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**AN INQUIRY-BASED MODEL  
FOR EDUCATING TEACHERS  
OF LITERACY**

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**LITERACY,  
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**K**NOWLEDGE IS CONSTRUCTED BY THE INDIVIDUAL WHO INVESTIGATES HIS OR her world. In the investigation of literacy, children discover many things for themselves. The evidence supporting self-discovery and constructive learning leaves teachers with important and practical questions. For example: What is my role as a teacher? What can I show and explain to the child without undermining independence? How do I support children's efforts to discover? Such questions are woven through daily teaching and are an element of daily learning on the part of teachers who hold a tentative theory of constructive learning.

Learning to teach has been described as the acquisition of a craft (Tom, 1984), an accumulation of generalizations derived from process-product research (Gage, 1985; Rosenshine & Furst, 1973), the learning of skills (Cruikshank & Metcalf, 1990), or acquiring a body of pedagogical knowledge (Shulman, 1987). Carter (1990) suggested that in addition to formal knowledge of content areas, teachers' knowledge includes information processing (the mental processes used to make decisions), practical knowledge (classroom situations and ways of addressing everyday problems), and pedagogical-content knowledge (ways of representing subject matter to students). Carter's analysis illustrated the complexity of learning to teach; different levels and types of knowledge are required.

Acknowledging the situational nature of teaching and the constructive nature of learning to teach raises dilemmas for teacher educators that parallel general questions about teaching children. What is the best way to assist teachers' learning? How much can be told, explained, transmitted, or demonstrated? What should teachers discover for themselves? Ultimately, a theory of teaching and learning must be reconstructed by every teacher. Duckworth (1986) suggested that the process of inquiry is a context within which the understandings related to teaching can be built. Reading Recovery, usually described as a tutoring program for children, also presents a unique preparation program that Alverman (1990) has described as inquiry oriented and that has been documented through research on student outcomes. This article draws together existing research on an inquiry-based teacher education model, Reading Recovery, and explores its implications for supporting teachers' work.

## Background

**T**o inquire is to ask questions or to investigate in search of truth. Inquiry can be applied to a scientist's systematically structured experiments or to exploring a nearby woods, because similar cognitive processes are usually involved (e. g., information gathering, analyzing, predicting, testing, reflecting, confirming, and interpreting). Often, inquirers talk over their hypotheses with others, using language communication to solidify ideas and generate new ones. Inherent in the process is learning. The inquirer who tests hypotheses and reflects on the results gains more than the accumulation of information and even more than learning the answer to a particular question. The act of investigation contributes to expansion and reformation of the original ideas; change in conceptual understandings—or learning—is the result.

Carter (1990) suggested that investigations go beyond what teachers learn to a consideration of what it means to learn to teach. It is evident that "teachers' knowledge is not highly abstract and propositional nor can it be formalized into a set of specific skills or preset answers to specific problems. Rather it is experiential, procedural, situational, and particularistic" (p. 307). Carter added that the teacher education process must provide opportunities for novices to practice problem-solving and develop new ways of thinking about problems.

Research in reading has focused on finding empirical links between student achievement and teacher actions. In a review of the literature, Tom and Valli (1990) pointed out the fallacies of formulating research-based rules for practice. These rules do not always apply within the complex environment of the classroom and do not provide teachers with the flexibility they need to make good judgments while teaching (Clark, 1988; Fenstermacher, 1982). Further, handing down rules dangerously oversimplifies the process of making teaching decisions and does not account for the on-the-spot decisions that teachers need to make. They proposed a

view of craft knowledge, grounded in the wisdom of practice as a systematic way of knowing which methods of inquiry, rules of evidence, and forms of knowledge are inherent.

The National Council for Accreditation of Teacher Education (NCATE, 1987) recognized two kinds of knowledge: formal inquiry and theory-built knowledge based on connections to practice. These standards apply both to preservice and inservice teacher education. In this time of educational change, staff development for teachers has been considered by policymakers and administrators to be a key aspect of school reform. In a review of the research on staff development, Sparks and Loucks-Horsley (1990) identified five models: (1) individually guided staff development, in which teachers initiate and carry out their own learning activities; (2) observation/assessment, which involves teachers receiving feedback that can be reflected on and analyzed with the goal of improved student achievement; (3) development/improvement, acquisition of skill, or knowledge to address a particular problem or improve performance in a certain area; (4) training, workshops, or courses designed to impart effective teaching practices and help teachers change their behaviors; and (5) inquiry, which involves teachers in formulating questions about their practices and seeking answers to those questions.

Each approach, according to these authors, has its advantages. They cited evidence from research to support all five. The first approach recognized individual interests and motivations (Hering & Howey, 1982); the second has the advantage of specific observational data, transfer of skills to classroom practice, and ongoing support (Joyce & Showers, 1988). The development/improvement approach is often combined with training and has the advantage of offering specific ways to address problems or improve schooling. Advocates of the inquiry approach (Glatthorn, 1987; Glickman, 1986; Lieberman & Miller, 1986) said that research is an effective avenue through which teachers can develop new understandings. Like all researchers, as teachers formulate and seek answers to particular questions, other questions arise leading to a continual expansion of knowledge and applications to new settings and circumstances.

Sparks and Loucks-Horsley (1990) also suggested that while all models or combinations of approaches have potential for supporting teacher learning, they also all require a supportive organizational context to achieve success. Climate, leadership and support, policy adjustment, and participant involvement are all important factors. As staff development leads to change, the system must also change (Fullen, 1982). The evidence is compelling that organizational factors both affect and are affected by staff development processes, regardless of the model.

Although other models are gaining credibility and use, training is the most frequently used and researched model for staff development. The application of a single model, however, may not capture the complexity of human learning that exists among any group of teachers. Blended models that also give attention to organizational characteristics may have more promise for meeting the complex needs of education today, especially if staff development initiatives are measured not only by qualitative examination of teacher change but are linked to student change and learning.

## Teacher Education in Reading Recovery

The key component and the delivery system for Reading Recovery is a staff development model that has some unusual features. The program for children is not a package of materials and step-by-step instructions for teachers. While the program involves teachers learning some specific procedures, these are considered to be a repertoire rather than a prescribed list of teacher actions (Clay, 1993b). Using the procedures means making decisions based on an analysis of the child's strengths and behavioral evidence of shifts in learning over time. Reading Recovery teachers see their own teaching as an opportunity to learn and extend that learning through observation and interaction with others.

The emphasis is on fast analysis; the live lesson goes by rapidly and cannot be retrieved. Teachers are required to concentrate and respond quickly during behind-the-glass sessions, an activity that sharpens their ability to observe and respond to children's behavior *on the run*

while teaching. After the lesson there is time for reflection; the teachers work as a group to *get back to* critical moments in the two lessons observed. They reconstruct examples for each other and relate those examples to theoretical concepts they are building. They consult references, but essentially the process is one of social construction of knowledge. Occasionally, for a particular purpose, Reading Recovery teachers may view and analyze a videotaped lesson. However, nothing replaces the intensity of a live lesson.

In Reading Recovery teachers often say that they “learn to teach,” but they could just as easily say that they “teach to learn.” Each young student represents an individual investigation through which teachers learn as they follow the child’s progress and make hypotheses about the nature of his or her learning. The teacher uses opportunities that arise from several sources:

- texts children encounter,
- their responses to those texts,
- the conversations in which they engage, and
- messages composed and written.

From those sources, teachers craft teachable moments; those powerful examples that will have the best chance of demonstrating processes to the child. A core concept is that each child constructs inner control of reading and writing processes by engaging in successful problem-solving while reading or writing extended texts. As they construct literacy, they connect it to their own lives.

Clay and Watson (1982), creators of the program in New Zealand, said, “The key word in the development and implementation of this inservice program was again observation and the unique feature was the potential for multilevel observation and learning that was embedded in the situation” (p. 192). They described an inservice session in which observing teachers were watching for evidence of the child’s learning but were themselves being tutored by the leader. In this instance, the leader was being observed by a trainer who would later analyze the session. Thus, the situation represented layers of training. In one situation an observer could see individual guidance, observation/assessment, development/improvement, training, and inquiry.

### ***Support System for Teacher Education***

**T**he model is implemented within a support system that is clearly specified from the beginning of implementation. The system includes the training and support of a teacher leader, the key staff developer in the program; the provision of a facility; university credit to support the course structure for teachers; and ongoing professional development for the initial training which takes an academic year, and subsequent years of participation for teachers. A site coordinator is appointed to provide administrative support for the program and to work with the teacher leader to solve problems related to program implementation.

Teacher leaders provide the initial class for teachers and continue to support trained teachers through individual visits and continuing contact sessions in subsequent years. Regional training sites at universities provide professional development for teachers and teacher leaders, including conferences and institutes. Program evaluation data is gathered to determine the progress of every child who participates in the program. These data also support program implementation by providing the information necessary to identify problems and enhance the quality of implementation.

First, teachers learn the observation procedures that they will use to identify children and assess their progress (Clay, 1993a). Then, they begin to learn a repertoire of procedures while simultaneously beginning to teach children. As they act, they reflect on their teaching in light of the observational data they are collecting daily from children. Learning is supported by the teacher leader through individual visits and coaching, but the key process is conversation among peers. Members of the teacher class take turns teaching an individual child behind a one-way glass screen while others in the group observe. They are guided by the teacher leader to state

their observations and make inferences about the internal processing that behaviors might signal. This talking while observing process supports teachers' development of internal theories out of which instructional decisions are made.

The whole process takes time. At first, teachers may find the program overwhelming. They concentrate on the logistics of taking on and applying the procedures of teaching. As they participate in the experience and learn to drop their defenses with their peers, they begin to analyze not only children's behaviors but the teaching decisions and their potential impact on learning. After the observation, teachers gather for a reflective discussion with the demonstrating teachers.

These two components—talking while observing and the reflective discussion—make up the major part of the teacher education program. Each case example or demonstration presented gives every teacher a chance to reflect on his or her own teaching. This reflective/analytic experience helps teachers to construct and refine their theoretical explanations and to go beyond procedures. Through shared experiences, a culture is created in which teaching and learning are interwoven. Gaffney and Anderson (1991) provided a description of Reading Recovery as a two-tiered scaffolding model in which teaching and learning are congruent processes.

### **Research on the Effects of Reading Recovery Staff Development**

A discussion of learning to teach in Reading Recovery must be foregrounded by talking about the nature of teaching. Lyons, Pinnell, and DeFord (1993) asserted that the training model as well as continuing contact among teachers are critical factors in assuring children's success. Reading Recovery emphasizes the role of the teacher as an informed, autonomous decision-maker who is responsible for creating a curriculum for each student. To provide opportunities for the development of independent readers and writers, the teacher must follow the student's thinking, recognize 'teachable moments,' and attend to the most memorable and powerful examples that will help learning to occur. The ability to understand and conceptualize learning and instruction at the cognitive and sociolinguistic levels takes reflection, practice, and time. Reflective opportunities, over time, with knowledgeable colleagues are inherent in the Reading Recovery training program and the system of support that surrounds teachers who participate. (Lyons, Pinnell, & DeFord, 1993)

The above statement is extended and illustrated by Elliott's (1994) study of one experienced Reading Recovery teacher who had a history of excellent results. For a period of one academic year Elliott followed this teacher's decision-making relative to two children. After each lesson the expert teacher engaged in stimulated recall to produce a think aloud protocol at regularly scheduled intervals throughout the year. Lessons were recorded by audiotape and videotape. The teacher's analysis of her decisions followed and were also recorded. Elliott described Reading Recovery teaching as a responsive process of which observation is the heart. She described the teacher as "looking for and noticing the *aha* and then acting on it" (p. 26). The process moves from observation to conscious awareness and transaction to decision-making to evaluation; but pedagogical reasoning underlies and permeates all elements. The teacher uses three knowledge sources: knowledge of child, pedagogical content knowledge, and knowledge of content in an integrated way during the reasoning process. Such descriptions are compelling evidence of the situational and dynamic nature of teaching in this individual setting, however, the complexity implies that learning to teach will be difficult.

### ***Relationship to Student Outcomes***

Evaluation of the effects of the program on students has been a priority in all implementations. A series of studies has documented the success of the Reading Recovery program for the young students served (Clay, 1990, 1993a; Kerslake, 1992; Pinnell, 1989; Lyons, Pinnell, & DeFord, 1993; HMSO Publications Centre, 1993). Program evaluation data from hundreds of

implementation sites in five countries demonstrated the replicability of the positive outcomes for students. These studies, however, did not separate components of the program such as staff development, the teaching procedures, or the materials.

A statewide study (Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1994) followed a group of children for one year and compared four treatments:

1. Reading Recovery, the traditional Reading Recovery with the yearlong staff development program and observation using the one-way glass screen;
2. Reading Success, an adaptation that collapsed training into two weeks with ongoing support from an expert;
3. Reading/Writing Group, a group adaptation using traditionally trained Reading Recovery teachers; and
4. Direct Instruction Skills Plan, a skills tutoring approach.

The two treatments of interest here are Reading Recovery and Reading Success. Both treatments provided one-to-one tutoring using the same framework; however the training for teachers differed considerably, with inquiry components missing for the Reading Success teachers. Results of the study showed that the results of Reading Recovery were superior to all other treatments and that, in fact, the second most effective treatment was Reading/Writing Group, with traditionally trained Reading Recovery teachers. Quality of training emerged as the most powerful component related to student success. Results suggested that the yearlong training program with its unique features is highly related to student success and to the way teachers organize and conduct lessons.

### *Impact on Teachers as They Learn to Teach*

Early in the United States' implementation, a yearlong qualitative study of one group of teachers revealed continuous shifts in their focus of attention throughout the training period (Pinnell & Woolsey, 1985). For a full year, the researchers transcribed informal discussions that occurred after the teacher class. An analysis of the oral language transcript revealed that at the beginning of their training, teachers tended to focus on the mechanics of teaching. They wanted to be told how to do it, how to use the procedures, and how to organize and use materials. They wanted the right answers from their trainers and were dissatisfied when specific answers were not forthcoming.

Gradually, the focus of descriptions shifted to descriptions and interpretations of children's behavior. They told stories about their teaching and members of the group got to know each other's students. They asked about children as individuals and followed their progress. As teachers gained teaching experience and participated in behind-the-glass sessions, they began to link their case-by-case knowledge into broader generalizations. This process took a long time; theoretical statements were not evident until near the end of the training year. Informal conversations with members of that teacher class indicated that even during a year's training, the learning was at a somewhat superficial level. Four years later, one member said:

Looking back, it almost seems as though I knew so little that first year. I was learning a lot, but now we are going so much deeper into the processes. There are new understandings. I see much more when I observe behind-the-glass and participate in the discussion following the observation session. I think my teaching is getting better because I am noticing new things and understanding the reading process at a different level. (Personal interview with Ann James, 1992)

Geeke (1988) interviewed teachers while they participated in their first year of training. Geeke described the culture created in the Reading Recovery teacher class:

The interview data show that most of the participating teachers had their existing beliefs shaken during the early inservice sessions. They were quickly persuaded that their current methods of teaching reading and writing were based on false assumptions about teaching and learning. Subsequently, on the basis of their observations of children and their

experiences during the inservice sessions, they developed new beliefs about teaching and learning. This set of beliefs then acted as a framework into which the specific teaching practices of Reading Recovery could be placed . . . the teaching procedures were not given to the teachers as a set of 'ideas' for teaching literacy. Instead, the teachers were expected to use the procedures in a way that reflected the set of basic beliefs which were being developed at the same time. The ultimate aim of the training program seems to have been the development of a dynamic relationship between belief and practice, with belief acting as an individualizing influence on instruction. (p. 144)

. . . it seems that real teacher change is unlikely to be achieved by simply introducing a 'new method of instruction' in some curriculum area. The new 'method' will only be really effective if teachers have thoroughly accepted the underlying principles of the program as well as its teaching practices. The techniques employed by Reading Recovery to achieve this result deserve close examination, especially as it appears to have been much more successful than usual in achieving teacher change in the group immediately involved. (p. 145)

Geeke (1988) also found that the inservice course had a profound impact on teachers' views. Like the U. S. teachers, Australian Reading Recovery teachers expressed discomfort with the intensity and demands of the inservice program, particularly the behind-the-glass experience; yet, they indicated that they strongly valued the experiences and the learning that occurred. Geeke identified six beliefs that teachers said they had developed from their involvement in Reading Recovery:

1. Effective learning depends on the child assuming responsibility for learning.
2. Effective learning is built on the child's current knowledge and skills, and depends on the child understanding what is expected of him or her.
3. Effective learning leads to an awareness of one's mental processes, self-monitoring of the cognitive strategies being employed, and the development of a self-correcting system.
4. Effective teaching depends on accurate observation and sensitive response, within a framework of coherent beliefs and effective practice.
5. Effective teaching depends on the quality of interaction with the child. In particular, it depends on astute questioning which shows the child how to solve his own learning problems.
6. Effective teaching depends on the teacher's understanding of the learning process, checked against the actuality of children's observable learning behaviors. Only if the teacher really knows how children learn will he or she be able to adapt teaching methods appropriately in response to the children's demonstrated needs. (p. 145)

Power and Sawkins (1991) described a first year implementation in another geographic area. The study affirmed the impact of the program as well as its intensity. Logistic concerns such as teaching loads and scheduling arose in teacher interviews. Teachers also expressed some frustration with the high expectations for independence. Here are two illustrative quotations from teacher interviews (Power & Sawkins):

I don't know about anyone else . . . I wish that I'd had a lot more answers or a lot more direction . . . If I was doing something wrong to be just told straight out "look you did this, this was wrong, try this way." (p. 91)

We were never given an answer you know. She used to say, 'there are no answers in Reading Recovery.' There are no answers. You were fed to the lions. You had to find it out for yourself. And that's what we did. We sat amongst ourselves and sussed it out for ourselves. But she put in all the information. The input was fantastic . . . But she wouldn't feed it back so we simply had to find an answer. It was like being locked in. Until you found the key you couldn't get out. (p. 89)

In the same study, the tutor (teacher leader) commented:

In a couple of instances I guess they would like me to answer their questions straight out rather than saying, 'Well, where could you go to find out about it?' 'What do you think?' 'Right . . . now what do you think about it?' . . . And again these teachers have got to be

thinking teachers. They've got to work through these things in their mind and I'm not always going to be beside them so it's that independence again. They have to know how to go about solving their own problems. (p. 90)

Power and Sawkins' results indicated that the group of teachers found the inservice sessions "intense," "exhausting," and "stressful," but they were positive about the amount of learning they were experiencing and the results that were showing for the children.

Pinnell, Lyons, DeFord, Bryk, and Seltzer's (1994), Geeke's (1988), and Power and Sawkins' (1991) studies focused on a first group of teachers in a country or region. Two other studies, also of first year training classes, examined language used by participants. Wilson (1988) studied the use of language in behind-the-glass and discussion sessions. Her results indicated that over the course of the year, teachers interacted more and were more likely to challenge each others' assertions. They also grew in their ability to describe specific behavior as evidence. She summarized her results as follows (Wilson, 1988):

This study showed that as teachers are involved over time (1) in the articulation and interpretation of their observations of children and children's learning, and (2) in the integration of new perspectives into pedagogy, they do change in their ways of using language to describe these phenomena. These changes were in a positive direction, indicating a more supportive view of children, a less restrictive view of the reading process and reading instruction, and a higher percentage of high quality utterances with regard to emergent reading. (p. 160)

Rentel and Pinnell (1987) examined teacher participants' language in the discussion following the observation. They recorded discussions at two different points in time, one near the beginning of the training and one several months later. They categorized the language into claims or statements and then assessed the degree to which claims were grounded in evidence or supported by research. Results of this study indicated that from the first to the second observation, teacher participants produced significantly more grounded statements, indicating growth in the ability to support their statements with behavioral evidence.

Lyons (1992) studied six Reading Recovery teachers-in-training. The teachers collected and analyzed observation notes of student behavior, running records of oral reading, and writing samples to determine shifts in student learning. The teachers also used journals to record personal reflections about the effects of their teaching decisions on student learning, and they tape-recorded, analyzed, and evaluated their interactions (verbal and nonverbal) with students throughout the inservice course. The teachers and the researcher met weekly to analyze and evaluate the consequences of their instruction. Lyons' analysis of the audiotaped lessons and of teachers' personal reactions as documented in journals and conversations with colleagues suggested that as teachers became more sensitive to emerging behaviors signalling student change, they began to tailor their own behaviors to meet the students' developing abilities. The study suggested five general principles of learning and teaching (Lyons, 1992):

1. Assisted performance by an expert helps individuals—both students and teachers—expand and reorganize their understandings.

2. The language that surrounds events within a Reading Recovery lesson mediates performance and creates systems of change.

3. Conversation has an important role in teachers' learning; ongoing discussions provide a scaffold for the growth of understandings and a way to mediate performance by providing bridges between what the teacher already knows and what he or she needs to know to effectively teach.

4. The major shifts in teacher theory development are given impetus by learning the Reading Recovery teaching procedures and are greatly influenced by the inservice course. Lyons (1992) concluded that her study provided evidence that "learning is socially constructed, not only for children, but for adults as well" (p. 13).

The previous studies offer evidence that the initial training results in teacher change. As they are challenged to make their implicit ideas explicit, to examine them and to link them to



practice, their theories typically shift. Program evaluation data, collected over the years on training classes, suggest a tendency for teachers to move from a skills orientation toward a more holistic view of literacy learning (The Ohio State University, 1993). More research is needed that follows teachers for longer periods of time, going beyond the initial training. It is possible that once the intensity of the training year wanes, teachers will find it difficult to sustain ongoing development of their understandings and concepts, learning will diminish, and old models that are pervasive in the school system may prevail. Little research has documented the role of continuing contact as it exists in the Reading Recovery network.

Only one study has followed teacher learning over several years. Lyons (1993) described one Reading Recovery teacher's developing knowledge of how to effectively teach beginning reading and explored the effects of this developing knowledge on the teacher's ability to plan and conceptualize teaching. Her observations, analyses of videotapes, and interviews over a three year period suggested that the teacher continued to grow over time in her understanding of how to prompt and ask questions that enabled a student to construct learning. Her approach to instruction became more skillful and complex throughout the investigation period. Lyons identified Phase 1 as trying out the prompts and questions suggested by Reading Recovery training, Phase 2 as using prompts and questions to test her hypotheses about the child's behavior and then to support the student's problem-solving, and Phase 3 as prompting and questioning in response to students' behaviors. The teacher moved from the first phase, in which by her own account she was "parroting questions according to the book" to the third phase when she demonstrated her ability to respond to unexpected answers, to reframe the situation, and to step out of her original perspective in order to recognize the student's perspective. Research is needed on larger numbers of teachers to define patterns and individual paths of growth and change. There is evidence that with system support and an inquiry approach, learning is continuous across time and at every level, as illustrated by this statement from a university professor. In an address to a group of teachers, DeFord (1991) talked about the continual learning process:

When I first read, or attempted to read Clay's book, *The Patterning of Complex Behavior* (1979), I was immediately put off by the cognitive psychologist language and terms like *confusion*. Consequently, in 1980, I put this book away on my shelf. In 1985, I was asked to observe a Reading Recovery lesson at Ohio State University. I was fascinated as I observed the half-hour lesson, and by turns, brought up short by things I *didn't like*. I could see the child in front of me had made startling gains in both reading and writing, was happy, excited about books, and engaged in learning new things. When his teacher talked about his early reading and writing a different picture emerged, a child who was passive in new learning settings and who, the classroom teacher felt, would fail first grade. My curiosity overcame my initial discomfort with aspects of the program, and I became actively involved in learning about Reading Recovery. At first, the practices I agreed with were easy, and I tried to find ways around using the practices I disagreed with. But during the six years I have been teaching children in Reading Recovery, I have put my disagreements on hold to try to see the sense of particular practices with some children. Daily, I am forced to reconsider my beliefs in light of what I see children and teachers doing, but I have also continued to fill out my beliefs about early literacy learning. I had to take off my 'theoretical high heels,' so to speak, and replace them with walking shoes that are now quite comfortable. (p. 3)

An open-ended survey of 205 Reading Recovery teacher leaders revealed their perspectives on their own training and their role as teacher leaders (Pinnell, Lyons, Constable, & Jennings, 1994). The value of talk with colleagues emerged as a major factor in their learning. During the first year of training, they reported that reflection, dialogue, and the opportunity to articulate new understandings increased learning. The support of colleagues was valued by teacher leaders, especially after the training year. For these leaders, learning to teach is facilitated through talk with others who share their mission and vision.

## The Potential of an Inquiry-Oriented System for Staff Development

Describing the opportunities for making implicit theories explicit both in the behind-the-glass talk and during individual school visits by a teacher leader, Alverman (1990) characterized Reading Recovery training as an inquiry-oriented model for teacher education. Inquiry-oriented is an apt description because all components of the staff development model involve teachers in searching and reflection. New Zealand teachers call this process sifting and sorting, referring to the sessions in which they work together to reflect on teaching, describe student behavior, and search for explanations and possible teacher responses. Teachers expect to engage in these sessions throughout their tenure in the program. Sifting and sorting implies that teachers hold a tentative theory; one that is incomplete. Their understandings are always under construction. A tentative stance and ongoing investigation are made possible through the strong content of the Reading Recovery lesson, the built-in research and evaluation, and the strong group support, all components that could be implemented in staff development or teacher education programs.

### *Records*

Investigation takes place at every level of the Reading Recovery program. Data are systematically collected on scan sheets and reported by site and by state. But the investigation that pays off in teacher learning is undertaken by individuals. Teachers keep detailed records of students' progress which they use for analysis as they go. Anecdotal lesson records and running records of text reading are recorded daily and these documents provide a way for teachers to reflect on and analyze children's progress. The lesson notes include not only children's responses but teachers' prompts and questions so that the interaction between the two can be examined.

Running records provide another source of data for teacher investigation. It takes only a few minutes to record the child's reading behavior on a text that has been introduced and read once before. Over several days and weeks, the running records provide information to trace shifts in the student's processing; information that teachers find valuable in their decision-making with regard to individual students. Teachers also consolidate data on individual children in graphs and charts that help them become aware of progress. These records provide a visual profile of individual readers that feeds decision-making while teaching. To Reading Recovery teachers, knowledge of the child must be constantly updated and constantly available.

### *Dialogue with Colleagues*

Analytic and reflective processes are supported by the weekly meetings of the initial training course and in subsequent years by the continuing contact sessions. In behind-the-glass sessions, teachers are freed from teaching. They have the opportunity to become observers, picking up details of behavior and quickly analyzing and interpreting it as they go. Teachers are encouraged to advance hypotheses as the lesson proceeds and to quickly gather evidence to confirm or disconfirm their assumptions and predictions. They have learned a language to talk together in the construction of knowledge.

### *The Role of Curiosity*

Duckworth (1986) has identified two aspects to teaching: The first is to put students into contact with phenomena related to the area to be studied—the real thing not books or lectures about it—and to help them notice what is interesting; to engage them so they will continue to think and wonder about it. The second is to have the students try to explain the sense they are making and, instead of explaining things to students, to try to understand their sense. These two aspects are, of course

interdependent: when people are engaged in the matter they try to explain it and in order to explain it they seek out more phenomena that will shed light on it. (p. 261-262) Duckworth's comments illustrate a basic concept underlying teaching in Reading Recovery—teachers are curious about their students' learning. They are always trying to figure out what children are thinking about, how they see things, how they interpret teachers' comments and directions, and what is going on in their heads.

### *Support From the Teacher Leader*

**A**nalysis and reflection are supported in the one-to-one visits a teacher leader makes to both trained and in-training teachers. As teachers become more experienced they begin to assist each other through colleague visits. The interaction is different from the clinical supervision model described in the literature. Teacher leaders and teachers engage in analysis of the lesson viewed and investigate alternative explanations for student behavior and teacher response. Coaching is used and may be quite helpful especially when teachers are beginning their training; but visits primarily function to support the teacher's own thinking.

Although individual teachers engage in inquiry, the process and the learning that accompanies it is supported by the social group. Teachers depend heavily on interaction with their training class to extend their conceptual understandings. Each teacher is expected to contribute to the learning of others in the group and can, in turn, expect to receive assistance. Teacher leaders work to help the group ask questions of each other, challenge, and form chains of reasoning. Learning how to teach reading is a complex and demanding process, but it is made less so when the learning is shared.

### **Summary and Implications for Teacher Education**

**T**he Reading Recovery model provides: (a) an activity structure that builds strong content knowledge, (b) observation of phenomena important to participants and which they encounter daily in their work, (c) guidance from an expert, (d) daily work of an investigative nature, (e) careful records to guide investigation, (f) case examples for the group to consider, (g) a group of professional colleagues who work together over time, and (h) recognition of the central role of language in learning. Teachers who are at the same time learners construct a language to talk with each other about their work and to create a learning community. These characteristics of Reading Recovery could be the foundation of new models for educating and nurturing our nation's teachers.

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