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ABSTRACT

This qualitative, ethnographic study documented an upper primary school teacher's thinking as she planned to integrate a block play center into her classroom. Data was collected through a series of seven interviews in May, July, and August. Other methods of data collection included journal entries, stimulated recall, drawings, pictures, and notes from planning sessions. Analytic induction was used to synthesize and reduce the data set into codifiable categories indicative of content or thinking process. Analysis indicated that thinking and planning during the studied period were more mental than written, and were more cyclical than linear. Dilemmas surfaced and blocked decision making, and a period of low self-confidence interfered with the teacher's progression of decision making. The report calls for further investigation of teachers' thinking. (MM)

"IT'S ALL IN MY HEAD"

TEACHER THINKING ABOUT INTEGRATING A BLOCK PLAY CENTER INTO AN UPPER PRIMARY CLASSROOM

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"It's All In My Head"
Teacher Thinking About Integrating a Block Play Center into
An Upper Primary Classroom

Considerable emphasis has been directed toward increasing teaching practices which are developmentally appropriate for young children in preschools and primary grades since the publication of guidelines by the National Association for the Education of Young Children (Bredekamp, 1987). Children's play, deemed developmentally appropriate because of young children's imagination, and practicing of skills, is also a valuable vehicle for social and cognitive development (Bruner, 1983; Piaget, 1962; Smilansky & Leah, 1990; Vygotsky, 1967). Cooperative play environments provide children with opportunities for social interaction and meaningful interactions with their environment (West, 1992; Katz & Chard, 1984). Learning centers, also known as interest centers, are productive and viable means of adapting curricular objectives with materials meaningful to young children, where "knowledge is best gained through a process of moving, speaking, doing with others, discovering for oneself, and mastering new challenges in an environment where play and work are one domain" (Dimidjian, 1992, p. 13).

Blocks have been promoted as a valuable and complex play material with several potential contributions for early childhood curriculum: physical development, mathematics, social studies, social-emotional, art, science, and language arts (Brody & Brody, 1974). From a constructivist perspective on child development, children's play with blocks in preschool, kindergarten, and primary grade settings contribute to children's development and their construction of physical, logico-mathematical and social knowledge (Piaget, 1962). Preschool and kindergarten classes are usually equipped with blocks and constructive materials (Benish, 1978; Starks, 1960; Rogers, 1985). However, little research has been conducted on block play in primary grade settings.

The role of play in children's development is well established; the role of the teacher in orchestrating the play environment is less well defined. Teachers in early childhood education are encouraged to utilize a variety of teaching methods, incorporate active learning, and integrate subjects across the curriculum for optimum learning conditions (Bredekamp, 1987). Changes in prescribed teachers' roles have precipitated increased interests in the complex art of teaching, which encompasses a variety of skills, knowledge and intuitive decision making (Katz, 1984; Wittrock, 1990; Cassidy & Lancaster, 1993). The study of teacher thinking processes has gained momentum since the 70's with considerable attention given to teacher behavior, lesson planning, and interactive student behavior. Lesson planning has been the focal point of many studies; however, teachers show little priority of their lesson plans in regards to actual classroom instruction (Clark & Peterson, 1990). Little attention has been given to teacher's thinking in

anticipation of a new school year and to teachers' new roles such as adding learning centers, designing the flow of activity within classrooms and integrating centers within curricular confines.

This study was designed to document and describe one teacher's thinking as she planned to integrate a block play center into her upper primary classroom. The teacher thinking study is part of a larger project, now called the Primary Block Project, designed by Johnston and Kerr (1992) to implement and describe the dynamic nature of children's block play in a second-third grade combination classroom for the 1993-94 school year. The larger study, now in progress, was funded by a grant from the Lipman Early Childhood Research Institute. The review of literature, focused on research related to block play and teacher thinking and planning, provided insight into prior investigations.

Research on Block Play

Caroline Pratt (Winsor, 1984) has been associated with the development of the basic wooden unit blocks based on the proportions of 1:2:4 (half as high as they were wide; twice as long as they were wide). In experiments with New York children in settlement houses, Pratt (1924, 1948) developed and applied the unit blocks in children's play. She found that children used mental powers, reasoned out relationships, formed conclusions and learned to think through the use of unit blocks. Johnson (1972) worked closely with Pratt and identified 7 stages of block play through which all children progress. Banta (1980) suggested an 8th stage for more experienced block builders. Blocks as a material and block play as a learning method have been accepted as developmentally appropriate by early childhood educators (Winsor, 1984; Bredekamp, 1987; Hirsch, 1984).

Recent studies on block play have been done primarily in kindergarten and prekindergarten settings (Donovan, 1986; Garlikov, 1990; Moore, 1991; Reifel, 1981; Rogers, 1985). Bredekamp (1987) and others (Hirsch, 1984; Winsor, 1984; Reifel, 1981) advocated block building experiences as appropriate in early childhood education, even into the elementary grades.

A few studies have looked at the relation between block play and social development. Rogers (1985) found that kindergarten children playing with blocks exhibited much higher incidences of positive social behavior than negative social behavior. Bender (1978) observed four-year-old boys playing with large hollow blocks. She found evidence of peer cooperation and disputes settled without teacher intervention when an adequate supply of block were available to the children. Kinsman and Berk (1979) reported a very low occurence of negative affect in the block area. The potential of block play in upper primary grades has not been explored.

Research on teacher thinking and planning

Research on teacher thinking emerged during the mid 70's in early teaching effectiveness and curriculum research (Clark & Peterson, 1986). Clark & Peterson (1990), in the most comprehensive review of research on teacher thinking to date, noted that the goal of teacher

thinking research is to increase the understanding of how and why the process of teaching looks and works at it does. Figure 1 illustrates their model developed for illustrating teachers' thought processes, which consisted of two domains: teacher's thought processes and teachers' actions and their observable effects.

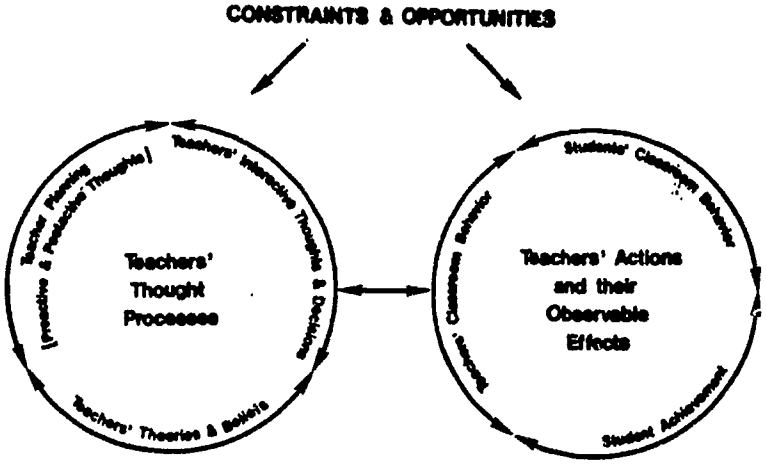


Figure 1. A Model of Teacher Thought and Action, (Clark & Peterson, 1990).

Both domains, constraints and opportunities are represented with dual connecting arrows suggesting the reciprocal nature of teachers' thought processes and their behavior. The domain of teachers' thought processes includes three major categories: teacher planning (preactive and postactive thoughts), teachers' interactive thoughts and decisions, and teachers' theories and beliefs. The second domain of teachers' actions includes teachers' classroom behavior, students' classroom behavior and student achievement.

Research on teacher planning, consisting of fewer than 25 primarily descriptive studies, explores how teachers deal with uncertainty and often conflicting goals of teaching. Teacher planning research includes thought processes and reflections prior to, during, and after classroom interactions that then guide their thinking and projections for future classroom interactions. Clark & Lambert (1985) concluded that the kind of thinking that teachers do during interactive teaching does appear to be qualitatively different from the kind of thinking they do when they are not interacting with students.

Clark & Peterson (1990) suggested that planning has been conceptualized in two ways (a) as a set of basic psychological processes in which a person visualizes the future, inventories means and ends, and constructs a framework to guide future action and (b) the things that teachers do when they say they are planning. Planning is challenging to study because it is both a psychological process and a practical activity.

The remainder of this literature review includes processes used in planning, types and functions of teacher planning, and the relationship between teacher planning and subsequent actions in the classroom. Ralph Tyler (1950) was the first to propose a model for studying teacher

planning. His linear model included 4 steps that teachers used in planning which were to: specify objectives, select learning activities, organize learning activities, and specify evaluation procedures. During the 70's researchers and teachers began expanding Tyler's model to include less structured procedures (Zahorik, 1975; Peterson, Marx & Clark, 1978) when they concluded that teachers spent the largest proportion of their planning time thinking about content rather than specifying objectives.

Yinger (1977) created a three stage, cyclical model of teacher planning. The first stage or discovery cycle included goal conceptions, knowledge and experience, notion of the planning dilemma, and materials available which interacted to produce an initial problem conception worthy of further exploration. The second stage included problem formulation and solution with the mechanism for carrying out this process named the "design cycle". Problem solving as a design process involved elaboration, investigation, and adaptation for formulation. Stage three was comprised of implementation, evaluation, and eventual routinization of the plan. Evaluation and routinization contribute to the teacher's reportoire of knowledge and experience which in turn play a major role in future planning deliberations. It was theorized that schooling is composed of planning-teaching episodes, influenced by prior planning and potentially leads into future planning and teaching processes. The boundaries between planning, teaching, and reflection are not sharp and distinct (Clark & Peterson, 1990, p. 78-79).

Clark & Yinger (1979b) found that teachers engaged in as many as eight different types of planning, six had to do with time: weekly, daily, long range, short range, yearly, and term planning. The other two, unit and lesson planning, described a unit of content. Unit planning was cited by teachers as most important, followed by weekly and daily planning. Only 7% of the teachers in this study listed lesson planning among the three most important types of planning. Clark and Yinger (1979b) referred also to two approaches of planning, incremental and comprehensive planning. Incremental planning consisted of a short, problem finding stage, accompanied by brief unit planning and considerable reliance on trying out activities in the classroom. In contrast, comprehensive planning referred to situations where teachers developed thoroughly specified frameworks for future action and involved more attention to the unit as a whole than did the incremental planner.

Yearly planning was included in only two of the eight research studies reviewed. Clark and Elmore (1979b) interviewed and observed five elementary teachers during the first five weeks of the school year. They found that the teachers' planning revolved around setting up the classroom, assessing students' abilities and establishing the social features of the classroom. Clark and Elmore (1981)'s study of a second grade teacher dealt with summer planning. The teacher cited as her primary resources curriculum materials, memory of classroom interaction during the previous year, and the school calendar for the coming year. Her yearly planning, done

in the summer, included reviewing curriculum materials to be used, rearranging the sequence of topics to be covered, and adding or deleting content to be taught. For this teacher, yearly planning decreased the unpredictability and uncertainty that attend every teaching situation.

Lesson planning is the one type of planning addressed directly in all teacher preparation programs, yet is rarely cited by teachers as their primary focus. Haig (1981) studied the planning of 6 teachers, 3 experienced and 3 student teachers and found their plans (and planning) were necessary for their "security". However, the teachers did not show strong support that their plans were helpful with actual lessons. McCutcheon (1980) confirmed that some teachers plan merely to fulfill administrative and substitute teacher requirements.

Mental planning as opposed to written planning was studied by McCutcheon (1980) and Morine-Dershimer (1978-79) who found that the teachers used teacher planning that was never put on paper, but mental images called "lesson images". Clark & Peterson (1990, p. 79) stated that mental "visualization of the teaching activity being enacted in the specific context of their own classrooms seemed to be an essential feature of the planning process for experienced elementary school teachers".

Sardo found a relationship between individual planning styles and amount of teaching experience between four junior high school teachers (Clark & Peterson, 1990). Rather than asking if objectives were the starting points of lesson planning, McLeod (1981) asked 17 kindergarten teachers when they thought about objectives. Stimulated recall interviews were used to establish four stages of teaching (a) Preactive Stage 1 which occurred before planning activities or selecting materials, (b) Preactive Stage 2 after planning but before teaching, (c) Interactive Stage 3 during the act of teaching, and (d) Postactive Stage 4 during reflection following a teaching episode. Averaging across the 17 teachers, McLeod found that the largest percentage of intended learning outcomes was identified during Interactive Stage 3 of teaching (45.8%). This was followed by Preactive Stage 1 (26.5%) before planning activities or selecting materials, and Preactive Stage 2 (19.5%) after planning but before teaching. Objectives were included in their thinking and planning, but not at the onset.

More recently, Fischer (1992) and Doyle (1992) looked more closely at teachers' reflective thinking. Fischer, in a study of ten high school teachers, used individual and collective change portraits to focus on teachers' on-going change processes and reflections on their staff development and change process experiences. Fischer provided the view of teachers' change processes or processes of changing, rather than events of change, and concluded that teachers' thinking changes related to their reflections and were on-going. Doyle reviewed the nature of reflective thinking in relation to learning about teaching. Two elementary preservice teachers reflected through journals and interviews. Doyle concluded that: these two teachers used knowledge as the basis for solving classroom dilemmas, journal writing was effective in

stimulating and examining reflection, and these preservice teachers showed the abilities to practice reflection.

The findings from these two recent studies support Haig's (1981) belief that teaching represents a set of attributes of the phenomenon of thought as well as overt actions. An increasing number of researchers contend that the process of teaching is composed of thoughts as well as actions and that a complete understanding of teaching cannot be achieved if research is limited to observable teacher performance alone.

Theoretical Framework

This present study employs Shulman's (1990) classroom ecology framework as the basis for interpreting the content and processes of teachers' thinking and planning. This view holds the teacher as the center of classroom life and the source or starting point for teaching, while the purpose of investigations to be interpretive rather than experimental. Hamilton (1983) identified four criteria for ecological research (a) attention to the interaction between persons and their environments, especially in reciprocal terms rather than in terms of simple directional causality from teachers to students; (b) treating teaching and learning as continuously interactive processes rather than isolating a few factors in the system and labeling them as "cause" and "effect"; (c) seeing the classroom context as nested within other contexts--the school, the community, the family, the culture --all of which influence what can be observed in the classroom; and (d) treating unobservable processes, such as thoughts, feelings, attitudes, or perceptions of the participants as important sources of data.

The study of teacher thinking and planning is far from complete. Whereas substantial research has focused on teacher planning directly related to the interactive planning during the school year and specifically to the lesson planning aspect, little research has focused directly on the nature of teachers' thinking and planning prior to the school year, as well as on the specific activities of setting up physical aspects of learning centers. Knowing more about teachers' thinking process of planning and implementing plans prior to the school year may provide support to teachers faced with changing roles. Knowing more about the complex role of teachers in learning environments may also indirectly shed information on helping students as learners in the process of life long learning. The impact on teacher education is also a potential benefit of research on teacher thinking prior to a new school year.

With these needs in mind, a descriptive study was designed for the first time to explore one teacher's thinking as she integrated a block play center in her classroom. This paper focuses on the preactive planning during the summer months. The content of the teacher's thinking as well as the process of her thinking were the two areas of interest for this study, guided by two general questions (a) What is the content of one teacher's thinking when planning to integrate a block play center? (b) How does the teacher's thinking progress during planning?

Method

I selected a qualitative research approach because it permitted the best format for documenting and describing one teacher's thinking as she projected toward the future school year. The qualitative approach helps us to project ourselves in the life of another to "create images which are meaningful and from which our views of the world can be altered, rejected, or made more secure" (Eisner in Tesch, 1989, p. 6).

Participant and Setting

The subject of the study is the co-author of the Primary Block Study and presently teaches the second/ third grade combination class at a University laboratory school. To maintain her privacy, the teacher's name has been changed to Ann Marose. She was selected for the larger study because of her constructivist principles, her emphasis on integrated curriculum and her willingness to participate in the Primary Block Study. She volunteered to participate in the teacher thinking data collection and met regularly with me during the summer. Ann is an experienced teacher with B.S. and M.S. degrees in Early Childhood Education and has taught preschool 3 years and kindergarten 1 year prior to this teaching position.

University School is situated adjacent to the College of Education and provides easy access for the researcher's involvement in the classroom. The school philosophy, as written in the parents' handbooks, reflected the understanding that education is a continuous process. Programs are organized to meet individual needs, varying rates of development, and active participation requirements for learning. Students are provided opportunities to be curious and creative, to exercise initiative, to accept and fulfill responsibilities, to test ideas, to establish informed opinions about controversial matters, and to develop aesthetic values in developing their full potential.

Procedures

Data was collected from May 12 to August 30, 1993, and included multiple approaches as recommended by Haig (1981), Ben-Peretz, Bromme, & Halkes (1986), Elliott (1988), and Fullan (1991). Approaches used included interviews (Spradley, 1980; Clark & Peterson, 1986), stimulated recall (Yinger, 1977), drawings, pictures, and notes from planning sessions. The primary data source consisted of interviews scheduled with the purpose of engaging the teacher in a friendly, casual conversation. These meetings were structured as ethnographic interviews which Spradley (1980) described as "a particular kind of speech event that employs many of the features of a 'friendly conversation': greetings, turn taking, question asking, expressing interest, pausing, and leave-taking". Seven interviews were held, two in May, two in July and three in August. One research team planning session was held the last week in August with the teacher, co-author and three assistants present.

The preliminary interview schedule obtained a general description of the teacher's background, classroom and school setting and the teacher's general ways of thinking about issues

of planning. As suggested by Yinger & Clark (1985), the interview served as an occasion for us to get to know each other better and to become familiar with each other's working styles. Three general prompter questions were used to initiate conversations during each interview as recommended by Elliott (1988) and Spradley (1980). What are you thinking about the block study? How do you feel about the block study? When you think about the block study, what do you do? These questions generated lengthy responses from the teacher. Prior to interviews, I read Ann's new journal entries. During each interview I asked prompter questions to get discussions started, and used stimulated recall techniques to get the teacher to expand, review, or illustrate what she meant by entries or remarks.

As Yinger & Clark (1985) suggested, journal writing was especially suited for recording teacher thinking over time because entries were made soon after an idea or reflection. Written notes preserved the sequence and duration activities through recorded dates and times, and provided a written record of thoughts and deliberations. Both the teacher and I maintained personal journals which served as a means of immediate reflection and repetitive analysis.

Several means of collecting data were used to obtain as much descriptive information as possible. Audio recordings of interviews, informal meetings, and team planning sessions were transcribed and used in the data set. Stimulated recall (Yinger, 1977) was used to elaborate on journal entries and subsequent progress interviews (Haig, 1981). Photographic slides of centers and drawings of the floor plans were made in both May and September as documenation of physical changes.

Data Analysis

All notes and journal entries collected were organized into a data set for analytic purposes. Analytic induction (Geotz & LeCompte, 1984) was then used to synthesize and reduce the data set into codifiable categories indicative of content or thinking process through three stages of analysis. Categories were first identified in repeated readings. The second stage included a restructuring of citations in each of the categories, allowing for illumination of patterns and the proposed phases of the teacher's thinking. A clustered matrix was developed in the third stage, representing each of four phases. Further analysis was done to cite examples which illustrated the truest picture of phases. The matrix was then presented to the teacher for personal verification.

Mclean (1993, p. 257) noted that "we draw upon personal narratives to make sense of what we encounter in the world and we inhabit each other's stories in reflexive ways". Recent research on the nature of teachers' personal knowledge suggests that teachers' professional development is significantly influenced by reflections on their own work and the informal sharing of personal experiences through case studies, oral histories, and narratives of teachers' lives and careers. Staying as close as possible to the original source, these "stories of practice" provide rich detail and

offer a satisfying completeness. Through focusing on Ann's experiences and reflections, our knowledge of teacher's thinking might be enhanced.

Findings: Beliefs and Philosophy

As first stated by Tesch (1989, p. 70), "reflection is a process of 'wondering about' and searching, delving into a phenomenon, awakening to it, and letting one's self be inspired". Before we can look at the findings from Ann's story, we have to know more about her beliefs, philosophies, and methods of teaching. Bechler and Snowman (1991, p. 11) suggested that "teacher thinking is related directly or indirectly to all beliefs--especially about children's learning". Li (1992) found that teachers' beliefs were influenced by past personal experiences. Floden (Clark, 1986) suggested that we must come to understand teachers' ways of knowing and their beliefs about the nature of knowledge itself before we can begin to understand the role of knowledge and curriculum in teacher thinking and in education more generally.

Over the course of four months, Ann discussed with ease various issues or questions she was contemplating when asked the three questions. For the most part, all thinking and planning during the summer was mental. She wrote only a few journal entries and "worked a lot of things" in her head. Toward the end of August she began making written notations such as daily schedules and lists of thing to do. She mentioned that it was her goal to do more writing both at home and with the students, which is verified in her journal. Before studying Ann's content and process of thinking, it is necessary to understand her personal belief about how children learn and to picture what her classroom is like.

Ann believes that students learn through active manipulation and constructive activity in an environment conducive to social interactions. Her description of the science center illustrated her philosophy of how children learn and the atmosphere of sharing and learning within her classroom. She begins each school year displaying her standard science box with items that are "neat to look at", like "turtle shells and interesting rocks". The interaction between students and herself became apparent when she said she got ideas from her students. Once units are begun, her students bring items to the science center that she might not have thought of as noted when she said:

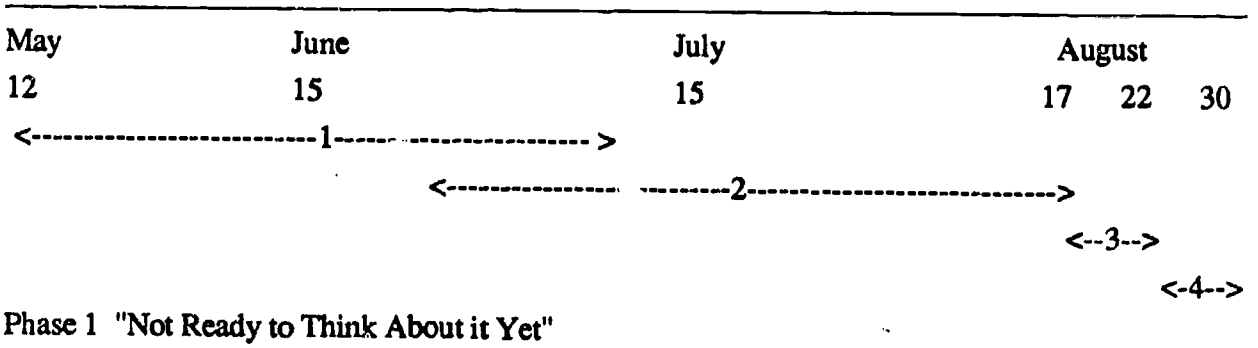
> Then I get ideas. Like right now, [we're] studying bugs; we've got tons of bugs in our science center...almost all of them came from [the students'] houses. A month ago we had plants that we had planted and were watching. [The unit] develops from what the kids bring or from what we might be studying. It's more of an approach to make it project and hands-on oriented. We want kids to learn by doing it.

Her view of teacher as facilitator of learning was expressed when she talked about the way she approached curriculum planning. She incorporated the Tennessee list of objectives, added and modified as necessary and stated her students achieve those goals, "plus a whole lot more".

> I try to plan things that will facilitate [the students] learning [their] skills. We have text books and standard materials, but we don't use them traditionally. If we're doing a unit, then I look to the text books to see, are there some things that we could use? We might use those materials for reading that morning, rather than the basal. If the basal has some good stories that go with the unit, then we include those. We are incorporating reading and English skills in process writing. The books we use are really more like references or resources that add to what we are doing. We don't go through science books from page one to three hundred.

Findings: Phases

Ann stated that most of her thinking reported was in her head, with "ideas floating in and out". She said she was starting to think about what kinds of things she wanted to do differently in her room next year and how that related to blocks. "I work on it and then I go do it. I've never really thought about it, but I can see how I work a lot of things out in my head". She expressed a variety of feelings as she listed questions she needed to think about. It is impossible to document all of her thoughts; however, it is possible to document and interpret changes as shown through a reconstruction of data categories. Figure 1 illustrates Ann's thinking over the summer.



Phase 1 "Not Ready to Think About it Yet"
Phase 2 "Where to Put the Blocks?"
Phase 3 "Can I Do It?"
Phase 4 "Putting It Into Perspective"

Figure 2. Time Line Depicting Phases of Ann's Thinking

While time periods are noted, dates for entering and exiting phases are not specific. The time line portrays various phases as extracted from data analysis.The first phase entitled "Not Ready to Think About It Yet" illustrated her frame of thinking during interviews in May and continued

through the month of June as she did not want to think about school. The second phase titled "Where to put the blocks?" began sometime during the end of June and continued until August 17 when her first major decision had been made. For about five days, Ann slipped into the third phase of "Can I do It?", involving a lack of confidence in her abilities. The fourth phase surfaced around August 26 and continued through the opening of school. Time overlap existed between the first and second phases, yet no overlap occurred between second and third phases or between the third and fourth phases.

"Not Ready To Think About It" Phase

During the preliminary interview Ann listed five questions she "would have to think about" and gave a plan for getting herself through the summer.

> Thinking about the block study is at the back of my mind. I'm not ready to deal with it yet. First, I have to get through school, then [I will be able to deal with it]. I catch myself about to think about little things, like where to put the blocks, then I tell myself not to. I can't get past what I'm doing now. I can't get [to] the blocks until I have tied up some loose ends, before I can even think about next year.
>
> I think of things at really weird times, at a stop light or when I am at dinner. [Ideas] sort of float in and out [of my head]. Or something else will come to me and I'll say, that's how I could do that. I feel more comfortable that way because [I am] trying to give [my]self a chance to [think about solutions], to let it come to [me] rather than trying really hard to get it done right now.

During this phase Ann expressed that she was tired, stressed out from the end of the year responsibilities, anxious, excited and apprehensive about the "uncharted territory" of adding the block center to her daily schedule. When she thought about what she had to do to get ready for next year, she said "not yet" or "I will push it to the back of my head". "These are the questions I will have to answer, but not yet". See Figure 2.

Block Project	-How to adapt the curriculum? -How to adapt time slots for block play? -How to justify block play to parents, children, myself? -How to schedule block play? -Where to put the block center?

Figure 2. Content of Ann's Thinking About the Block Project

Her five questions were listed with no apparent order or priority. When asked to explain "selling it to parents", she compared it to her weekly cooking experiences. "Like cooking every Friday. At the open house I told [the parents] we would cook every week, and it wasn't just for fun. It was an important part of the curriculum, and I told them why. As a result, they were supportive of it and helped whenever they could".

She had a plan as to how she would proceed over the summer. Her plan was drawn from her previous experiences with setting up classrooms and integrating units.

> This is how I operate. Now, I am just trying to make it through this year. When I get out [of school], I don't do much productive the rest of June. I read some books, sleep when I want, clean my house, and when I start to feel human again, somewhere around July 4, then I start wanting to read or think about [school]. By August, I am ready to really get going. I don't do this consciously, but generally this is how I operate.

"Where to Put the Blocks?" Phase

By July, Ann allowed herself to think about the block project once last year's stress and responsibilities were over. She mentioned that she was more rested, not as stressed, and "thinking about [the block project] some". One of the more noticeable patterns which surfaced at this time was her change of priority within her questions. Conflict over the decisions to be made, and insomnia became problems. She also extended her plan for decision making for the rest of the summer. Even though she mentioned the five questions again, she was more focused on the physical aspects of her planning. She addressed the physical as the number one question with all questions dependent upon the placement of the blocks.

> Right now I am more concerned with the physical part of it, where are we going to put [the block center] and how is it going to work? I haven't really thought as much about the philosophical side, the practical side, or definitely the educational side of it. I have not thought of all that, yet. I mean, of course, we have, but haven't really concentrated on it. Now it is like, get them in here, and make them accessible to the kids. I can't move to that extent until [I] know where we're going to put them and how it's going to work. I don't know where to put them!

Her priority within her list of questions changed now as she allowed herself to think about the various decisions she had to make. See Figure 3.

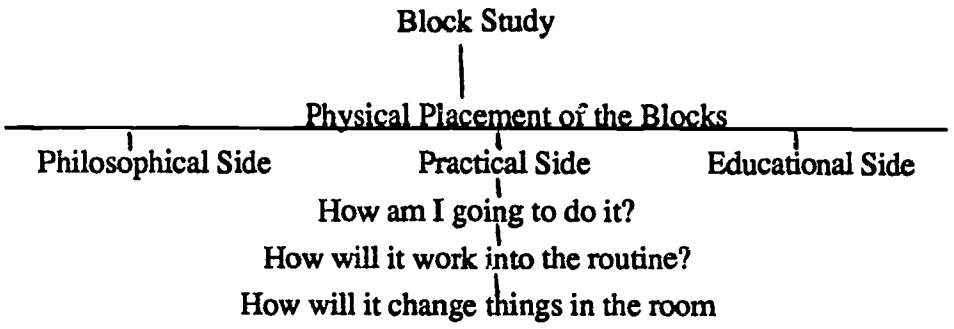


Figure 3. Content of "Where to Put the Blocks?" Phase

"Where to put the blocks?" became her major challenge--her dilemma until August 17. "Dilemmas may emerge in teaching situations when the teacher is confronted with alternatives perceived as both worthwhile or threatening, or with goals which are incompatible. Dilemmas could be interpreted as caused by conflicts in teachers' minds and/or contradictory aspects of the actual tasks" (Ben Peretz, Promme, & Halkes, 1986, p. 4). She could not decide where to put the block center; she could not go beyond because in her mind everything else rested on the placement of the block center. It is difficult to know why Ann's dilemma surfaced and caused a block in her progression of making further decisions.

Her feelings about the block study during this phase again included excitement mixed with nervousness. Further evidence of her conflict was expressed in the form of insomnia which became a problem during the latter weeks of June as she made preparations for her vacation. Her mentioning that she thought of blocks during her sleepness nights asserts that she indeed was thinking about the challenges of the school year--even into the night. She tried to justify the loss of sleep in that it might benefit her in some way.

> For...the last three weeks I go for three or four days where I don't sleep. It becomes a joke of the house that I have insomnia. Of course by the fourth or fifth night I sleep because I am so tired. I stay up and I think of all kinds of things as far as school and the blocks [go] and different things to get ready for vacation. The more you think about things, the more you can't sleep. I think of all these elaborate things when I'm lying there trying to sleep. I'm hoping that it's not all for nothing.

Her predominate question showed again as she extended her plan for addressing school related decisions when she added to her plans for the summer on July 12. She planned on taking school books along on her vacation to use traveling time for planning changes in music and revising units "so once she returned she could focus on the physical aspects". Upon her return

from her vacation, she admitted she was "still just thinking about the school year", and was "anxious to get the block center set up".

The blocks arrived in the classroom on August 16. She and the co-author opened the shipping boxes, measured space for the shelves and discussed possible sites for about forty-five minutes. Several sites were discussed, as advantages and disadvantages of each suggestion were explored. The yardstick she carried around with her for almost two hours symbolized her mental state; she needed a crutch, a means of solving her dilemma. She patted her hand with the yardstick, rolled it in her palm, and pointed the yardstick toward possible sites. Once they agreed on a possible site, she put the yardstick down and did not pick it up again. The final site was selected because of proximity to the active cooking center, distance from the quieter reading/ writing areas, reduced glare (for the cameras) and optimal space for block building.

During the interview immediately following this informal meeting, Ann exhibited a noticeable sense of relief, like the weight had been removed from her shoulders. Immediately she began listing new questions. The dilemma had been solved; she was able to think about further decisions. Ann said, "now, I am not worried about [the placement] anymore. Now I am thinking about the management, the units, and so on." The change in her thinking was also quite noticeable.

"Can I Do It?" Phase

Ann's excitement mounted on August 17 as she thought about possibilities for various units. She asked out loud what the children could do with interesting block shapes and expressed eagerness to get things rolling. However, also on this day, Ann started mentioning a new aspect to her thinking. She began to focus past the placement of the blocks on to other questions and topics she needed to think about. This new phase, which lasted about five days, included stress, pressure to get things done, and lack of confidence in her abilities. Comments such as "will the kids mind being filmed?", "I just got used to having that [observation] window there", and "I feel a lot of pressure and open to people to criticize my room" reflected the nature of her new dilemma. She mentioned her openness to intrusion several times during interviews as well as in her journal and related to team aspects of researchers, cameras and microphones. She slipped into a phase of low confidence called "Can I do it?"

Ann's feelings vacillated once again as she reflected on this new dilemma. She was aware that her concern for being watched recently emerged. She said:

> Maybe I'm more conscious about it now. I'm overwhelmed, coming back to school, with this and also having to do the regular stuff. I also feel, I don't want to say paranoid, but encumbered. I don't know how to even put it. Having people looking over my shoulder and asking what I'm doing. Most of us [teachers] like to

be alone in our rooms. With observers, you know when they are coming. I feel a lot more open for that now, and it makes me feel more uncomfortable.

Ann was concerned not only about being open to criticism, but also by being watched by people she respected and her desire "to do the right thing", even though logically she knew there was no "right way".

I'm going to be watched by people I respect. I feel a little bothered by that. That's all [that] I created, nobody has done that. I am definitely paranoid about that. I know you and Jane, but will they come one day when things are wild? Maybe when I'm not in a good mood?... What is going to be their impression of me and my room? That bothers me. That's not really something you can do [anything] about. I want to know if I'm doing it right [even though] I know there's no right.

Her comments suggested reasons why she was encumbered, and that she alone had created her discomfort. She knew her classroom environment changed from day to day; she was concerned about wrong impressions being made on more chaotic days. Her anxiety about not yet knowing her students and wondering how they will react to the new block center were also part of her lack of confidence. Resentment surfaced here when she stated that she could have "come back and repeated a,b,c, from last year" in setting up her room. Instead, she came back and changed everything, bulletin boards, room arrangement and centers.

When we later discussed her period of lack of confidence, Ann reported that she had created the problem, and she alone had to pull herself out of it. Her sense of unworthiness and self doubt showed when she said:

I think what helped pull me out of it, was that you picked up on it. It had some validation to it. [You] picked up that I'm feeling this way. What helped a lot, [was that] you intervened and said, 'Wait a minute, I can see that this is getting to her'. I was feeling validation that it was O.K. to feel this, in a sense. I think I did have to work through it myself. I had control of the situation [even though] at first, I didn't feel confident enough. I was worried that they'd see I wasn't a good teacher. Are they [going to] know I don't know that much? Even though you do [know that much], you have that moment of self doubt.

During these five days, Ann was preoccupied with the fact that researchers would be in her classroom, but more so with the thought that her abilities would not live up to their expectations. The interesting phenomena about this situation is her inability to get things done in her room. She had problems thinking about the decisions she had to make, and "couldn't face the room" even though she knew she had so much to do.

"Putting It Into Perspective" Phase

By Monday, August 22, Ann regained her confidence, and was able to focus on specific tasks which needed to be done. She was positive once more, regaining confidence in her abilities and ready to "get things done". Deliberately, she put aside thinking about the block center "to get the rest of the room ready". This fourth phase included busy preparation in her classroom, less anxiety, and contentment with the way her new room looked. The predominate statement which helped Ann was the realization that the block center was "just like any other center". Somehow this statement resolved several questions as to how to do things, and helped Ann put the block center into perspective within her classroom environment.

Instead of thinking about the block center as different and unique, she found it helpful to think about it as she would any other center in her classroom. When asked what changed her thinking, she answered "I have a lot to do, but I'm not worried about it anymore. I realized the first couple of weeks I want to let [students] explore, so I didn't have to work that out". Once she made this connection, she was able to proceed more quickly with less deliberation, and with fewer apprehensions. By August 26, Ann said, "I know there are a ton of little things that have to be done" and because she "could picture the [block] center", she was able to get things done. "I stayed here until 8 o'clock last night. I was on a roll so I didn't stop".

It was also at this point in analysis that I discovered the need to have Ann sketch her concept map to make sure my cognitive entities were not confused with Ann's as suggested by Ben-Peretz, Bromm and Halkes (1986) and to confirm the accuracy of my interpretations of teacher self-reports as recommended by Haig (1981). Bichler and Snowmen (1991, pxxiii) characterized a concept map as a "term for teacher thinking". See Figure 4.

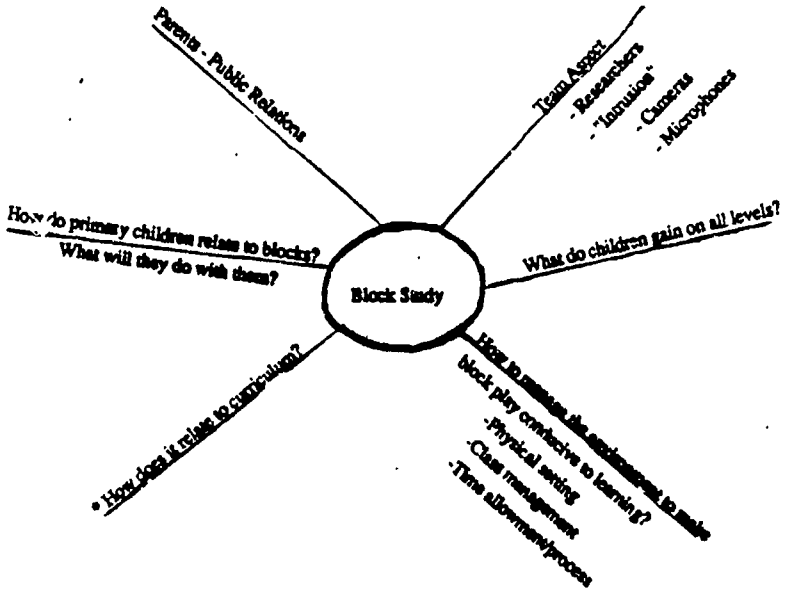


Figure 4. Ann's Concept Map of "Putting It Into Perspective" Phase

There were interesting changes from her first list of questions on May 12 and on August 17. No longer was the placement number one of her six questions. The second interesting change was that she noted priority of the question about curriculum. Third, she added subcategories such as physical setting, class management, and time allotment/ process under the question of "How to manage the environment to make block play conducive to learning?" She had not stated subcategories previously.

Having solved her previous dilemma, Ann addressed many more questions as she organized and set up her room. Seeing the blocks and having them placed on the shelves kindled questions. "Do we put them all out at once? Do we store the blocks in baskets or flat on the shelves? How do we label the shelves? How many students at a time? Do we assign times?". Over the course of the week, blocks were placed on the shelves, labels were made and laminated to assist students in clean up, bulletin boards were hung, signs with center names were placed in each center, and a multitude of little things were done in addition to her school meetings. By the end of the week, Ann had gotten her room ready to the point that she said, "I'm down to the 'nit' things, silly things. I'll be back Sunday, even if it's just to stand there and look at my classroom. I like the way [my room] is now, I like the changes I made".

Ann's needs for journal writing also changed this week. During earlier months, she was not ready to write plans because her thinking was still in her head. It was in this final week prior to school that she expressed the desire to use her journal more. She thought it was a good idea to use her personal journal as her guide in planning, to model writing to her students, and to record her ideas about various units. By August 30, she actually missed the journal when taken to be copied.

One of the personal conflicts Ann expressed was seen in her desire for security of experience. She wanted the security of knowing the best way, or at least what worked for her. On one hand, Ann wanted to have the answers of handling the block center. On the other hand, she wanted her students to make decisions and solve some of the problems. In this preactive stage of thinking she could not do both. Will she later? Her conflict between wanting to know what will happen and wanting her students to make decisions may have added to her apprehensions about her abilities.

Ann found it helpful to think of this new center "just like any other center". Something happened in her thinking process which allowed this notion to be comforting and to set the scenario for continued decision making. What happened is difficult to ascertain. We can be certain that it did occur. Once her connection was made she was able to proceed with other decisions. "Competence embraces the structure of knowledge and abilities, whereas performance subsumes as well the processes of accessing and utilizing those structures and a host of affective, motivational, attentional, and stylistic factors that influences the ultimate responses (Messick,

1983, 484). Ann accessed her prior knowledge and reshaped it to meet the demands of this new situation, an example of how one constructs knowledge through interactive decision making.

Discussion

This study described one teacher's thinking as she listed questions to think about, explored her dilemma of where to put the blocks, and solved various problems she encountered along the way. Consistent with findings by Clark and Elmore (1981) and Clark and Peterson (1990) this teacher used this period of yearly planning and mental activity in planning for her upcoming school year. Using McLeod's (1980) four stages of planning, Ann's summer planning would definitely be Preactive Stage One where she thought about the plans prior to teaching.

The first question asked was, What is the content of one teacher's thinking when planning to integrate a new block center? Beginning with the first interview and continuing through the summer, Ann identified a list of five questions she wanted to address. She wanted to think more about: how to adapt the curriculum; how to adapt time slots for block play; how to justify block play to parents, children, herself; how to schedule block play; and where to put the block center? The content of Ann's thinking, her five questions, stayed basically the same over the four months. In the second phase, she reassigned the physical placement of the block center as the uppermost decision with all other aspects dependent on the physical placement. During the third phase, the content of her thinking was how she felt encumbered with people watching her and her classroom. During the last phase, Ann added the 6th question of how to handle the team aspects. She also added subcategories to three questions and reassigned priorities. It was not until she was comfortable with her room arrangement and had settled some of the questions about management did she begin to think seriously about units and objectives.

The progress of Ann's thinking, the focus of the second research question, may well be answered by looking at the changes of the priority of the five questions and the addition of the sixth question. Her process resembles Yinger's (1977) cyclical model of thinking rather than Tyler's (1950) linear model. Ann's thinking strongly resembled Yinger's first and second phases, discovery and problem formulation and solution. In the discovery phase, Ann considered established direction and delineated conflicts or blocks which impaired her thinking. As part of the problem formulation and solution stage, she identified the physical placement as her predominate focus and addressed new questions once the first dillemma was solved. Due to the time limitations of this study, Ann did not get to the implementation stage of planning.

Within the context of information processing approaches, Klahr (1992) suggested that the individual must ultimately encode, store, index, and process the content before self-modification (or change) from within the individual is achieved. As Clark and Peterson (1990) suggested, Ann's thinking seemed to visualize the future classroom and changes needed, inventoried what she needed to address, and constructed a plan, a framework to guide her future actions.

One pattern which surfaced and is not explained by previous research studies is her predominance of thought and priority of the physical placement of the blocks. Earlier studies of teacher thinking and planning barely mentioned the physical aspects of the room, let alone preactive stages of planning. This teacher formulated a question/conflict and let it dominate for two months of her thinking. Perhaps the answer lies more with the style of teaching than with the aspects of types of planning. To a teacher with a center-based classroom, the placement of the centers may be strategic! The traffic flow, aesthetics, and interweaving of individual and group activities are completely dependent on the physical placement of centers. In reality, all else may have been dependent on the placement. She could not proceed until she had a visual picture of the blocks themselves and the numbers, the space they took, the shelves, etc. It would have been inefficient for her to have done otherwise, such as planning the rest of the room prior to getting the blocks. The significance of this notion is the visual picture Ann needed.

The solving of the physical dilemma certainly put Ann at ease as she put things into perspective and allowed her to face other questions. One explanation for her abrupt change in thinking was the solving or finding the best area for the block center. Another possible explanation for the change of thinking was that her colleague helped her with the decision. Through working together, each adding ideas and responses, the two identified the "best area" and helped solve Ann's major dilemma of the summer. This support may have added the dimension she was looking for, a helping hand.

Each new teaching position, or addition to the classroom presents new decisions and dilemmas to the teacher that must be studied, reflected and refined. Fullan (1991, p. 142) stated "as with any complex profession, science and technology are continually developing, and the job of teaching is an art and science that teachers study, reflect on, and refine throughout their careers". Ann, an experienced teacher interested in improving her classroom, faced moments of doubt, resentment, and lack of confidence. The notion of polish and refinement was seen when Ann said she could have come in and repeated what she had done last year. Another example of refinement was the way she thought ahead to next year. She said she wanted to do even fewer teacher made bulletin boards at the beginning of the year allowing students more opportunities for participation in board development. "I'd [even] like to try having them plan and decide where to put the centers". Ann's self-report supports the fact that she reflected on procedures used last year and integrated what the children were capable of doing to expand plans for next year.

Conclusions

Clark and Lampert (1985) stated that documentation of teacher thinking provides a full and appropriately complex portrait of teachers, calls attention to once formerly invisible facets of teaching, and casts teachers as reflective professionals. This study describes Ann as a reflective teacher who proceeded through the preactive stage of the Primary Block Study with a deliberate

plan for decision making, with mental images of what she had to think about, and with varying levels of confidence. Her thinking process did not begin with student objectives, but instead with general questions Ann wanted to answer. Dilemmas occurred when whe faced decisions embedded in some type of conflict.

One of the admitted limitations of this study is that it will not lead to any generalizable conclusions. All interpretations must take into consideration that this one teacher was selected to participate in the Primary Block Study, that she was selected for her particular views of how children learn, and that she volunteered to participate in the teacher thinking study. With these biases in mind, it is possible to make several conclusions regarding teacher thinking and planning in this particular situation.

Several conclusions may be made from studying Ann's personal experiences. For this teacher,

1. Journals and interviews are appropriate means for studying thinking and planning.
2. Thinking and planning during this preactive period was more mental than written.
3. Dilemmas surfaced and blocked other decision making.
4. Thinking and planning during this preactive period was more cyclical than linear.
5. A period of low self-confidence interfered with her progression of decision making.
6. The content of her thinking was directed to physical placement of the block play center prior to designation of units or objectives.

The notion that Ann needed the mental image of the blocks and the block area before she could direct her focus onto other parts of the school year suggested the need for further study. Teachers who are faced with room changes or last minute assignments are limited in their visual images prior to the school year. What effect does this have on their abilities to proceed?

Further investigation into Ann's thinking would provide longitudinal insights and might answer additional questions about the implementation and evaluation phases of the Primary Block Project. How does her thinking progress once school starts? Are Ann's plans still in her head, or does she switch to written plans? How does she adapt her previous thinking about her six questions to specifics on units and lessons? Does she change her focus of thinking about what she needed to do personally to aspects of what the students will do or learn? Further investigation of teachers in other grade levels and of teachers randomly selected would produce additonal insight into the yearly planning of upper primary teachers.

References

Banta, M. A. (1980). Unit blocks: A curiculum for early learning. (ERIC Document Reproduction Service No. 206 401.)

Ben-Peretz, M., Bromme, R., & Halkes, R. (1986). (Eds.). Advances of research on teacher thinking. Swets North America Inc.: Berwyn, 1-6.

Bechler & Snowman (1991). Child Psychology. New York: Macmillan.

Bender, J. (1978). Large hollow blocks: Relationship of quantity to block building behaviors. Young Children, 33(6), 17-23.

Benish, J. (1978). Blocks: Essential equipment for young children. Charleston, WV: West Virginia State Department of Education. (ERIC Document Reproduction Service No. 165 901)

Bredekamp, S. (Ed.). (1987). Developmentally appropriate practice in early childhood programs serving children from birth through age 8. Washington, D.C.: National Association for the Association of Young Children.

Brody, C. & Brody, M. (1974). Potential contributions of blocks for early childhood curriculum. In E. Hirsch (Ed.), The block book, rev. ed. Washington, D.C.: National Association for the Education of Young Children.

Bruner, J. (1983). Play, thought and language. Peabody Journal of Education, 60(3), 60-69.

Cassidy, D.J. & Lancaster, C. (1993). The grassroots curriculum: A dialogue between children and teachers. Young Children, 48, (6), 47-51.

Clark, C. M. (1986). Ten years of conceptual development in research on teacher thinking. In M. Ben-Peretz, R. Bromme, & R. Halkes, (Eds.), Advances of research on teacher thinking. Swets North America Inc., Berwyn, 7-20.

Clark, C. M. & Elmore, J. L. (1981). Transforming curriculum inmathematics, science, and writing: A case study of teacher yearly planning (Research Series No. 99). East Lansing: Michigan State University, Institute for Research on Teaching.

Clark, C. & Lampert, M. (1985). What knowledge is of most worth to teachers? Insights from studies of teacher thinking. Occasional Paper No. 86. Michigan State University, East Lansing, Michigan. (ERIC Document Reproductions Service No. ED 266 109).

Clark, C., & Peterson, P. (1986). Teachers' thought processes. In M. Wittrock (Ed.), Handbook of Research on Teaching, Third edition. New York: Macmillan.

Clark, C. & Peterson, P. (1990). Teachers' thought processes. In Research in teaching and learning, Vol 3. Project by American Educational Research Association. New York: Macmillan, 51-87.

Clark, C.M.,& Yinger, R.J. (1979b). Three studies of teacher planning. (Research Series No.55). EastLansing: Michigan State University.

Dimidjian, V.J. (Ed.) (1992). Play's place in public education for young children. NEA Early Childhood Education Series. Washington, D.C.: National Education for the Education of Young Children.

Donovan, M.P. (1986). A study: Eight young children's uses of language during child initiated block play and teacher directed work activities with a partner. (Dissertation Abstracts International, 1986, 47/11, No. 3970A).

Doyle, M. (1992). Learning to teach: Case studies of elementary preservice teachers' reflective thinking about early field experiences. (Doctoral dissertation, University of Southern Colorado, 1992). Dissertation Abstracts International, 53, 2333A.

Elliott, John D. (1988). Teacher thinking and instructional materials: some relationships between a case study and a literature review. (ERIC Document Reproduction Service No. ED 292 782.)

Fischer, S. J. (1992). Staff development for teachers' thinking promotes change in students' thinking. (Doctoral Dissertation). National Louis University. Dissertation Abstract Index, 53, 2222A.

Fullan, M. G. & Stiegelbauer, S. (1991). The teacher. The new meaning of educational change, 2nd Ed. New York: Teachers College.

Garlikov, P.M. (1990). Block play in kindergarten: A naturalistic study. Dissertation Abstracts Index 51/10A, p. 3325.

Goetz, J., & LeCompte, M. (1984). Ethnography and qualitative design in educational research. New York: Academic.

Haig, N. (1981) Research on teacher thinking. (ERIC Document Reproduction Service No ED 213 657).

Hamilton, S.F. (1983). The social side of schooling: Ecological studies of classrooms and schools. Elementary School Journal, 83(4), 313-334.

Hirsch, E. (Ed.) (1984). The block book, rev. ed. Washington, D.C.: National Association for the Education of Young Children.

Johnson, H. (1933/1984). The art of block building. In E. S. Hirsch (Ed.). The block book: rev. ed. Washington DC: NAEYC.

Johnson, H. (1972). Children in the nursery school. New York: Agathon Press. Reissued with an introductory essay by Barbara Biber.

Johnston, J. & Kerr, E. (1992). [An interpretive study of block play in the upper primary grades.] Study in Progress. Memphis State University, College of Education.

Katz, S.G. (1984). The professional early childhood teacher. Young Children, 39, 3-10.

Katz, L., & Chard, S. (1989). Engaging children's minds: The project approach. Norwood, NJ: Ablex.

Kinsman, C. A., & Berk, L. E. (1979). Joining the block and housekeeeping areas: Changes in play and social behavior. Young Children, 35(1), 66-75.

Klahr, D. (1992). Information-processing approaches to cognitive development. In M. H. Bornstein & M. E. Lamb, (Eds.).Developmental psychology: An advanced textbook. 3rd Ed. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers, 273-336.

Li, W. (1992). Beginning preschool teachers' implicit theories: What they think behind their action. (Doctoral Dissertation, University of Illinois at Urbana- Champaign, 1992). Dissertation Abstract International, 53, 2237A.

McCutcheon, G. (1980). How do elementary school teachers plan? The nature of planning and influences on it. Elementary School Journal, 81, 4-23.

Mclean, S.V. (1993). Learning from teachers' stories. Childhood Education, 69(5), 265-268.

McLeod, M.A. (1981). The identification of intended learning outcomes by early childhood teachers. An exploratory study. (Unpublished doctoral dissertation, University of Alberta, Edmonton, Canada.)

Messick, S. (1983). Assessment of children. In P. Mussen (Ed.), Handbook of child psychology: Vol. 1. History, theory, and methods. 4th ed. New York: Wiley, 477-526.

Moore, M.L. (1991). Spatial and fantasy block play: Characterizing and modifying preschoolers' free play. (Dissertation Abstracts International, 52/12, No.6680B.)

Morine-Dershimer, G. (1978-79). Planning and classroom reality: An in-depth look. Educational Research Quarterly, 3(4),83-99.

Piaget, J. (1962). Play, dreams and imitation. New York: Norton.

Pratt, C. (Ed.). (1924). Experimental practice in the city and country school. New York: E.P. Dutton.

Pratt, C. (1948). I learn from children. New York: Simon & Schuster.

Peterson, P. L., Marx, R. W., & Clark, C. M. (1978). Teacher planning, teacher behavior, and student achievement. American Educational Research Journal, 15, 417-432.

Reifel, R. S. (1981). An exploration of block play as symbolic representation. (Dissertation Abstracts International, 42/04, No. 1473A).

Rogers, D.L. (1985). Relationships between block play and the social development of young children. Early Child Development and Care, 20, 245-261.

Shulman, L.S. (1990). Paradigms and programs. Research in teaching and learning, Vol. 1. A Project of the American Educational Research Association. New York: Macmillan.

Smilansky, S. & Leah, S.(1990). Facilitating play: A medium for promoting cognitive, socio-emotional and academic development in young children. Gaithersburg: Psychosocial and Educational Publishing.

Spradley, J. (1980). Participant observation. New York: Holt, Rinehart, &Winston, 52-91.

Starks, E.B. (1960). Block-building. Washington, D.C.: National Education Association. (ERIC Document Reproduction Service No. 020-011.

Tesch, K. (1989). Qualitative research analysis types and software tools. Philadelphia: Taylor & Francisco.

Tyler, R. W. (1950). Basic principles of curriculum and instruction. Chicago: University of Chicago Press.

Vygotsky, L.S. (1967). Play and its role in the mental development of the child. In J.S. Bruner, A. Jolly and K. Sylva, (Eds.) Play: Its role in devleopment and evolution. New York: Basic Books, 537-554.

West, K. (1992). Play-filled learning in one second grade. In V.J. Dimidjian (Ed.). Play's place in public education for young children. Washington, D.C.: National Association for the Education of Young Children, 69-73.

Winsor, C.B. (1984). Blocks as a material for learning through play: The contribution of Caroline Pratt. In E. Hirsch, (Ed.). The block book, rev. ed. Washington, D.C.: National Association for the Education of Young Children, 2-7.

Wittrock, M. C. (1990). Students' thought processes: Research in teaching and learning, Vol. 3. Project of the American Educational Research Association. New York: Macmillan. 1-53.

Yinger, R. J. (1977). A study of teacher planning: Description and theory development using ethnographic and information processing methods. (Unpublished doctoral dissertation, Michigan State University, East Lansing, MI.)

Yinger, R. J., & Clark, C. M. (1985). Using personal documents to study teacher thinking. Occasional paper No. 84. East Lansing: Michigan State University, Institute for Research on Teaching.

Zahorik, J. A. (1975). Teachers' planning models. Educational Leadership, 33, 134-139.

Appendix: Matrix of Phases of Ann's Thinking

	DATE	CONCERNS	DILEMMA	FEELINGS AND SIGNALS
PHASES				
"Not Ready to Think About it Yet"	May, June	Five questions		Stress, tired, excited Put it out of my head
"Where to Put the Blocks?"	July - August 17	Placement	Where to Put?	Nervousness, insomnia Can't get past placement
"Can I Do It?"	Aug. 17-22	6th question added	How to handle intrusions?	Overwhelmed, Sick to stomach Loss of confidence
"Put It Into Perspective?"	Aug. 22-30	Sub-categories	How to manage?	Not worried Just another center Some things can't be controlled