attention to writing.

The Hamilton instructional guidance system manages mathematics teaching and learning much as it does reading: The curriculum is textbook-based and emphasizes discrete knowledge and skills, lessons are paced, and testing is frequent. Teachers' progress and students' scores are monitored each week. Science instruction is similarly prescribed; writing is not. Teachers have district-adopted English textbooks, but instruction is not monitored.

Hamilton schools reflect the district approach. Principals collect and review monitoring sheets in mathematics, but writing instruction is left to teachers' discretion. School-wide enhancement efforts like the writing project at Sanford Heights and the Math Their Way experiment at Sheldon Court are not supported by the district, but neither are they actively discouraged.

The cautious Hamilton approach toward reading reforms re-emerges in writing and mathematics. New textbooks carry some reform messages, but they have not induced changes in the instructional guidance system. Writing continues to be ignored and mathematics continues to be monitored. More important, however, district testing remains fixed on conventional knowledge and skills. Thus while textbooks have changed, the system that surrounds them has not.

Marie Irwin

In the case, I argue Marie Irwin manages reading, mathematics, and writing reforms in similar ways--by assimilating them into her extant practice. But there are important differences. A knowledgeable and confident reader and reading teacher, Ms Irwin is a passive teacher of mathematics. She has long avoided mathematics reforms. She focuses on the conventional approaches in her textbook and avoids anything unfamiliar or optional. In fact, Ms Irwin's nascent interest in mathematics reforms is all the more noteworthy given the district emphasis on basic skills, her colleagues' disinterest, and her avoidance of any mathematics-related learning opportunities.

Marie Irwin's response to writing reforms is a different matter. The principal influences there seem to be external--the school-wide literacy initiative and her new textbook. Ms Irwin willingly schedules writing time and she gives some attention to the writing process. Yet her belief that grammar is critical has not changed. She adopts some reform-minded activities, but maintains a rigid separation between them and her traditional English instruction.

Individual factors like knowledge, beliefs, and experiences help explain Marie Irwin's varied responses. But not exclusively, for the resources Ms Irwin brings to an interpretation of reforms interacts with her reading of the local setting and the available opportunities.

In reading, Ms Irwin's strong beliefs about what students need guided her embrace of the literature-based textbook and trade books, reading strategies, and whole group instruction. But given the Hamilton instructional guidance system, she could not have instituted these changes on her own. That system's emphasis on basal textbook instruction and it's initial reluctance to move away from discrete skills made such changes unlikely. As noted, however, even systems seemingly as tight as Hamilton's have cracks which determined teachers can exploit. With her strong interest in literature and her principal's backing, Ms Irwin exploited one of those cracks. She took advantage of the district mini-grant program and purchased classroom sets of trade books. Combined with her literature-based textbook, Ms Irwin can teach reading the way she believes most appropriate for students.

With a set of strong beliefs, Marie Irwin reads the local organizational context in ways that support her ambitions in reading. In writing and mathematics, however, equally strong sets of beliefs encourage her to read the context in ways that allow her to preserve much of her traditional instruction.

In writing, Ms Irwin reads her school and district contexts differently. She supports the school-based writing project which provides students more and more engaging opportunities to write. At the same time, Ms Irwin believes that grammar instruction is critical. The district-adopted English textbook offers lessons in both reform-minded and traditional instruction. At the publisher-sponsored inservice, however, Ms Irwin and her colleagues were told that they should emphasize the writing process and de-emphasize grammar. Ms Irwin disagrees. She will allow students time to write and she will teach some elements of the writing process. But her sense that students need intensive work on

mechanics combined with the lack of organizational pressures to follow the inservice leader's advice means that Ms Irwin can maintain her traditional grammar instruction.

A similar scenario emerges in mathematics: Marie Irwin feels most comfortable teaching mathematics in conventional ways and, though the textbook gives some attention to reforms, she can generally ignore it. But here, Ms Irwin's avoidance of reforms is stronger than in writing and stems from a different source. For rather than a considered set of beliefs guiding her response, Ms Irwin responds to mathematics reforms based on a weak knowledge base and personal discomfort with the subject matter. She knows about new approaches to mathematics. But she reads the mixed messages evident in her textbook as justification for ignoring reforms. With no school or district support, encouragement, or pressure to do otherwise, this response makes sense. But it also makes her fledgling questions about mathematics more intriguing and more problematic. She has a sense of what she wants to do and she may be able to make some changes through determination alone. Substantive changes will be difficult, however, given her thin subject matter knowledge.

Paula Goddard

As in reading, Paula Goddard seems determined to instantiate big changes in writing. She already offers students more and more authentic writing opportunities. She hopes to incorporate writing conferences and portfolios. Ms Goddard intends to pursue the appropriate learning opportunities, but she wonders where she will find the time and energy.

Paula Goddard's response to mathematics reforms seems to be moving in the opposite direction. For Ms Goddard made sweeping instructional changes only to abandon them a year later. She understood a gap existed between reforms and her extant practice and she eagerly adopted several reform-minded changes. The venture produced some success--her students' enthusiasm and test scores rose. Those successes did not sustain, however. A

year later, little of the reforms remains and an emphasis on basic mathematics knowledge and skills is in place.

As with Marie Irwin, Paula Goddard's varied responses across reforms are best explained as an interaction between individual and organizational factors.

Ms Goddard's complex response to mathematics reforms is a good example. Today her practice looks quite conventional. Her reading of organizational influences seems a large part of the explanation. One piece was her principal's mandate that all teachers list basic knowledge and skills objectives to stem declining standardized test scores. Another was the literature-based textbook pilot. These factors might have been enough in and of themselves to turn her back toward textbook instruction. But they take on added importance when one realizes Ms Goddard's weak knowledge of mathematics and the personal stress created while trying to teach mathematics in new and ambitious ways. She avers a desire to "find a balance" between new and old practices. Two factors may mitigate that desire: Her students' test scores rose under the textbook regime and her professional development interests lie increasingly in literacy.

Paula Goddard's determined response to reading and writing reforms seems to be taking up where her interest in mathematics reforms left off. But there are two important differences. First, Ms Goddard seeks opportunities to build her subject matter knowledge and pedagogy as she makes changes in her instruction. Rather than simply plunge in, Ms Goddard understands that reforms call for her not only to do different things but to know different things as well. Given the various demands on her personal and professional time and energy, she may not pursue all the opportunities she hopes to. But in contrast with her naive efforts in mathematics, Ms Goddard's response to literacy reforms seems more considered.

The second difference is that Ms Goddard reads the organizational context as more supportive of reading (the case is less clear in writing) than mathematics. Recall that her initiation to mathematics reforms came largely through the Math Their Way program. Her

principal supported the venture, but it was clearly billed as an experiment. By contrast, the literature-based textbook pilot is sanctioned by both school and district administrators. Some of Ms Goddard's colleagues read their more traditional aims into the textbook and their practices are little changed. Based in part on the university course she took and her children's positive experiences, Ms Goddard interprets the new textbook as a genuine move toward reform and as a warrant to make extensive changes in her practice. This is not to say that all traces of skills-based instruction are gone. For Ms Goddard reads some aspects of the SCAC context as continuing to promote the status quo. She maintains a separate phonics program, for example, partially because she is not comfortable giving it up. But she also believes parents "like the extra work."

Organizational Opportunities and Setting: The Derry Response Across Reforms

I now turn to the Derry teachers. Bonnie Jones and Frank Jensen had several opportunities to learn about reading reforms. This has not been the case in mathematics and writing. The new mathematics policy received little if any attention.[8] There has been no district-sponsored inservice nor is there a district-level mathematics coordinator. A new textbook series, reputed to reflect current thinking, and a few publisher workshops define the district response.[9] The response has been even weaker in writing. There, only Teresa Jensen's efforts in individual teachers' classrooms (like her husband's) are visible. No inservices have been arranged and no textbook has been adopted. Also in contrast with reading, there are no school-level resources available in mathematics or writing.

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[8] It is not clear that district administrators ever mentioned the state policy. Frank Jensen has not heard of or seen the new state policy. Bonnie Jones has, but from sources outside the district: university courses, conferences, and workshops.

[9] Interestingly enough, district administrators have been much more ambitious in response to the new state science policy and to efforts around outcomes-based education. In both instances, extensive inservice efforts have been scheduled and a new science textbook adoption is planned.

The organizational climate may differ across reforms, but the laissez-faire posture taken toward teaching and learning continues. Ambitious teachers have the latitude to develop reform-minded practices. But they find little support in doing so.

Bonnie Jones

Bonnie Jones's "cycle of change" began with reading reforms. It extended into mathematics where, despite her weak content and pedagogical background, she pushed herself to learn about reforms and initiate a series of profound changes in her practice. The courage to accept this challenge is notable in and of itself. But it is also distinctive in comparison with her response to writing reforms. For the confidence with which Ms Jones tackled reading and mathematics reforms did not carry over into writing. Recall her pained comments about writing being "a weak area of mine" and something "I avoid...because I'm not very good at it." Ms Jones knew that writing reforms existed and that they challenged her traditional approaches. Until recently, however, she ignored them. As she becomes increasingly comfortable with her new reading and mathematics practices, Ms Jones appears more willing to take on writing. She seeks new opportunities to learn and she said, "I'm trying to push myself to do more writing this year."

Bonnie Jones cites the death of her child as the catalyst for a series of profound personal and professional changes. It is, of course, impossible to judge this claim. But the person who emerged from that tragedy carries the courage to look hard at her teaching and the determination to make deep changes. She does not do this in a vacuum, however. Though she might argue that she has had to work around it as much as with it, the variation across Bonnie Jones's reform responses reflects differences in her reading of the local context.

One example is her different responses to reading and mathematics textbooks. Ms Jones knew a lot about reading and text when she abandoned the district textbook in favor of trade books. The university courses, conferences, and workshops she attended outside the district convinced her that trade books were a viable option and that she could use them

instead of a textbook. Given this response, one might expect Ms Jones would also reject new mathematics textbooks. She embraces mathematics reforms as strongly as she does reading, she knows that math textbooks have problems, and she has ancillary materials which can be substituted. But Ms Jones also recognizes that she knows considerably less about mathematics and teaching mathematics than she does about reading. Using the textbook makes sense. Ms Jones can lean on the familiar structure. More importantly, she is covering the "right" material. For Ms Jones worries about her students' performance of the district standardized mathematics tests. As her knowledge and confidence grows, she can supplement the text with ancillary materials. Until she feels more confident, however, she will continue to center her instruction in the textbook.

The interaction of Bonnie Jones' knowledge and beliefs and the organizational context also helps explain her response to writing reforms. Ms Jones has attended conference sessions on writing for several years. But she dismissed much of what she heard. For Ms Jones's response to writing reforms is shaped less by what she needs to learn than how she feels about writing. Her responses to reading and mathematics reforms suggest that, had she chosen to, Ms Jones could have taken an equally determined path to reconstructing her practice. She chose to maintain her conventional grammar instruction largely because she felt uncomfortable with herself as a writer and as a teacher of writing. It is not clear how she would have responded if a concerted effort toward writing had been mounted at the district or school-level. The local ennui toward writing may have enabled her response.[10] Reading no obvious school or district support for writing reforms, Ms Jones may have found it easier to ignore them. But that point only underscores the significance of her

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[10] Despite her protests about the thinness of their offerings, Ms Jones does not ignore the substance of local initiatives. She may go beyond them as she has in reading and mathematics, but to this point, she has not closed her door to any school or district effort. Illustrating this point is Bonnie Jones's response to the Derry outcomes-based education initiative (ODDM). She holds serious reservations, among them the idea that ODDM takes a generic approach to content. Yet Ms Jones sought opportunities outside the extensive district effort to learn more about ODDM tenets like student responsibility.

current determination to deal with this difficult subject. As she reads the local context, she has carte blanche to do so. But she will find little support.

Frank Jensen

Frank Jensen's grab bag response to reading reforms reappears in mathematics. He is drawn to the language of problem-solving, mental math, and patterns, but little else. The few changes he has made are superficial and reflect little knowledge of mathematics. As in reading, Mr Jensen senses no external pressure to do more nor does he express any particular interest in making additional changes. In sharp contrast is Mr Jensen's recent embrace of writing reforms. He ignored writing for years. Yet last year, he constructed an energetic writing project that incorporated several reform elements. This act has not induced him to seek additional learning opportunities.

One might be tempted to explain the variation across Frank Jensen's responses by citing the extensive classroom autonomy he holds through his "special dispensation" and "bubble of privacy." After all, he seems immune from virtually all external factors. The concerns about curriculum coverage, time, tests which preoccupy most teachers are absent. Instead, Mr Jensen charts his own instructional course. This last point, however, could figure into a much different explanation. For one might explain his responses primarily in terms of personal predilections. Frank Jensen's shotgun approach to instruction, his penchant for student affect, and his glib familiarity with reforms come from personal knowledge, beliefs, and experience.

As persuasive as either of these arguments might be, it seems likely that they interact. For the "special dispensation" and "bubble of privacy" Frank Jensen claims adhere to his work in the Challenger program are simply that: claims. The school and district postures toward teachers and their work implies that teachers have considerable classroom autonomy: Bonnie Jones's distinctive behavior testifies to that observation. But autonomy is not a commodity to be picked up by teachers along with their classroom keys. Instead, as teachers interpret their organizational contexts, one piece of that interpretation is the

sense of the control they can exert over their instructional day. Thus the "special dispensation" and "bubble of privacy" exist only in Mr Jensen's mind. But because he believes and acts as if they exist, they do.

As Frank Jensen's idiosyncratic approach to teaching and learning interacts with his sense of instructional freedom, one should not be surprised by any turn his attention takes. In reading and mathematics, his principal response has been to grab any and all ideas, grafting them onto practices which seem to have little focus or direction. Why Mr Jensen reacted so differently to writing reforms is puzzling. There are no clear school or district pressures to do so. Mr Jensen admits his wife's interest in writing influenced him, but remember that her equally strong interest in reading produced no similar result.

Conclusion

Explaining teachers' responses to reforms forces us to consider a plethora of issues: the nature of policy and reform; the special problems of subject matter reforms; the constructive nature of learning; the interaction of individual teachers' knowledge, beliefs, and experiences with organizational opportunities and settings. Analyzing teachers' responses would be difficult enough if each of these considerations operated independently. But as I suggest, they interact in complex and dynamic ways. Explaining teachers' responses means that not only do these considerations intertwine, but the relationships among them change over time. Holding these ideas and interactions still long enough to write about them has been a challenge, a task not unlike nailing jello to a wall.

Now looking back across this study, I draw four conclusions. The first concerns the relationship between reform and change. While obvious, the point is worth stating: Responding to reforms and managing change may be two sides of the same coin, but they are not the same thing. The four teachers in this study all responded to reforms. As we see, however, responding may mean a profound change in a teacher's practice, a change that is added onto a teacher's pre-existing practice, or virtually no change at all. Attending

to reforms necessitates some sort of response, but that response need not mean any particular change.

All of this suggests that change is possible. Much of it is small, added-on, awkward, and tenuous. Big changes do occur, particularly as one looks at changes relative to an individual teacher's pre-reform practice. The profound changes reforms call for, however, are rare. They are also unpredictable across subject matters and over time.

My second conclusion is that subject matter differences in teachers' responses are real and important. In contrast to the perspective that teaching and learning are generic activities, I conclude that what teachers know and are willing to do with respect to reforms is subject-specific.

The emphasis on reading in schools and on reading education in teacher preparation programs has been long documented. So has teachers' relatively weaker content and pedagogical knowledge in mathematics.[11] I will not surprise many people when I suggest that these teachers' responses seem most vigorously in reading, and thinner and more tacked-on in mathematics and writing.

This generalization should not obscure, however, the notable differences that emerge when one looks within each teacher's responses. There we see numerous exceptions to the rule. Bonnie Jones responds to mathematics reforms as aggressively as she does reading; Frank Jensen responds more ambitiously to writing than to reading or mathematics reforms; Marie Irwin raises the questions most potentially disruptive to her practice in mathematics; and even though Paula Goddard's strongest efforts appear to be in reading and writing, her attention to reforms began with mathematics. These observations say little in and of themselves. But they point to the notion that teachers do respond differently to different reforms.

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[11] Observers note that teachers also receive little background in writing or in teaching writing. This point is often obscured, however, by the persistent focus on reading and mathematics in most subject matter research.

This array of responses also suggests that teachers' subject-specific knowledge and pedagogy matter. I draw this point from the observed correlation between the ambitiousness of teachers' responses and the depth of their content and pedagogical knowledge. The limits of this sample notwithstanding, consider that the three most powerful examples of change--Paula Goddard in reading and Bonnie Jones in reading and mathematics--are also examples where the teacher knows or is attempting to learn the subject matter and subject-specific pedagogy. Conversely, in the subjects teachers know little about reform-minded changes are less evident. Here the example of Paula Goddard's response to mathematics reforms serves to illustrate the point that while subject matter knowledge may not be sufficient, it is necessary if teachers are to make sustainable changes.

One other point on subject matter differences concerns those factors one might compress under the label, will. This is a slippery area. For not only is this a vast terrain, but one wonders how an observer can ever know and describe what impels another's thoughts and actions. In the way teachers talk about themselves and their work, however, one infers the influence of factors like past experience, willingness to take risks, and intellectual courage. Explaining teachers' responses involves understanding that they bring more to their interpretations of reforms than knowledge alone. It also involves understanding these factors are contextualized by subject matter. That is, concepts like "willingness to risk" and "intellectual courage" do not apply generically. For example, Bonnie Jones has been willing to risk a great deal of personal and professional uncertainty in reading and mathematics. She has not been so willing in writing. Marie Irwin has made bigger changes in her reading and writing practices, but it is her fledgling questions about mathematics that show her intellectual courage. The influence of such factors is difficult to discern and defend. But the assumption that teachers' differential responses to subject matter reforms only reflect differences in capacity (and therefore are easily remedied by more content knowledge) is naive at best.

My third conclusion is that policy and organizations also matter, but in ways that seem opposite what policymakers and administrators might expect. Put simply: Rather than ensuring greater coherence and consistency, reforms and organizations appear to contribute to greater variation.

From the teachers' self-report[12], it appears that instruction was more similar across subject matters and across teachers before the reforms. As one might expect, there were differences. But the teachers imply that their reading, writing, and mathematics instruction reflected traditional conceptions of teaching and learning.[13] To be sure, there are similarities across and within teachers' practices today. It is the differences which stand out, however, and I contend that teachers' responses are more different today than a few years ago.

Some part of this is due to individual differences in subject matter capacity and will. But not all, and not unilaterally. Neither are policies and organizations fully responsible. Policymakers and local administrators appear to believe their efforts will produce change away from past practices and toward a more coherent and consistent future. The interaction of individual and organizational factors around reforms suggests, however, that more rather than less variation will result.

Educational policies set broad goals and directions, but the fact that they do not define every parameter and specify every detail implies they are ambiguous. Local educational organizations can appear highly rigid and bureaucratic, but the nature of teachers' work and the differential attention districts and schools give to subject matters generally mitigates standardization. These generalizations are widely accepted. But they infer properties to policies and organizations which may or may not be inherent. The point is that teachers

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[12] Recall that this investigation began after the various state policies were adopted. Descriptions of teachers' pre-reform practices then are from their self-reports.

[13] One might argue that Frank Jensen constitutes the exception for he, more than any other teacher, maintains that he was teaching in reform-minded ways well before encountering them. The strong element of traditional practice I observed in Mr Jensen's current practice makes this claim difficult to accept.

interpret both policy texts and the organizational opportunities and settings in which they learn about them. Interpretation is a constructive activity, and so some variation must be anticipated. Policies and organizations offer teachers opportunities to reform their teaching. How teachers interpret these "opportunities" and what they do with those interpretations differ such that assumptions about coherence and consistency across and within teachers' responses to reforms become suspect.

My final conclusion is that the variation across and within teachers needs more attention. I see two principal benefits of this study. One is the rich array of stories about teachers and reforms. The other is the distinction between cross-teacher and within-teacher variation. The cross-teacher variation has been recognized for some time. But it has only recently become the focus of sustained study. The within-teacher variation is even fresher ground. The little research conducted to date has explored how teachers manage their extant instruction across school subjects.[14] How teachers manage reforms across school subjects appears not to have been written about at all; I have located no studies of teachers' responses to reforms in multiple subject matters. This is complicated territory for all the reasons cited above. My hope is to continue and that others will build on this initial work. For examining the within-teacher variation, in addition to the cross-teacher variation, may offer helpful insights into policy and practice relationships and into meaningful changes in teaching and learning.

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[14] Stodolsky (1988) has studied teachers' instruction in mathematics and social studies. Wood and her colleagues (1990) have looked at a single teacher's approaches to reading and mathematics. I know of no study which looks across more than two school subjects.

APPENDIX

APPENDIX

Research Design

"Data alone cannot tell a story" (Buchmann, 1984)

This study developed from a larger research project concerned with the relationships between state instructional policy and teachers' classroom practice. The Educational Policy and Practice Study (EPPS) explores issues of mathematics and reading policy and practice in Michigan, California, and South Carolina. As an EPPS field worker, I was interested in teachers' responses to these new initiatives. But the more time I spent with teachers, the more curious I became in the range of reforms they respond to. I turned this interest into my principal research question: How do teachers respond to multiple reforms?

I investigated that question with four Michigan elementary school teachers. Each had originally been contacted for the EPPS study; each subsequently agreed to allow my explorations into other reforms. I chose to study these teachers primarily because they represented an array of contexts: rural, suburban, and urban areas, strong and weak instructional guidance systems, "regular" and "alternative" schools. Using a field study approach, I used interviews, observations, and document analysis to construct case studies of each teacher. I looked specifically at reading, writing, and mathematics reforms across the cases. The cases illustrate how these teachers responded to an array of reforms, how their responses were similar and different, and what their responses suggest about the role of teacher as policymaker.

In choosing the case study method, I took seriously Buchmann's (1984) caution about the limitations of data alone. I hoped to construct cases around what Shulman (1983) called "images of the possible." Such cases hold benefits for both the policymaker and the practitioner: "The operational detail of case studies can be more helpful than the more

confidently generalizable virtue of quantitative analysis of many cases" (Shulman, 1983, p. 495).

Site Selection

The schools and districts selected in the larger EPPS study represent a range of socio-economic and demographic characteristics. Districts vary by socio-economic status, size, ethnic population, and geography. Districts include large urban, medium urban, suburban, and rural settings. Schools are similarly distributed. Other characteristics were educational. In particular, the response to reforms and kind of instructional guidance system (e.g., strong/weak central office control, strong/weak emphasis on testing) was of interest and diversity was sought among the settings.

These characteristics figured strongly in the site selection for this study. While two districts and three schools can not possibly mirror the field, the strong contrasts between the districts and among the schools proved helpful. The approach toward instructional guidance in Derry and Hamilton varies significantly. District administrators in Derry take a laissez-faire approach. For example, textbooks are adopted district-wide, but there is no central office monitoring of their use. By contrast, Hamilton central office administrators have a strong and coordinated instructional system: District made tests are aligned with textbook units, the teaching of which is closely monitored. District responses to reforms also varied. Hamilton administrators react cautiously to new initiatives (Spillane, 1993). Derry administrators generally tend to be open to innovations (Jennings, 1992).

The schools also represent an array of contrasts. Though roughly the same size (approximately 300 students), Donnelly-King Elementary, Sanford Heights Elementary, and Sherdon Court Academic Center vary by the type of school, student population, socio-economic status, the principal's role, school mission. All are public schools, but Sherdon Court Academic Center is a public-supported "alternative" school which operates outside most district regulations. SCAC also differs from the other schools in having a substantial number of poor and minority students. Donnelly-King and Sanford Heights students are

predominately white, though Donnelly-King students come from working class families while Sanford Heights students are from middle and upper-middle class homes. SCAC students are almost exclusively African-American and from poor or working class families. The principals played a different role in each school. Mr Adams, the Donnelly-King principal, played a largely passive role. He rarely visited classrooms, allowed teachers autonomy in choosing instructional methods, materials, and content, and provided little school-wide leadership. By contrast, Mr Nettles and Ms Simon, the respective Sanford Heights and SCAC principals, provided much more instructional direction to their teachers and played a more active role in crafting the school's mission. The school's mission was also another point of variance. Ms Simon and the SCAC staff saw their charge as providing a strict, supportive environment for teaching and learning basic academic skills. Mr Nettles and the Sanford Heights staff had a more limited mission--supporting students' language development by building a "literate environment." Mr Adams and the Donnelly-King staff had no explicit school mission.

Before the dissertation, I chose to work in these diverse settings because I was interested in seeing how reforms play out in different locations. Gaining access to the schools and classrooms through the EPPS project enabled me to capitalize on the differences already apparent in these sites.

Teacher Selection

The EPPS study focuses on second and fifth teachers as teachers' knowledge and beliefs about subject matter and their instructional practices seem to vary from lower to upper elementary grades.[1] One dimension of the project explores exemplary teachers' practices. The bulk of the sample, however, are cases of what Shulman (1983) calls the "probable"--studies of teachers in a range of ordinary situations.[2] The four teachers in this

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[1] That Mr Jensen, a 3rd/4th grade teacher, and Ms Irwin, a 6th grade teacher, did not fit the grade level specifications was not viewed as problematic by the research team.

[2] See Cohen, Peterson, Ball, Putnam, & Wilson (1991) for further description of teacher selection.

study represent the probable. They were recruited based on recommendations by principals and/or district administrators as experienced, "regular" teachers who were responding to reading and mathematics reforms and were willing to allow a researcher's interviews and observations over an extended period of time. A note: One might argue that Bonnie Jones is an exemplary teacher; she seems an outlier both among her peers and within this study. This was not apparent when she was recruited. The big changes in her approaches to teaching and learning classroom appeared after this study began. My early field notes and interviews suggest a teacher who was quite traditional.

The case study method provides an invaluable means of documenting dynamic and complex changes in teachers' practices. The method suffers limitations of generalizability (Bogdan & Biklen, 1982; Weick, 1969). The benefit, however, is a depth and specificity that gives weight to emergent themes, conjectures, and perspectives. One means to these insights is the individual cases. The "thick" description provides fertile soil for developing grounded conceptions (Glaser & Strauss, 1967). Another means of developing insights is through cross-case comparison. The teachers in this study vary on several dimensions--gender, grade level, years of experience, school/district context, kinds of students, interest/involvement with reforms, life experiences. Not all of these factors were relevant to understanding how and why teachers responded to reforms as they did. For example, I could attach no significance to the teachers' gender or relative years of teaching experience. Other factors, however, such as the school context and the teacher's life experiences emerged as highly relevant. Being able to look at the similarities and differences in such factors across the cases proved invaluable to my analysis. One other note: It can be argued that having more cases would provide even more insights. This is undoubtedly true. Case study research, especially when conducted over several years, produces a surfeit of data. Handling that amount of material even in just four cases proved challenging. Researchers, like methods, have their limitations.

Data Collection

Data collection centered on observations of and interviews with the four teachers profiled. But other data sources also proved important. Interviews with school principals, district administrators, and state officials were used. Classroom documents (e.g., textbooks, tests, assignments) were analyzed. District, state, and national documents (e.g., policy statements, reform proposals) were also collected and reviewed.

Teacher Observations and Interviews

I observed and interviewed each teacher over several years. I visited Bonnie Jones, Frank Jensen, and Marie Irwin each for three years from 1991-1993. I visited Paula Goddard for two years from 1992-1993. I observed each teacher at least twice each year, usually for the whole school day. Formal interviews followed each observation. I also did several short telephone interviews with each teacher.

Observations. The night before each observation, I conducted a short telephone interview with the teacher about her plans for the day. I inquired about the array of lessons, kinds of activities, types of materials, and whether she had done similar things in the past. These pre-observation interviews helped me (re)orient myself to the teacher and classroom and prepare me for the day.

During the observation, I sat at the back or side of the room such that I could hear both teacher and students and observe facial and body gestures. Each teacher allowed me to walk around and talk quietly with students when they worked on assignments. Staying the whole day also allowed me several opportunities to talk informally with the teacher during class breaks.

I noted these informal conversations along with the hand-written notes I took throughout the observation.[3] On the right-hand side of each page, I recorded as much of the explicit classroom instruction as possible (e.g., teacher and student talk, assignments,

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[3] I tried to tape-record classroom lessons on a couple occasions but found the results disappointing (e.g., difficulty hearing students' voices) and abandoned the practice.

board work). On the left-hand side, I noted questions, conjectures, and extra information (e.g., textbook titles and publishers) as they arose. I also made careful sketches of the classroom interior including the location, gender, and ethnicity of each student, the arrangement of desks, the types and numbers of ancillary equipment and materials (e.g., reference books, globes, computers), and the kinds of informational posters and student work displayed on classroom walls.

I made these notes based on the observation protocol developed by the EPPS team. This protocol helped organize my observations by alerting me to features such as use of textbooks, instructional representations, discourse patterns, and student grouping arrangements. The EPPS protocol was adapted from observation guides developed in the Teacher Education and Learning to Teach study conducted by the National Center for Research on Teacher Education (Ball & McDiarmid, 1990b). These guides were continually modified as new interests developed. My field notes reflected attention to the observation guide and any salient issues or events that emerged during the observation. I did not modify the protocol for my dissertation research other than to add similar questions about science, health, cooperative learning, and the like to those written for reading and mathematics.

The observation protocol also served to structure my expanded field notes. After each observation, I "wrote-up" my field notes in line with the protocol structure. Typically this meant an introduction, a narrative description of the observation, and responses to a series of analytic questions. The introduction established a context for the visit. After the first observation, I used the introduction to note relevant changes in the teacher's attention to reforms, classroom practices, personal experiences. The narrative described the range of lessons, activities, interactions, materials that emerged during the visit. I inserted illustrative examples of discourse between and among teacher and students as well as observer notes recording perceptions of what I was seeing. Writing the narrative this way helped me capture the details of the day. It also helped me form and reform a "big picture"

view of the teacher and her response to reforms. The last section of the expanded field notes called for brief responses to a series of analytic questions. These questions probed the kinds of texts available and how they were used, the source of instructional representations and the forms they took, the variety of discourse and interaction patterns between and among teachers and students, the way students were organized and grouped for instruction and if, and how, they changed over the day. Answering these questions was helpful in two ways. First, they forced me to reflect on the observation and my description in the narrative. As a result, I frequently found myself revising parts of the narrative as I worked through the questions. Second, the questions provided a measure of consistency across the observations. Keeping track of a teacher's responses to multiple reforms was made easier by using a common set of analytic questions.

These expanded field notes were valuable throughout the study. During the data collection stage, they became an on-going record of classroom events and interactions. They also provoked initial conjectures and themes which became fodder for future observations. In that sense, these notes formed an important bridge between data collection and analysis.

Interviews. Writing up field notes occasionally sparked questions which I pursued in follow-up telephone interviews. These unstructured conversations were one of two types of informal interviews I conducted. I also used three structured interview protocols. One was a post-observation guide used immediately after an observation. The second was a longer interview which focused on teachers' responses to reforms. The last was a separate interview protocol I designed to explore teachers' responses to multiple reforms.

Telephone interviews were of two types: follow-up and pre-observation. The follow-up interview was usually organized around one or more specific questions that arose in thinking and/or writing about an observation. The pre-observation interviews, as described above, focused on the next day's visit. Teachers were always responsive to these calls and

often answered at length. During these calls, I made hand-written notes which I either typed up individually or added to the relevant expanded field notes.

The post-observation and "reforms" interviews were structured guides modified by the EPPS team from the guides developed in the NCRTE project (Ball & McDiarmid, 1990b). The post-observation interview was approximately 30 minutes. The reforms interview was considerably longer. Though typically about an hour, some interviews lasted as long as two hours. I audio-taped each of these interviews which were later transcribed by EPPS secretaries.

The post-observation interview highlighted several dimensions of each lesson. Questions focused on what teachers were trying to teach, what means they used, what they thought students might have learned, how the lesson differed (if at all) from previous years, and how (if at all) they planned to follow-up the lesson. Teachers were also asked how the lesson fit into their curriculum and whether the lesson might be considered "typical."

The reforms interview had four parts. One section dealt with reading and mathematics reforms and inquired about changes (if any) the teacher had made in her practice and what changes (if any) she understood were occurring at the school, district, and state level. A second section dealt with teachers' learning and focused on the opportunities available to learn about reforms. A third piece looked at assessment. Here we explored what standardized assessments were given in the school and how teachers interpreted their import. The last part was labeled "pedagogical biography." Here we asked teachers to talk about their experiences in school as both students and teachers. In 1992, a new section on categorical programs was added to the interview.[4]

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[4] While most of the EPPS study has focused on students in "regular" classrooms, a piece of the work focuses on what state-level reforms mean for students in categorical programs (e.g., Chapter 1, Bi-lingual, ESL).

Like the project observation guides, I found the structured interview protocols helpful for this study. I again made no modifications to them other than adding questions relevant to other reforms. I did, however, create an additional interview guide which I administered either separately or along with the reforms interview. The "multiple reforms" interview probed issues around responding to various reforms at the same time. The interview began when I asked the teacher to respond to list of reforms I compiled from previous interviews. Establishing this list helped me understand the range of reforms each teacher was currently attending to. From there I asked a series of questions about how teachers interpreted the reforms individually and in concert, how reforms had influenced (or not) their thinking and practice, how others around them interpreted and responded to reforms, whether responding to reforms had implications for their personal lives. I also probed how teachers managed the array of ideas, methods, materials, and the like occasioned by new initiatives. These questions proved invaluable as teachers seemed to reflect on both the daily and larger implications of reforms on their personal and professional lives. For Bonnie Jones and Paula Goddard, in particular, these questions provoked long responses about the difficulties in learning about and responding to reforms.

Other Data Sources

Teacher observations and interviews provided invaluable data. But other data points also became important as I constructed the cases. These sources were interviews with principals, district administrators, and state officials and documents collected from the classroom, school, district, and state and from the national reform efforts. These additional sources helped me develop new perspectives on the data I collected through the teacher observations and interviews.

Interviews. A part of my EPPS work included interviewing school, district, and state-level actors. The EPPS team developed structured interviews for school and district administrators based on the reforms interview. State-level interviews were less structured and typically were constructed by the interviewers around a particular topic (e.g., the state

reading policy, the MEAP mathematics test). These interviews ranged from 30-90 minutes; all were audio-taped and transcribed.

Nancy Jennings, an EPPS colleague, and I interviewed school and district administrators in Derry. We interviewed the Donnelly-King principal, Mr Adams, and his replacement (in 1992), Mr Kite, once each. We interviewed the district reading coordinator, Ms Jensen, on two occasions.[5] Finally, we interviewed the Derry superintendent, Mr Dole, once. In Hamilton, I did only one interview. Along with David Cohen, an EPPS project director, I interviewed two members of the district research and evaluation unit. These administrators were responsible for the district monitoring and assessment systems. In cases where I did not do interviews (e.g., with the Sanford Heights principal, Mr Nettles), other EPPS researchers did and provided me with transcripts.

I also interviewed several state-level actors. Either by myself or with David Cohen, Nancy Jennings, and James Spillane, I interviewed individuals responsible for the state reading and mathematics policies and for revisions in the state MEAP test. We conducted these interviews between 1989-1992. These interviews, like those at the school and district levels, proved helpful as I constructed a nested context in which the four teachers worked.

Documents. I collected and reviewed a variety of documents. At the classroom level, I gathered textbooks, homework and in-class assignments, unit and chapter tests. Teachers also gave me copies of materials they gathered at inservices and workshops. The teacher-made materials provided examples of instructional representations. The professional development materials provided a context to talk about what (if anything) the teacher learned or valued.

At the school and district levels, I collected relevant curriculum documents and copies of standardized test scores. At the state level, my colleagues and I collected a mass of

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[5] Nancy Jennings also conducted a separate interview with Ms Jensen.

documents related to old and new state curriculum policies and old and new versions of the MEAP. A close reading of these documents provided additional perspectives on teachers' interpretations of reforms.

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Gathering data from multiple sources helps one construct richer cases. But more data does not necessarily mean a more complete or "true" picture. For the picture that emerges necessarily reflects the researcher's judgments of what to consider and what to leave out. Two points follow. One is that constructing stories or cases is an interpretive venture. Cases can provide powerful insights into practice. But they are necessarily only one person's interpretation. The second point is related. For if the data can support more than one interpretation, then the finished work will always be incomplete in some sense. This fact need not undercut the case constructed. But readers need to understand that, in another's hands--the teacher's, for example--a different story might emerge.

Data Analysis

Data collection and analysis activities interacted throughout this study. I spent considerable time poring over interview transcripts and observation notes after the data was collected. But the analysis of the data began during the collection phase. Pushing myself to think about conjectures and themes while still gathering data helped me form and reform interview questions and observation points, test out emerging ideas, and consider alternative perspectives.

I used several approaches in analyzing the data. One was coding and "chunking" the data into preliminary categories. Another was drafting analytic memos as a means of exploring developing ideas and themes. A third approach was peer review of analytic memos and case drafts. Finally, I kept a reflective journal for the last two years I worked on this study. Taken together, these diverse approaches helped me analyze and reanalyze the data as I teased out themes, insights, and illustrative points.

I began my analysis by reading through and hand-coding each teachers' interview and observation data. These codes helped me construct a preliminary set of analytic categories. Some of those categories were: views of subject matters, instructional practices, use of textbooks, influence of tests, student groupings, regularities, relationships, ways of managing reforms, personal background. I then went to my computer, created four documents (one for each teacher), and entered these draft categories. I cut and pasted the relevant data from the interviews and observations (which were in word-processing files) and various documents into the appropriate categories. This rough cut reconstituted the data into manageable "chunks." It also helped me evaluate the quality of the data; I could easily see, for example, where my data on a particular reform was thin. I could then seek additional data during the next interview or observation. Chunking the data also helped me begin building themes and see similarities and differences across the teachers' contexts, opportunities to learn, classroom practices, responses to reforms.

At this point, my advisor suggested I "spend time with the ideas." As a result, I wrote a series of six analytic memos where I explored nascent themes such as autonomy and uncertainty and organizational and personal resources. I also explored categories of reform responses such as selective attention, coexistence, proceduralizing, blurring distinctions, adding-on. In every instance, I inserted relevant examples or illustrations from my data. Working with the ideas proved invaluable as I was able to write my way into the data in a exploratory fashion, playing with ideas, evidence, and arguments in manageable bites.

After writing about what would become the major constructs of the study, I began initial drafts of the teacher cases. To do so, I went back to the chunked versions of the data. Before writing any text, however, I combed through my categories and illustrative data. I eliminated some categories, combined others, and created some new categories. I then constructed draft cases.

Writing and analytic thinking are clearly connected. In fact, Hays, Roth, Ramsey, & Foulke (1983) argue that "written language makes logical and analytic thought possible" (p.

x; emphasis in original). Constructing conceptual categories and chunking the data, writing analytic memos, and drafting cases were important means of analyzing the data. Yet another useful approach involved sharing my writing with others. I shared the analytic memos with members of my committee and a few graduate student peers. As part of our regular meetings, I shared case drafts with my EPPS colleagues. The ethic of sharing one's writing with colleagues is a vital dimension of the EPPS project. Their thoughtful responses helped me consider alternative perspectives and see where my ideas needed further development and illustration.

One last approach to data analysis was to keep a personal journal. In September 1992, I began maintaining a daily log as a way to get myself into the day's writing.[6] This journal served several purposes. I found it a convenient place to note nascent ideas, to outline developing ideas, and to think across the cases.

Writing Case Studies

As Buchmann (1994) observes, data alone tells no story. Instead, data allows the telling of many stories and it does not judge how those stories might be told. An important dimension of one's methodology then is the rhetorical form chosen.

As I considered ways to tell stories of these teachers' responses to reforms, I explored two options. The one I rejected took a thematic approach. Here I would identify and describe key themes in teachers' responses to reforms--e.g., the need to respond to multiple reforms, the interaction of personal and organizational resources, and managing reforms in the context of practice. Illustrations of each theme would be drawn from across the teacher cases. I rejected this approach for two reasons. First, I wanted the themes to develop from the teachers' stories rather than seem imposed on them. More importantly,

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[6] The idea of using a journal entry as a means of starting one's daily work comes from Steinbeck's (1969) Journal of a Novel. I highly recommend reading this text while writing a dissertation. Realizing that even writers as prolific as John Steinbeck could have "bad" days proved salutary on more than one occasion.

however, I wanted to emphasize the richness and complexity of these teachers' stories. A thematic approach would not have accommodated this need.

The approach I settled on might be described as a modified comparative case study. Four teacher cases form the core of the dissertation. Those cases focus on each teacher's response to a range of reforms--reading, writing, mathematics, and (in the Jones and Jensen cases) outcomes-based education. To unpack that response, I examine how teachers learned about reforms, how (if at all) their thinking and practice changed, and how their responses vary across multiple reforms. Two things about this approach differ from conventional case studies. First, rather than construct a separate chapter comparing teachers' responses across the cases, I built those comparisons into the cases. Thus, as I wrote the Jensen case, I made continual comparisons with the Jones case. I built comparisons with Jones and Jensen into the Irwin case and then with all three teachers into the Goddard case. Bogdan & Biklen (1992) term this the "constant comparative" method. The second difference can be seen in Chapter 6. I might have addressed the question of why teachers respond as they do within the cases. I attempted to do so in early drafts. The result suffered two problems. One was bulk. Exploring responses to multiple reforms created very thick cases. Adding yet another big section explaining those responses made the cases unwieldy. The other problem was conceptual. I wanted to develop the constructs of policy, organizational, and personal influences as explanatory factors. I concluded the most sensible approach was to pull these ideas from the cases and write a separate chapter. There I could explicate the constructs, demonstrate their interaction, and provide illustrations from across the cases.

The case method seemed most appropriate for this study, but it comes with limitations. For example, Weick (1969) contends that case studies are ahistorical, tacitly prescriptive, situation-specific, and one-sided. Let me speak to each of these issues.

Weick (1969) argues case studies take a presentist perspective and are by nature ahistorical. The cases in this study are clearly rooted in the present. But two features of

the study help provide a historical context. One is that by following teachers over several years, I was able to track changes in their responses over time. Frank Jensen's changing response to writing reforms was simply one example of a phenomenon evident in each case. If I had looked only at teachers' current practice, I would have missed this important theme. The second feature is that I sought information about teachers' backgrounds, thinking, and practices prior to the study. The stories teachers' told, for example, about their experiences as students and parents helped set their current actions in an historical context.

A second qualification is that case studies are tacitly prescriptive. Researchers may avoid explicit prescriptions in an effort to let the data "speak" for itself. Weick (1969) notes, however, that prescriptions are no less important for being implicit or tacit. In any case, he argues, case studies are a poor site for developing prescriptions given their lack of generalizability. I take up the issue of generalizability in the next section. I would address the issue of prescription in this study though by reminding the reader of one of my central tenets. That is, that teachers' responses to reforms vary not only across classrooms but across reforms. As I note in the concluding chapter, this variance raises immense problems for policymakers bent on prescribing change. This is not to say that reforms are irrelevant. But more to say that persuasion may figure larger in changing teachers' practice than policymakers may have considered. If such a view constitutes a "prescription," I am guilty. My assumption though is that such points are more illuminative than prescriptive.

The concern that case studies are situation-specific or lack generalizability is widely held (Bogdan & Biklen, 1982; Kennedy, 1979; Stake & Trumball, 1982). The story of one teacher, or even four as in this study, can not possibly mirror the range of teachers in practice. To suggest that these teachers' responses to reforms represent those of the entire field would be silly.

Some researchers, however, are more sanguine about the issue of generalizability (Erickson & Schultz, 1991; Peshkin, 1993; Wehlage, 1981). Erickson & Schultz (1991),

for example, argue "case studies are not antithetical to generalization" (p. 479). Case studies in particular, and qualitative research in general, can not satisfy questions of statistical generalization. But some argue that "theoretical generalization" is both possible and valuable (Erickson & Schultz, 1991; Peshkin, 1993). Sproul (1981), for example, notes that small scale studies provide "an exploratory basis for generating hypotheses and sensitizing analysts and policymakers" (p. 115). These researchers are more concerned about establishing powerful ideas than about matching samples. Erickson (1992) argues:

> In reporting the specifics of what local actors do, narrative case study is describing patterns of activity that are inherently not generalizable at the same level of specificity as the description itself. The generic and stable processes discovered in case study, however, can be seen at work in multiple settings. (p. 10)

In this study, I nominate teachers' varied responses to reforms as an example of a "generic and stable process." But I do so knowing that such a nomination has only as much merit as the reader deems. For as Erickson (1992) notes, "the locus of judgment about what generalizes from one setting to the next lies with the reader of the report rather than the writer of it" (p. 10).

One final concern is that case studies are one-sided. Weick (1969) argues that in developing a case, the researcher presents but one side--the case subject. Here I suspect Weick is being short-sighted. For at the very least, there is also the "voice" of the researcher. Much of the information used to construct these cases came from the individual teachers. But I decided what I focused on, what data I used or didn't use, what story the case told. Each case then is about at least two people, the teacher and me. But there are other voices as well. In constructing these cases, I drew on interviews of other school and district actors to establish a local context and on interviews with state actors for the larger context. Still other voices came through in the many documents I analyzed and incorporated into the cases. Each case highlights one teacher's story. But each story has several different dimensions. As Carter (1993) observes, stories are "always subject to reformulation in the face of new stories" (p. 10).

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