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CHILDREN AS RESEARCHERS: A DESCRIPTIVE STUDY OF INTENTIONS, INTERPRETATIONS, AND SOCIAL INTERACTION IN AN ELEMENTARY CLASSROOM

By

Cheryl Lawrence Rosaen

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Teacher Education

1987

ABSTRACT

CHILDREN AS RESEARCHERS: A DESCRIPTIVE STUDY OF INTENTIONS, INTERPRETATIONS, AND SOCIAL INTERACTION IN AN EARLY ELEMENTARY CLASSROOM

By

Cheryl Lawrence Rosaen

The purpose of this study was to describe how students and teachers interpret learning activities in an early elementary classroom, and how the meaning students assign to learning activities shapes opportunities for knowledge development. An additional purpose was to develop and illustrate a methodological approach adequate to the challenge of describing and accounting for changes in social context, activity structures, and constructed meanings in a complex field setting.

The study took place during the last seven weeks of a twelve-week unit on American history. Data collected included: field notes and videotapes of classroom interaction, interviews with students and teachers; and collection of samples of student writing, and materials used by students.

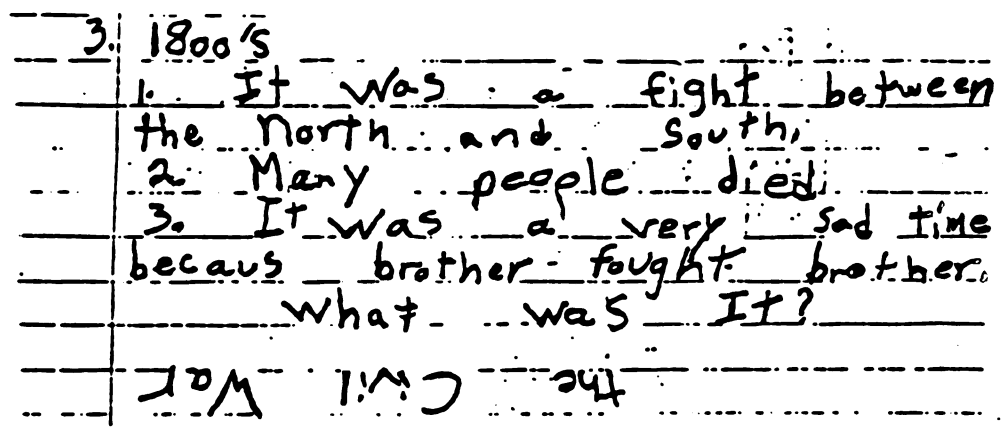
These data were collected and analyzed using Erickson's (1982b) model of the immediate learning environment as a framework, where the pedagogical encounter is the unit of analysis. Following conventions of ethnographic fieldwork in schools, analysis of data was an inductive, iterative process where key linkages among various items of data across Erickson's three levels of organization of the learning environment were tested, documented and described.

Findings include a detailed account of how students went from opportunities to learn basic historical facts which they placed in a chronological

framework to opportunities to deepen their understanding of history by seeking new relationships among facts and concepts. These changes in knowledge development opportunities arose out of the changes in the underlying learning activity structure which "opened up" and became more variable and flexible in its constraints as the unit progressed.

This grounded view of the learning process brings together sociolinguistic approaches to studying classroom interaction and cognitive approaches to studying how learners understand subject matter knowledge. Experienced teachers can examine their underlying assumptions about the learners' and teachers' roles and subject matter knowledge, and their interpretation of experience in the classroom. This portrait of interaction and change during a substantial unit of curriculum and instruction can provide for novice teachers a concrete and visualizable framework for organizing the discrete and abstract concepts and principles of learning, instruction, curriculum, and classroom management that are standard fare of teacher education.

Dedicated to the children and teachers at
Lancaster School



by Ann

ACKNOWLEDGMENTS

This study bears my name as author, but there were many who contributed significantly to the series of experiences that lead to my dissertation research and writing. Without many people's help, support, and vision, this work would not have been possible.

Family and friends were the starting point for helping me find the time, the energy, and the encouragement to undertake and follow through on this endeavor. Their continued support and recognition throughout the process have been terrific, and greatly valued. I especially thank my husband Erik, and my children, Alex, Karl, and Sarah for their warm support and steady confidence during this process.

Learning to conduct research and write about it began with learning experiences in my graduate program, and all members of my committee were influential in my learning. I chose to work with these people because of their outstanding teaching and mentoring throughout my coursework, research, and writing. Sharon Feiman-Nemser, Christopher Clark, Perry Lanier, and Susan Florio-Ruane make up this group of people who have provided assistance and guidance throughout the learning, research and writing process. I offer special thanks to Perry Lanier for continued support whenever I need it, and to Susan Florio-Ruane for her careful guidance during the research process, and her close readings of my drafts that always helped me strive for sound thinking and high quality writing. In addition, I want to acknowledge the centrality of Frederick Erickson's research work to mine. I also learned field research theory

and methodology from Fred Erickson when I completed a pilot project for the field research sequence, and often found myself recalling his teaching and advice during this research process.

Finally, I offer words of appreciation to the children and teachers at the research site. I need to maintain their anonymity, so I cannot specifically name them, but their cooperation and willingness to share a slice of their lives with me certainly made this study possible.

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INTRODUCTION

If one views the learner from a constructivist viewpoint, where the learner actively constructs meaning of learning experiences, and draws on prior knowledge to construct meaning, understanding the learning process is an extremely complex and elusive undertaking. As I began to try to develop my own understanding of what the constructivist theory of the learner really means as it occurs in the classroom setting, I discovered just how complex this issue is. For example, I had to decide what to pay attention to in the classroom if I was to learn more about the meaning students construct in the classroom. In considering this issue, several questions arose for me: What kind of meaning was I looking for? Interpretation of what the teacher intends for students to learn? Interpretation of activities? The way students structure their subject matter knowledge? Interpretation of the learning situation in which they find themselves? I turned to the literature to try to find answers to these questions.

As I read more about current theories of the learner and explored recent research on the learning process, I became convinced that "meaning" has two sides to it: the meaning of an event as one experiences it in a social context, and the way one structures subject matter knowledge. To add to the complexity of all the parts of the classroom context that I might pay attention to, I now had the problem of deciding how to account for two kinds of meaning, not just one. Moreover, the more I read about these two kinds of meaning, the more I

suspected that they must be connected in some way; after all, they occur in the mind of the same individual, so how can they be separate? And if they are not separate, why do some researchers focus on the social aspects of learning while others focus on the cognitive aspects of learning? Won't something be missing if one focuses on one or the other? I was looking for a more comprehensive view of the learning process than these recent studies seemed to provide. I needed to come to terms with these issues if I was to frame appropriate questions for a research study that would help me uncover these growing mysteries surrounding the learning process.

My questions about the constructivist view of the learner originated in questions I had, as principal in an elementary school, about the learning process in an early elementary classroom. I was an educator, with some questions about practice, in search of methods that would help me answer those questions. Returning to the classroom from which my questions arose helped bring me out of my confusion over all the possibilities of what I could study, and focus more closely on what I really wanted to find out about. What I really wanted to learn more about in this classroom centered around two questions:

a) How do learners assign meaning to the classroom tasks they encounter and experience?
b) How does the meaning they assign come about?

In addition, I wanted to focus on meaning from two viewpoints, the cognitive and the social viewpoint, and understand more about how the two viewpoints interconnect. My overall research question became:

> How do the academic and social worlds of the students in this classroom interconnect and shape one another as students interpret activities to learn subject matter knowledge?

This overarching question brought together the complexities about the learning process I wanted to learn more about, and is also one that other researchers had not asked in quite the same way.

This study is an example of a new approach to understanding the learning process in the classroom that builds on recent sociolinguistic and cognitive science methods. It describes how and why the methodology was developed, and how the study was implemented in an early elementary classroom. In addition, it provides a narrative account of learning in this classroom, describes the meaning students in this classroom construct from social and cognitive viewpoints, and accounts for how the meaning comes about. Finally, it explores implications of this approach to studying classroom learning for research and pedagogy.

CHAPTER ONE

APPROACHES TO STUDYING LEARNERS' EVOLVING CONCEPTIONS OF SUBJECT MATTER IN THE CLASSROOM

Overview

This study arose out of questions I had about how students assign meaning to classroom activities during the learning process, and how one might go about describing the learning process in the classroom in enough detail so as to capture both the social and academic nature of the learning experience from the student's point of view. In this chapter, I provide background information about the sources of my questions about the learning process, and the research questions I developed. This discussion is followed by an examination of underlying theories and assumptions about the learning process that guide this inquiry (e.g., theories about the learner, how curriculum is viewed, theories about the interaction between learning and subject matter, and what studying "taught cognitive learning" means). Then I provide a review of research literature in which I examine two approaches to studying classroom learning and the units of analysis researchers use: (a) studying the classroom as a speech community, and (b) studying aspects of the pedagogical relationship (student, teacher, subject matter). In the review, I explore the kind of information and understanding one can gain from each type of unit of analysis about the social and academic aspects of the learning process . I conclude the chapter with a call for a new unit of analysis that provides a more comprehensive view of how the learner comes to understand subject matter in the classroom.

How Does Classroom Reality Mediate Learning?

I begin this section with a story that illustrates the kinds of questions about the learning process that initiated this study. I site research that suggests there is a connection between the academic and social learning environments in classrooms, and describe the kind of interconnections among aspects of the learning process I want to find methodology to document, and I want to learn more about. Finally, I describe four aspects of the learning process I will seek information about in a specific classroom context.

A Student's Interpretation of a Learning Activity

I had volunteered to work one morning a week in an early elementary classroom in the school where I am principal. This classroom contains children ranging in ages from 6 through 9 years old. I had several reasons for wanting to participate in learning activities this classroom. One was to have an opportunity to work with children, another was to contribute to the learning that goes on in the classroom, and a third was to get an idea of how children interpret their learning environment. Also, later in the year I looked forward to conducting my research in this classroom, so this was a good way to start becoming more directly involved in the classroom. An incident that took place early that fall is a good illustration of how I began to develop a focus for my research:

> Around the beginning of October, I was continuing my weekly work with the children, which consisted of calling students individually to have them read words on cards to me, and having them read aloud out of their current reading book. Abe, a first-year student, was the next student on my list. I interrupted the work he was doing at his table and asked him to come over to work with me. He's a very outgoing, cheerful child, but seemed to look a little nervous as he came over. At first I attributed it to this

being the first time I had worked with him, but as he approached me he said, "How long is this going to take?" I replied that it wouldn't take very long, and invited him to be seated so we could get started. As he read the first three or four cards to me, he persisted, "Are we going to be done soon?" I explained encouragingly that we would be finished with the stack soon, and that after that we would read from his reading book. His response to me was, "I don't have time for this! I have to get my work done."

At this point I began to realize that he did not understand the purpose of our work together, nor how this activity fit into the other requirements that were set up in the classroom. This was understandable, since he had never worked with me before, but also because he was still very new at learning the "system" in this classroom in terms of how to fit into the work structure, what "counts" as a legitimate way to spend time, and what working in this classroom was all about. He apparently had already developed his own ideas about what "work" is in this classroom. So I explained to Abe in a reassuring manner that his teachers knew he would be spending time with me, that they had asked me to work with him, and that it would be all right if reading with me kept him from completing some of his other work that morning. With this logical explanation, I thought we could then return to the reading activities with the idea of completion in mind, but Abe was not appeased. He dutifully complied with my request, finished reading the cards, and went on to begin the story. But half way through, he asked again, "How much longer is this gonna take?" as he looked anxiously over at the other side of the classroom where he had been working before I interrupted him. I decided that I would no longer contribute to his anxiety, and said he could return to his work, and that we could continue his reading some other time.

As far as Abe was concerned, I was wasting his time. And while he did comply with my wishes, his concern was great enough to question the relevance of the activity. Regardless of what I or his teachers intended for him to gain from this one-to-one contact, he wanted no part of it. Given his level of absorption in the tasks at hand, I decided I probably was wasting his time, and abandoned the activities for that day.

This incident contributed to my growing curiosity about a larger issue surrounding activities in the classroom, which was, How do students assign meaning to school work, and what kind of meaning do they construct? I had been in this classroom enough to know that students generally complete their

work in a cooperative and timely manner. The questions in my mind were: What meaning does this work have for children, how does that meaning develop, and in what ways do the interpretations they construct contribute to their learning of subject matter?

What Do We Know About How Students Come to Understand Subject Matter?

The research literature about learning environments in classrooms has documented that the nature of learning tasks influences the amount and type of learning that occurs in classrooms. Students' interpretations of learning tasks will vary in relation to the nature of the academic task environment (Doyle, 1977, 1979, 1983, 1985; Bossert, 1979; Erickson, 1982a, 1982b, Nespor, in press), the social interaction (Mehan, 1979a; Erickson, 1982a, 1982b; McDermott, 1977), and the interaction regarding subject matter that occurs between the teacher and the student as they engage in learning activities across real time (Erickson, 1982b and 1986b). Since all three areas may influence or shape the way a student interprets learning activities, they are all important sources of information about how students come to understand subject matter. Yet, just how these three broad areas interact or shape one another as students participate in learning activities, or the extent to which one or more of these areas influences student understanding of subject matter, are questions to which we have partial answers.

For example, research that has looked at how students interpret classroom activities reveals that while a "working consensus" may have been achieved among the teacher and students so that academic work gets completed (McDermott, 1977), the meaning the participants construct of the

learning activities may be quite different from what was intended by either the teacher or the student. The research literature includes studies of student understanding in several subject areas such as studies done on seatwork (Anderson, 1981; Anderson, Brubaker, Alleman-Brooks, Duffy, 1984), on literacy (Dyson, 1984a, 1984b, 1984c), on learning scientific concepts (Slinger, Anderson, Smith, 1982; Eaton, Anderson, & Smith,1984; Anderson & Smith, in press; Roth, 1985) and on mathematics learning (Peterson & Swing, 1982; Erlwanger, 1973; Madsen-Nason & Lanier, 1986). By focusing on how students interpret different aspects (and combinations of aspects) of the learning environment, these researchers have shown that students, all too frequently, merely complete tasks in school without assigning the meaning to the activity (understanding of subject matter content) that was intended.

These studies suggest that there is a connection between the academic and social learning environments in classrooms. That is, an individual's understanding of subject matter emerges out of a social context that apparently plays an important part in the meaning students construct (Erickson, 1982b, 1986a). Just how that understanding comes about is yet unclear. I am interested in finding a way to frame research questions and implement methodology to provide a comprehensive explanation of the *interconnection* between the various aspects of the social interaction learning environment from which the "working consensus" develops (e.g., system of social relations, status sets and roles, sequencing and timing of events) and the various aspects of the academic learning environment from which understanding develops (e.g., subject matter content, materials). That is, I am interested in exploring ways to study classroom life to learn more about how the two worlds, the academic and the social, interconnect to shape students' interpretations of classroom activities and their understanding of subject matter content. How is it, for example, that

Abe interpreted his independent work to be more important than his work with me? How did the academic and social worlds interact to shape his construction of that interpretation? Further, how does his current interpretation of the significance of various activities shape his opportunities to understand subject matter? Without a clearer view of what is happening in the interconnected social and academic realms as students assign meaning to classroom activities, and without more detailed information about how to account for the meaning students assign, it is difficult to know what to keep, change, alter, improve or question about classroom practices to improve student understanding of subject matter.

An Approach to Studying the Learning Process

To learn not only what meaning students assign to tasks in a classroom, but *how that meaning comes about*, appropriate methodology that will capture the nature of both the social aspects and academic aspects of the learning process is needed. In addition, the kind of research questions that require looking at both the social and academic sides of learning are also necessary. That is, the reflexive influence of both the social and academic aspects of learning need to be included in a comprehensive description of the learning process.

This study seeks to penetrate the understanding of interactional competence we now have by bringing curriculum (the content of instruction) and learning (the meaning students make of content) into focus as well. Therefore, my goal is to develop an approach to understanding students' learning in the classroom as a social context that will provide descriptive

information about the interrelationship among the following four areas, and to try to account for how the relationship comes about:

--teachers' and learners' goals for learning;

--the actual learning activities designed for subject matter acquisition;

--the social interaction in the classroom surrounding those activities;

--the learners' interpretations of the learning activities and how interpretations shape opportunities for knowledge development.

To learn more about this interrelationship, I studied the "research project" that was part of a unit on American history in an early elementary classroom. I wanted to capture learning activities *as experienced by students*, and chose to focus on the research project because it occurs in weekly cycles. I could see the cycles occur repeatedly and develop over time. These research projects include different kinds of activities that focused on studying American history across a week's time period: reading, writing, drawing, discussion, and "special events." Over a seven week time period, I collected data that would allow me to study the interrelationship among the types of activities as well as the interrelationship among the participants' goals, the activities, the social interaction, and the learners' interpretations of the activities and how interpretations shape opportunities to understand subject matter content.

Before describing in greater detail how I arrived at the approach I took to study the learning process in this classroom, I will examine several theories and assumptions about the learning process that guide this inquiry, and that I want to learn more about.

Underlying Theories and Assumptions About the Learning Process

Current theory in cognitive psychology and sociolinguistics about views of the learner, the nature of learning tasks, the nature of enacted curriculum (e.g., curriculum as it is carried out in the classroom), and social interaction guide this inquiry. In this section, I describe underlying theories and assumptions about the learner that inform this inquiry, and identify questions I have about the theories that I want to learn more about. An important theme in these theories is the interconnection between the social and academic worlds of the learner.

Theories About the Learner

I view the learner from a constructivist viewpoint, as someone who actively helps to shape and makes sense of activities in his or her environment. Furthermore, learners interpret new knowledge in light of their prior knowledge and skills (Posner, Strike, Hewson, Gertzog, 1982; Barnes, 1979; Bruner, 1960; Vygotsky,1962, 1978). Learning is facilitated when students have the opportunity to connect new information with prior knowledge, and are required to construct (as opposed to receive) knowledge (Armento, 1986; Wittrock, 1977). Moreover, as the learner approaches learning tasks in school, his or her conceptions of the learning tasks or the way he or she defines a learning situation may be different from that of the teacher (Newman, 1985). Those conceptions will affect what each participant attends to (and thereby interprets) as the learning task is completed (Wertsch, 1984; Doyle, 1979, 1983, 1985).

The learner, while making sense individually, does so (particularly in school) in a social context, and that context also influences what and how he or

she learns (Erickson, 1982a, 1982b). To display knowledge successfully in schools, the learner must integrate interactional form (what are the appropriate social rules for speaking in a particular context) with academic content (display of academic skills or knowledge) (Florio, 1978; Mehan, 1980; Merritt, 1982; Wallet & Green, 1979; Wilkinson & Dolloghan, 1979; Wilkinson & Calculator, 1982). A further demand on the learner in schools is that teachers and students use a "system of relations" to make sense of each other, and it sometimes takes more effort and concentration to establish and maintain this relationship than the effort and concentration that is devoted to completing learning activities (McDermott, 1977).

Some theorists who take the constructivist view of classroom teaching and learning assert that learning is an interactive enterprise. Some of these theorists argue that the path of intellectual development moves from the social to the individual, with a shift from the interpsychological plane to the intrapsychological plane (Vygotsky, 1962). This notion of psychological development is based on the concept of "intersubjectivity" which is a shared state of consciousness whereby the teacher and learner share the same situation definition *and know that they do*, so that the learner can make sense of a task in the same way the teacher does, and desired learning can occur (Wertsch, 1984). The role of the teacher is to provide a "scaffold" or support for the learner (with language serving as an instrument for regulating this joint activity and joint attention) until the learner is able to carry out an activity on his or her own (Bruner, 1960,1975; Ninio & Bruner, 1976; Griffin & Cole, 1984; Campione, Brown, Ferrara & Bryant, 1984). We need to know more about how or in what way a particular degree of shared (or overlapping) understanding of learning activities among participants has consequences for the meaning the learner takes away from the situation (Newman, 1985; Wertsch, 1984; Bruner,

1975; Ninio & Bruner, 1976; Nespor, in press). For example, is it a shared understanding of learning activities that is essential to learning? Could learning take place with teacher and student holding different views of the purpose of activities, and if so, how?

Another way of defining learning as an interactive enterprise among learners who actively construct meaning is to think of the learning activity as problem-solving (Newell & Simon, 1972; Mayer, 1983). Of importance to the problem-solving situation is the construct "problem space," or what the learner focuses on when solving a problem (Newell, 1980; Scardamalia & Bereiter, 1986; Greenleaf & Freedman, 1986). Several researchers have shown that what the teacher says will influence to a great extent what the students focuses on during a learning situation (e.g., Greenleaf & Freedman, 1986; Sperling & Freedman, 1986; Michaels, Ulichny, & Watson-Gegeo, 1986; Barnes, 1979). This type of work underscores the importance of taking discourse into account when trying to understand the learning process, and the importance of learning more about the ways in which discourse shapes meaning.

Others who view learning activities as problem-solving situations focus on "macroprocesses," or the psychological representation of knowledge structures, and the critical thinking processes used in problem-solving situations (Armento, 1986). As learners approach learning activities, they are more or less skilled at drawing on appropriate content knowledge, as well as being more or less adept at using a repertoire of problem-solving strategies (e.g., Flower and Hayes,1980; Armento, 1986; Mayer, 1983; Scardamalia & Bereiter, 1986). Therefore, it is important to take into account how the learner's prior knowledge is structured (Roth, 1985; Anderson & Smith, in press), and to consider the cognitive operations necessary for the learner to complete learning activities (Doyle, 1983).

Given this view of the learner, it makes sense to think of learning *as experienced*, rather than simply as it is taught by the teacher, as has been common in the past (Connelly & Clandinin, 1985; Dyson, 1984a; Emig, 1981; Dewey, 1938/1976). The cumulative effect of learning activities over time must be taken into account in order to understand an individual's current actions and interpretations (Erickson, 1982b, Nespor,in press; Connelly & Clandinin, 1985). Prior experience with learning tasks will affect one's current and subsequent interpretations of learning tasks in light of the individual's readiness for the task, one's general understanding and definition of the task, one's goals or purpose, and one's level of effort put forth to complete the task (Dewey, 1938/1976; Nespor, in press; Vygotsky, 1962).

An important theme in these theories of how the learner makes sense of subject matter is the interconnection between the social and academic worlds of the learner. The individual sense-making that goes on in a learning situation arises out of a social context that contributes to the meaning the learner constructs. I will now turn to describing a view of curriculum (the learning activities that represent the content the learner makes sense of) that is consistent with a constructivist view of the learner.

A Dynamic View of Curriculum

A dynamic view of curriculum (a series of learning activities) follows from the constructivist view of the learner in a social context. Curriculum is *jointly constructed* by the teacher who plans and creates classroom activities and experiences, and the learner who participates in them and interprets them, thus making enacted curriculum a part of the social as well as the academic world in the classroom. Curriculum is not a static entity in and of itself:

> To become meaningful a curriculum has to be enacted by pupils as well as teachers, all of whom have their private lives outside school. By 'enact' I mean come together in a meaningful communication-- talk, write, read books, collaborate, become angry with one another, learn what to say and do, and how to interpret what others say and do. A curriculum as soon as it becomes more than intentions is embodied in the communicative life of an institution, the talk and gestures by which pupils and teachers exchange meanings even when they quarrel or cannot agree. In this sense curriculum is a form of communication (Barnes, 1976).

Curriculum, the "academic" side of the learner's world, is inherently social in that it is experienced as a form of communication among individuals within a social context.

Further, as we think of learning as experienced, it follows to think of curriculum as enacted over time (Erickson, 1982b; Nespor, in press). Nespor (1985) describes different aspects of curriculum that reveal its changing and evolving nature:

--curriculum as conceived by teacher and student

--curriculum as announced by teacher

--curriculum as negotiated by teacher and student

--curriculum as interpreted by teacher and students

Even at the level of the intended curriculum (e.g., textbooks, materials, objectives, curriculum guides, lesson plans), teachers constantly change their thinking and intentions for enacting the curriculum in several ways: by shifting their focus from one topic to another within a discipline; by redefining what it is they want to teach next; by redesigning ways to help students understand subject matter (Wilson & Shulman, 1987). These changes often occur because of the teachers' views of the learner (Bruner, 1986). By the very fact that curriculum at the intended level is intended for someone--learners in a social context--it is a social as well as an academic entity.

While a dynamic view of curriculum allows for the reality that curriculum changes over time, how and why the changes occur within a particular learning situation, or how the academic and social worlds interconnect to shape changes, is not well understood. A dynamic view of curriculum also suggests several questions about how the learner interacts with subject matter, which will be discussed in the section below.

The Interaction Between Learning and Subject Matter

A theory that merits further investigation is the extent to which different school subjects, with their own specific structures, have their own relationship to the course of the learner's development (Vygotsky, 1962, 1978; Bruner, 1960/1982). Some educational psychologists assert that it may take different propensities, abilities, or cognitive processes to learn to read than it takes to understand a scientific concept. Yet at the same time, the learner's development in one area may influence his or her development in another, so that the learning of various subjects is interdependent (Vygotsky, 1962). Three aspects of the relationship between the learner's development and subject matter content that have been investigated have helped me pose questions for my own study regarding this relationship.

One area that has been investigated, for example, is the relationship between different types of activities in the learning process, such as the relationship between writing and drawing. For young children, writing may be more labeling what they know than a process of discovery, and drawing may help children bring ideas to the surface to be verbalized (Dyson, 1983). When children draw and then write, it is the drawing that receives the most attention (Graves, 1983); yet as children go back and forth between the two media, they

may begin to see the inadequacy of drawing compared to words in what words can express, which may change their desire to attempt to express themselves in writing (Dyson, 1983). As children get older, writing can become more of a process of discovery, where they clarify their own understanding of ideas and concepts through trying to express themselves or display their knowledge (Stock & Wixson, 1983; Rubin & Hansen, 1986; Applebee, 1984; Hairston, 1982; Vygotsky, 1978). Of particular importance to the study I undertook is the investigation of how writing and drawing, as they are structured and interpreted in the classroom, serve as opportunities for students to represent ideas and develop knowledge. A related issue is how writing and drawing and learning of subject matter content interact. That is, what function do writing and drawing serve in helping students represent their thinking, and what function do they serve in developing students' understanding of subject matter content? And, how do writing and drawing interact in developing students' understanding of subject matter content?

Another aspect of the relationship between learning and subject matter that has been investigated is knowledge structures and critical thinking processes used in social science problem-solving (Armento, 1986). Research indicates that much of the skill needed in social science problem-solving involves knowledge in two areas: (a) learning problem-solving strategies themselves (e.g., developing a problem representation), and (b) the learning and organization of a knowledge base (e.g., using conceptual networks, understanding causal relationships, and understanding hierarchical structures that promote organization of large amounts of information). This investigation of the academic side of learning (how knowledge is structured and organized in learning activities) needs to be integrated with the social side of learning (how activities are carried out in the learning environment) so that we know more

about the connection between social interaction surrounding learning activities and students' interpretation of subject matter knowledge. For example, an important question to this study is, what is the relationship between the way a teacher organizes and represents subject matter knowledge to students and the way students come to develop a problem representation as they interpret and carry out learning activities?

A third and related issue is the assertion by some theorists that there is an important relationship between the development of scientific concepts and reflective mental processes:

> School instruction induces the generalizing kind of perception and thus plays a decisive role in making the child conscious of his own mental processes. Scientific concepts, with their hierarchical systems of interrelationships, seem to be the medium within which awareness and mastery first develop, to be transferred to other concepts and other areas of thought. Reflective consciousness comes to the child through the portals of scientific concepts (Vygotsky, 1962, p.92).

The argument here is that "school instruction," the activities in which teachers and students participate, brings about understanding of scientific concepts, which in turn, makes students aware more generally that such generalizations exist. From there, students can develop "reflective consciousness," or the ability to see that a concept is part of a system of relationships, and an awareness that such a system exists lays the groundwork for further developing reflective consciousness. This theory raises many intriguing questions. The nature of the interaction between "school instruction" (both academic and social worlds) and "scientific concepts" (the knowledge base) in the learning process is extremely vague. How do learning activities in school interact with specific understandings, and what is the cumulative effect of such understandings over

time on how a student approaches learning? That is a question which this study seeks to address.

A theme in these areas of investigation is exploring the relationship between school subjects (as they are structured, organized, and carried out in classroom activities) and the course of the learner's development. Since school subjects, as they are taught to pupils, are communicated through curriculum as it is "lived" in the classroom, the social and academic worlds interconnect in this relationship. Yet just how they connect is not well understood. A place to look to understand possible connections will be discussed in the following section.

A Focus on Taught Cognitive Learning

These underlying theories about the learner in a social context encompass the notion that various aspects of the learning environment--the roles of the learner, of the teacher, of the curriculum, and of the social milieu--are mutually constitutive, reciprocal, and complementary (Erickson, 1982a, 1982b, 1986a; Hymes, 1980; Mehan, 1980). In addition, the relationships between and among them change and evolve over time in a cumulative way (Erickson, 1982b; Nespor, In press). Hence, the focus of inquiry if we are to understand learning as it occurs in schools, needs to be on "taught cognitive learning" (Erickson, 1982b), or subject matter learning as it is interpreted by the participants in a classroom context. A focus on taught cognitive learning provides access to the interconnected academic and social worlds in the classroom.

The study of taught cognitive learning is an extremely complex, difficult undertaking. It entails studying learning processes, and studying products only in the context of the learning situation, not just as entities in themselves (Erickson, 1986a; Vygotsky, 1978). Studying learning processes means more

than thinking of the mind as middle ground or "mediating variables" between input (subject matter knowledge) and output (student understanding). Rather, "Sense-making is the heart of the matter, the medium of teaching and learning that is also the message" (Erickson, 1986a, p. 127). Teachers and students act together in classrooms to constitute environments for one another, so that when one seeks understanding of how meaning is constructed in the classroom, one must take into account the participants' understanding of the academic as well as the social learning environment. Sense-making arises out of these two contexts that interact with and shape one another, not just out of the learner's head. Further, meanings are local in that they refer to a particular setting, at a particular moment. At the same time, meanings are also non-local in that they occur in a particular culture (that has a developmental history) with particular constraints. Therefore specific meaning must be interpreted in light of the relationship between the immediate environment and the larger social context (Erickson, 1986a; Cazden, 1986).

Causal links that explain how meaning is derived in a situation are discovered through social interaction. That is, meaning is displayed and discovered through specific actions (physical behavior coupled with the meaning interpretation of that action), and through specific thoughts (sense-making that derives from the context). Communication links the social and the academic (Cazden, 1986; Barnes, 1979), and links thought and action (Vygotsky, 1962), so it provides access to meaning as it develops. The study of communication in the classroom provides access to origins of behavior to learn more about how different aspects of the learning environment have come to be the way they are. This important source of information avoids simply providing a description of "fossilized behaviors" without their developmental history (Vygotsky, 1978).

Therefore, as one considers how to approach understanding taught cognitive learning, one must view "taught" as an interactive process in a social context. "Cognitive" refers to more than just the learner's thought processes about a particular activity, but rather the developmental history of how the learner comes to interpret and makes sense of the academic and social learning environment of which he or she is a part. "Learning" is more than what one can conclude from a finished product, and includes local and non-local levels of meaning that are constructed over time. Finding a way to capture a comprehensive view of this dynamic enterprise is a difficult, and intriguing challenge. In the section that follows, I consider the merits of various units of analysis in capturing such a view.

Approaches to Understanding the Learning Process

In this section I consider the issue of what kind of unit of analysis will provide comprehensive information about the social and academic aspects of the learning process. I begin by discussing the centrality of the unit of analysis to what is included and left out of one's view of learning. I follow this discussion with an overview of how I reviewed research literature in order to identify an appropriate unit of analysis for this study. The research literature review is organized according to two broad approaches to studying classroom life: (a) studying classroom life as a speech community, and (b) studying classroom life as a pedagogical relationship (among teacher, student and subject matter). I consider the units of analysis in these two approaches, and identify a need to build on these approaches in order get a more comprehensive view of the learning process.

Windows on the Learning Process: Seeking a Unit of Analysis

As it has already become apparent in the foregoing discussion, it is not a new undertaking for researchers to try to understand learning processes. Nor is it a new undertaking for researchers to focus on classroom discourse to understand more about student learning (e.g., Barnes, 1969, 1976; Bellak, Kliebard, Hyman, & Smith, 1966; Stubbs, 1976; Cazden, 1986). Rather, what is a relatively new undertaking is to try to understand more comprehensively how the two worlds interconnect, to account for how student understanding arises out of a social and academic contexts that interact with each other (e.g., Rowland, 1986; Erickson, 1986a; Dyson, 1984a, 1984b). Studying learning processes from both a social and academic viewpoint and seeking understanding of the interconnections between the two viewpoints holds promise for providing a comprehensive description of learning at three levels: the underlying structural level, at the enacted level, and at the level of the mental and emotional lives of the participants (Erickson, 1982b).

By necessity, researchers must choose a focus for their data collection and analysis to reduce the complexity of the classroom to a form they are able to study. When researchers choose a unit of analysis, they are, in effect, choosing a segment of classroom life to frame, as a window frames a view of an outdoor scene. The window serves a dual function of bringing certain parts of the environment into view, and at the same time frames certain parts of the environment out of view. Moreover, seeing the environment through a window, whether it is open or closed, is a different view of the scene than if one is a part of it. As one gazes out a window, what one perceives is also affected by which portions of the scene one takes in, and how intensely one focuses on particular aspects of the scene. Units of analysis are frames too, in that they help the

researcher focus on certain aspects of the learning environment while leaving other aspects out, and provide a means by which the researcher can more closely analyze certain aspects of the environment than others. Therefore, all windows or units of analysis are potentially useful for seeing or understanding something about learning, and how one judges the quality of the framing or unit of analysis depends on what one wants to see or learn.

In Search of a New View of the Learning Process

I am interested in figuring out what kind of window on the learning process provides a view of how students interpret learning activities to understand subject matter in a social context, and how meaning arises out of the interaction between the social and academic contexts. A first step in approaching this challenge was to examine the research literature for what it tells us about how students interpret learning activities to understand subject matter, and for what it does not tell us, or must leave out. That is, I looked at different approaches to studying classroom learning, and their units of analysis to consider which aspects of the learning process are included or left out of view (e.g., academic, social). I also took note of which level(s) of meaning they provide information about (e.g., underlying structural level, enacted level, cognitive and emotional level). Since the purpose of the review was to consider different approaches to studying the learning process, the studies discussed below are intended to provide examples of approaches, not to be an exhaustive description of research conducted on students' interpretations of activities to understand subject matter knowledge.

I have divided the research into two broad categories, and will give a brief overview of the two categories here. This discussion is followed by two

lengthier sections summarizing each category of research, and analyzing what view of learning one gets from the unit of analysis used. One category of research I reviewed is research that focuses on the study of classroom life as a speech community. Speech community is generally defined as a community of people who come together frequently, and who share knowledge of rules for the conduct and interpretation of speech (Hymes, 1974; Gumperz & Bennett, 1980). This approach to studying classroom life uses the speech community as the unit of analysis. With this focus on uncovering tacit rules that underlie the social participation structure in a classroom, we learn a great deal about the general context in which students are to learn subject matter knowledge. For example, we understand more about the demands students must cope with in the classroom in order to be able to learn and to be able to display academic knowledge, and we understand more about the ways in which access to knowledge is enhanced or limited. In the section that follows, I will examine how this way of framing the social aspects of learning into view contributes to understanding ways in which the social and the academic intersect, but how it also tends to frame out the specific meaning of subject matter content for individual students, and how that meaning evolves over time.

The second broad category of research I reviewed is research that brings the academic side of classroom learning into the frame, and focuses on one or more aspects of the pedagogical relationship, the relationship among the teacher, the student, and the subject matter content. This approach to studying classroom life uses some aspect of the pedagogical relationship as the unit of analysis. For the most part, these researchers start with the teacher's conception of subject matter knowledge and how to teach it, and examine how those conceptions manifest themselves in classroom tasks, or teacher talk, or how subject matter content is structured and communicated in the classroom.

They then study the relationship between the particular manifestation of subject matter under study (tasks, teacher talk, structure and mode of transmission of subject matter content) and student understanding. I examine this frame or view of the pedagogical relationship. I show how this frame brings into view particular aspects of the pedagogical relationship, but leaves other aspects out, and that while we do get a view of a slice of the relationship, we lack a comprehensive view of the overall relationship and how various aspects shape one another.

The Study of Classroom Life as a Speech Community

One approach to understanding what happens in classrooms is to look at the underlying classroom structure in order to understand what it takes for a student to be "interactionally competent." Interactional competence in a classroom involves knowing how to appropriately display academic knowledge in a given context. In other words, students must synchronize the display of academic knowledge with the correct procedure for displaying it within a given context. Thus, competence has two aspects. The *communicative* aspect involves knowing that certain ways of behaving are appropriate on some occasions and not others. The *interpretive* aspect involves understanding rules and regulations of the classroom that are tacit; the students must learn the implicit background of social knowledge in the classroom (Mehan, 1980). Constitutive analysis of the classroom addresses questions such as: "How does this social organization come about? How do teachers and students know when to move and when to speak? How do they know if it is the right time or place to act in a certain way?" (Mehan, 1978, p.40). Very important to this inquiry is the focus on

the simultaneous contribution that both teacher and students make to the social organization of the classroom.

The large unit of analysis in this type of inquiry is the *speech community*, in this case, the classroom. Within the classroom, researchers have tried to understand the *events*, or segments within a school day. These events can have different types of organization (whole group, small group, pairs). Work done by researchers such as Mehan (1982) have further refined the description of classroom organization into typical series of events separated by *boundaries*, which might be marked, for example, by differences in student and teacher configurations in the classroom. Events are segmented into *phases* of various types, depending on whether the type of event might be reading, circle time, or a whole group lesson (see, for example, Bremme & Erickson, 1977; Florio, 1978; Mehan, Cazden, Coles, Fisher & Maroules, 1976; McDermott, 1977). Finally, each phase is segmented into *interactional sequences* (initiation, reply, evaluation) (Mehan, 1978; Sacks, Schegloff, & Jefferson, 1974).

The *hierarchical organization* of these constituents is important to keep in mind, because "...the capacity for monitoring contexts (what people are doing, where and when) must be an essential feature of social competence; the capacity to assess when a context is as well as what it is" (Erickson & Shultz, 1981). That is, the student must be able to recognize when a new context arises (new events), and subordinate aspects (phases) within each context (e.g. Is this a new event? Is this a different phase of the same event, or a new event altogether?) so that he or she can display academic knowledge in a form that is appropriate to that context. Likewise, the researcher must be aware of the structure of the constituent parts to recognize what is an appropriate behavior for a given context.

Mehan's work (1978, 1982) has focused on the constituent phase, the lesson, which has provided further information about demands placed on students in the classroom. Mehan has examined the lesson in terms of its structure (initiation, reply, evaluation) as well as how the organization is achieved in classrooms. This involves looking at *turn-allocation procedure*. Typically, teachers not only ask for academic information, but indicate who it is that they want the answer from. There needs to be a symmetry between an initiation act (teacher asking question of a certain population) and a reply act (the appropriate student(s) respond). If this symmetry is not obtained, students are usually negatively sanctioned. Also involved in this process is the student's contribution, which has three component parts (Mehan, 1982). *Getting the floor* involves the student using the appropriate interactional form, and speaking after each three-part sequence (initiation-evaluation-reply), instead of simple "turns" as we might have in everyday conversation. *Holding the floor* requires choosing appropriate academic content, in that the contributions must be relevant to the previous and subsequent course of discussion. *Introducing "news"* is a way the student can change the course of a lesson once it is in progress; the contribution must make an "interesting" or "original" addition to the topic. By looking at how the organization within a classroom is *achieved* by participants, it becomes clearer what is meant by competence in the classroom. The student must not only know the subject matter, but must be able to appropriately display it according to some very subtle rules. This integration of academic knowledge and interactional skills is essential to competent participation.

Other researchers have conceptualized classroom instruction as a communicative process as well (e.g., Green & Wallat, 1981; Erickson, 1982a; Green & Harker, 1982; Higgins, Fondacaro & McCann, 1981; Wallat & Green,

1981; Mehan, 1979a). What we have learned from these analyses is that because of the differing ways teachers implement their goals, there is a complex array of social, contextual and thematic demands on children as they interact in the classroom (Green & Harker, 1982). Surrounding instruction are many other communicative events that shape learning opportunities as well. For example, children must be able to appropriately seek and get the teacher's attention (e.g., understand and use tacit rules) during work time (e.g. Mehan, 1978; Merritt, 1982; Merritt & Humphrey, 1979; Wilkinson & Calculator, 1982; Wilkinson & Dollaghan, 1979). In addition, the interaction between student and teacher is an important source of information for the teacher about what is an appropriate learning experience for the children. The differing cultural backgrounds of teacher and students can create a mismatch between them in communicative style that impedes successful communication, or that leads the teacher to view the students as less competent than they actually might be (e.g., Au, 1980; McDermott & Gospodinoff, 1981; Erickson, 1981; 1984; Michaels, 1981).

This body of literature on interactional competence has provided important descriptive information about the context in which students are expected to learn subject matter in schools. It suggests that perhaps students are not learning what we intend because of lack of opportunity to learn, or because of lack of opportunity to display knowledge, which leads the teacher to incorrect assumptions about the needs of the student. While this window on the classroom does provide us with a detailed view of how interaction is jointly negotiated and achieved in classrooms via the social organization, we do not get a comprehensive view of individual sense making of specific subject matter content from the learner's point of view. We understand what the learner is up against in terms of demands on him or her, but still need to know how these

demands interact over time to shape his or her interpretation of specific learning activities to learn subject matter content. In Chapter II I discuss research methods used in this approach to studying classroom life that can contribute to getting the comprehensive view of the learning process that I intend to provide. In the section that follows, I review a second broad approach to studying classroom life, and discuss the views of the learning process one can get from studies centered on the pedagogical relationship as the unit of analysis.

The Study of Aspects of the Pedagogical Relationship

The Pedagogical Relationship

A second broad approach to looking at the learning process has been to consider the pedagogical relationship, or the interaction among student, teacher, and subject matter as a broad unit of analysis. For example, researchers consider the influence of the teacher's underlying conception of the curriculum on the types of learning tasks created for students, on teacher talk, and on use of materials in the classroom, and how these factors shape the way the learner subsequently interprets subject matter. A teacher's conception of the curriculum includes his or her underlying assumptions about the teacher and the learner's role, assumptions about the nature of the learner and the kind of learning environment required, and assumptions about the nature of knowledge and how it is acquired (Bruner, 1985).

Bernstein (1975) argues that educational knowledge is a major regulator of the structure of experience. That is, educational knowledge shapes people's ways of seeing and interpreting the world. He elaborates:

> Formal educational knowledge can be considered to be realized through three message systems: curriculum, pedagogy and evaluation. Curriculum defines what counts as valid knowledge, pedagogy defines what counts as a valid transmission of knowledge, and evaluation defines what counts as a valid realization of this knowledge on the part of the taught (Bernstein, 1975, p. 85).

Each of these "message systems" contains a spectrum of possibilities. For example, Bernstein defines two major types of curricula. The "collection" type of curricula is characterized by strong boundaries between subject areas, with strong classification, or strong boundary maintenance, between subjects. A second type of curriculum, the "integrated" type, is characterized by weak or blurred boundaries between subjects. With the collection type of curriculum, *states* of knowledge count as a valid realization of knowledge, whereas with the integrated type of curriculum, *ways* of knowing are emphasized. Out of these underlying message systems arises the pedagogical relationship, or frame, between teacher and student. Frame refers to the range of options available to the teacher and student in the "... *degree of control over the selection, organization, pacing and timing of the knowledge transmitted and received in the pedagogical relationship*" (p.89; emphasis in original). All three of these message systems interact to structure the learner's experience.

Different researchers choose to highlight or focus more closely on one or more aspects of the pedagogical relationship (the interaction among teacher, student, and subject matter) and its consequences for student understanding. In the three sections that follow, I will examine three different ways researchers have focused on the pedagogical relationship (e.g., classroom tasks and the issue of control; teacher talk and local meaning; and subject matter and student

understanding), and discuss the view one gets of the learning process from using these three different frames.

Classroom Tasks and the Issue of Control

Several researchers have considered the consequences for learning of the teacher's conception of literacy. Is curriculum, for example, conceived of as a hierarchy of skills for the learner to master, or as a set of experiences incorporating subject matter for the learner to interpret (Dyson, 1984a, 1984b, 1984c; Emig, 1981) ? And what are the consequences for student learning of such assumptions? Current theory on the relationship between reading and writing places emphasis on the process of communicating, where the language user is at the center of the process and functions as a meaning maker (Stock & Wixson, 1983; Ruben & Hansen, 1986). This might be labeled a "whole language" conception of literacy, as opposed to a "skills view" of literacy (Edelsky, Draper & Smith, 1983). Instructional implications of this theory are that the basis of instructional activities should be the communicative function of reading or writing activities for the student, with the function serving to define the task, not the other way around (Stock & Wixson, 1983; Stock, 1986; Edelsky & Smith, 1984; Edelsky, Draper & Smith, 1983; J. Newman, 1983; Barrs, 1983; Graves, 1983; Mehan, Miller-Souviney, & Riel, 1984; Rowland, 1986). These researchers identify *control* of the communicative purpose for writing as a crucial factor as to whether or not children learn subject matter knowledge (in this case, learn to write), as opposed to simply completing tasks because they need to get done. They argue that if students do not have control over their own writing to define their own purposes through opportunities to authentically

communicate, their chances for interpreting writing tasks in ways that improve their ability to communicate through writing are severely diminished.

However, there is a dilemma inherent this conception of literacy and the pedagogical implications that follow from it. This dilemma has to do with the role of the teacher in the pedagogical relationship: for whose goals is the learning environment constructed? Several researchers argue for increased student control over their learning purposes or goals (Dyson, 1984c; Newman, 1985; Emig, 1981; Searle, 1984; Rowland, 1986). Yet by creating any learning environment at all, by selecting the activities available to the students, by directing the discourse surrounding learning activities, the teacher inherently controls, to at least some degree, several aspects of the experience: the scope of the curriculum, the quality and intensity of learnings available, and the breadth and depth of the curriculum (Westbury, 1972; Barth, 1969; Michaels, Ulichny, Watson-Gegeo, 1986). So the type of control allowed students is also at issue.

Some researchers seemingly resolve this dilemma by suggesting that varying degrees of control over purposes for learning should be given to both teacher and student. Wertsch, for example, says that during the learning process, the learner needs to undergo "situation redefinition" so that the learner and teacher share a similar understanding of the task (Wertsch, 1984, p.11). This presupposes that the teacher's goals or intentions are the goals toward which students and teachers are willingly working. Similarly, Newman argues that an important feature of a "functional learning environment" (one where meaningful goals are achieved for teachers and students) is the coordination or overlap of childrens' and teachers' goals (Newman, 1985, p. 56). Along these same lines, several researchers (e.g. Edelsky, Draper & Smith, 1983; Dyson, 1984a, 1984b, 1984c; Graves 1983) do not forfeit the broad goal setting or

specific task setting for the teacher, but rather, insist that as teachers set tasks, they are mindful of their obligation to provide "purposeful assignments and genuine literacy activity" (Edelsky, Draper & Smith, 1983, p. 276). In other words, as long as the tasks allow for some student input (i.e. deciding on communicative purposes for a piece of writing), and these tasks are consistent with the teacher's overall goals, the teacher still has ultimate "control" of the curriculum. Therefore, the issue is not whether students determine whether or not they will write, but that they will have control over the form and function of their writing (Florio & Clark, 1982; Rowland, 1986) within the overall task structure that is created by the teacher. Edelsky, Draper & Smith (1983) describe this as the students and teacher entering into an overall relationship that takes into account all participants' ownership of tasks, texts, and contexts.

This window on the learning process helps us look at the interrelationship among the curriculum, the pedagogical relationship, and the evaluation of the curriculum, but like all windows, it frames some things out of view as well. It underscores the importance of consistency among the nature of the learning tasks and how they are interpreted by the learner, the degree of specificity or generality of the learning to be undertaken, and what the learning situation itself means to the learner (Bruner, 1985). But what is not in clear view is how allowing student control over classroom activities such as allowing student control over communicative purposes for writing shapes meaning for writers within the overall context of the learning environment. For example, as researchers begin to take a closer look at the nature of interaction surrounding writing activities, even when students are allowed considerable control, it is becoming apparent that control is not as easy to "give" to students as it might appear (e.g., Sperling & Freedman, 1986; Michaels et al. 1986). Students all too often seek the teacher's definition of what good writing is, and are too willing

to give up their own goals for the goals of the teacher, for the good grade, for fulfilling someone else's expectations. Perhaps more detailed consideration of the underlying social and academic task structure would shed light on why students do not take advantage of opportunities for control. What appears to be a clear relationship between control over goals and student understanding is an extremely unclear interrelationship that we need to know more about.

In addition to trying to account for how meaning develops within certain activities (such as looking within the issue of student control over learning purposes during the writing process as described above), a possible next step is to look at how the control issue as it manifests itself through the writing process interrelates with opportunities for subject matter acquisition, and the kind of sense students make of writing as writing activities interact with other kinds of activities in the classroom. Is it possible, for example, to share the same kind of control with students with other learning tasks as teachers do with the writing process, and if so, how would a teacher go about sharing that control with her students? If writing is designed as a means to further thinking about other subject matter, to what extent is it appropriate to share control over writing tasks with students? What kind of pedagogical relationship would be required, and what kinds of learning tasks would make this relationship possible? In the section below, I will turn from describing research that focuses on the overall relationship between student and teacher and the consequences for student learning to describing research that focuses on teacher and student interaction during academic instruction.

Teacher Talk and Local Meaning

The concept of communication is an important avenue for understanding the social and academic side of learning, as well as the private and public aspects of interaction (Cazden, 1986; Barnes, 1979). Building on research that studies classroom life as a speech community, sociolinguists have brought academic content into view as well by studying discourse during or surrounding academic instruction. This research includes studies undertaken to examine the kinds of questions teachers ask (e.g., Heath, 1978, 1982; Mehan, 1979b; Barnes, 1979; Campbell, 1986), the underlying structure of classroom talk (e.g., Erickson 1982a, Cazden, 1986; Greenleaf & Freedman, 1986), and issues of control over pace, content and goals for learning (e.g., Michaels, Ulichney, & Watson-Gego, 1986; Sperling & Freedman, 1986; Barnes, 1979; Campbell, 1986; Rowland, 1986).

This line of research provides important information about local meanings in a particular setting, and in moment-to-moment interaction. On the social side of classroom interaction, it helps us understand the communicative demands on learners, the types of opportunities available for learners to communicate, the underlying status sets and roles, and the social participation structure in which learners are to function. On the academic side of classroom interaction, this work brings into view how subject matter content is communicated to students (e.g., how manner of communication shapes the structure of subject matter content that gets communicated). It also brings into view the ways in which talk about activities shapes the way they are interpreted by participants. Some studies bring in a view of the learner's specific interpretation of subject matter content (e.g., Barnes, 1979; Greenleaf & Freedman, 1986; Michaels et al., 1986; Sperling & Freedman, 1986; Rowland,

1986). Others leave out a specific view of learners' interpretations, but provide a more complete view of the enacted learning environment, or what happens during the talk (e.g., Heath, 1978, 1982; Mehan, 1979b; Erickson, 1982a; Campbell, 1986).

While we gain a detailed view of local meanings that come out of the interactive learning process, it is acquired at the expense of getting a view of a range of activities that contribute to students' understanding of subject matter knowledge. Experience is cumulative across like activities (e.g., math lessons), but also cumulative across different types of activities (e.g., math lessons, math activities, math homework, mathematical questions that arise out of other pedagogical activities). How these specific instances of the interactive learning process interact with the ecological circumstances in which they take place (Erickson, 1986b) is an area that has been framed out of view with the way this approach to understanding classroom life has been implemented.

A third view of the pedagogical relationship, to be discussed below, looks at yet another aspect of the pedagogical relationship, which highlights the teacher's view of subject matter and how that relates to student understanding.

Subject Matter and Student Understanding

Some researchers attempt to understand learning processes by examining curriculum, or how the subject matter is structured and translated through pedagogy (Doyle, 1985; Wilson & Shulman, 1987). Of concern to these researchers are the teachers' conception of their subject matter, and what it means to teach that subject matter. This approach to understanding the learning process is similar to the starting point researchers have used to examine issues related to literacy (see pp. 28-31), but the two groups diverge

when one examines which aspects of the pedagogical relationship are central issues in the research. The group that has studied literacy is concerned with the issue of control over learning purposes. In contrast, this group of researchers focuses on the structure of the subject matter and how that structure gets communicated or represented to students through curriculum.

Research conducted on teaching science and mathematics serves as examples of this approach to understanding learning processes. In research on mathematics teaching, several researchers are concerned with the question: To what extent does teaching mathematics involve helping students link their understanding of the form of mathematics (the symbols and operations) with understanding of underlying mathematical concepts, as opposed to simply teaching symbols and operations (e.g., Hiebert, 1984; Madsen-Nason & Lanier, 1986; Lampert, 1985; Erlwanger, 1973)? In science teaching, researchers are concerned with the extent to which teachers worry about how students understand subject matter or how they are linking it with prior knowledge. For example, a conceptual change orientation toward teaching subject matter would require the teacher to help the student uncover current conceptions about scientific content, create circumstances where the student will feel dissatisfied with those conceptions if they are incorrect, and replace misconceptions with a scientific conception (e.g., Anderson & Smith, in press; Roth, 1984, 1985; Eaton, Anderson, & Smith, 1984; Hewson & Hewson, 1984). In both subject areas, the research focus is on the relationship between the teacher's orientation toward teaching subject matter, and student understanding of subject matter.

Out of this kind of research comes the instructional implication that the teacher, as a routine part of teaching, needs to focus on student understanding, not on merely presenting information clearly, or on mere task completion. This

means that the teacher needs to actively seek information about student understanding through means of evaluation as well as during discussion, so that further instruction can be geared toward students' current understanding (Madsen-Nason & Lanier, 1986; Nickerson, 1985). Teachers need to pay careful attention to texts and other materials used to make sure the materials are compatible with a conceptual orientation to teaching subject matter where students are required to actively interpret knowledge (Roth, 1985; Anderson & Smith, in press; Eaton, Anderson & Smith, 1984; Slinger, Anderson & Smith, 1982; Madsen-Nason & Lanier, 1986). In addition, the amount and type of interaction surrounding the learning tasks affects understanding. For example, increased opportunities to interact with others in problem-solving situations helps students clarify their mathematical knowledge (Madsen-Nason & Lanier, 1986; Hiebert, 1984; Lampert, 1985).

This window on the learning process provides a way of thinking about the teacher's role in promoting the interaction between the learner and subject matter, and provides a broad perspective on the nature of learning tasks and classroom communication required for conceptual understanding of subject matter. However, singling out various combinations of the teacher-learner-subject matter-materials-communication aspects of the pedagogical relationship for the purpose of study removes much of the context in which learning actually takes place. The interaction among the learner, the subject matter, and the teacher within the overall context of the academic and social task environment as it is enacted over time is not included in this view of the learning process. For example, as the learner confronts experiences in the classroom that, from the teacher's perspective, require conceptual change or conceptual understanding, how do these experiences interact with his or her interpretation of the overall learning environment, and with what he or she

intends to learn or get out of completing tasks? In addition to getting a "before and after" view of a student's conception of subject matter, we need a view of what happens to a learner's developing conception during the course of instruction and participation in activities. For example, how do the activity, the materials, the discourse surrounding the activity and materials, and the students' interpretation of the activity interact to shape meaning for the student? Finally, if materials and tasks *as intended* seem to represent content in a particular way, do they *as enacted* get interpreted in that way, and what accounts for the particular interpretation a student constructs? What is the accumulated effect of enacted curriculum over time (Doyle, 1985; Nespor, 1985 and in press)?

Summary

The research approaches reviewed in this chapter show how the choice of a unit of analysis has consequences for the view of the learning process one obtains. The approaches have in common a strength in educational research that needs to be maintained. That strength is studying learning as a process, not as a static entity (Vygotsky, 1978). The first broad approach, the study of the classroom as a speech community, provides descriptive information about *how* the underlying social participation structure comes about in the classroom. The second broad approach, the study of aspects of the pedagogical relationship, examines how teachers *translate* their conceptions of subject matter into curriculum that has important implications for the meaning the learner *constructs* in the learning environment. These are important factors to take into account if connections between the academic and social worlds in the classroom are to be discovered.

A key question that follows from this discussion is how one might go about conducting research on the learning process that maintains the views of the learning process these approaches provide, but at the same time attempts to frame into view some aspects of the learning process that they leave out. In the next chapter, I propose a new window on the learning process that is intended to draw on the strengths of the research reviewed here, and to create a way of getting a comprehensive view of how the learner comes to understand subject matter in the classroom.

CHAPTER TWO

THE LEARNING ENVIRONMENT AS A NEW WINDOW ON THE LEARNING PROCESS

Overview

The purpose of this chapter is to introduce and define the "pedagogical encounter" as the unit of analysis in this study, and to define the "learning environment" in which the pedagogical encounter takes place. I describe Erickson's (1982b) three levels of organization of the learning environment, and his conception of how they manifest themselves through the pedagogical encounter. As part of this description, I explain a model of the immediate learning environment I adapted from Erickson's (1982b) model to build on and further specify these three levels of organization. I offer a brief illustration of a pedagogical encounter, and identify a need to find research methods that will capture all three levels of the pedagogical encounter as the unit of analysis. Then I review methods used in two approaches to studying classroom life: combined ethnographic and sociolinguistic approaches, and cognitive science approaches. In the review, I examine the kind of information each perspective can provide about the three levels, and suggest an integration of methods and analysis from the two perspectives as a way to document and describe learning as experienced in the pedagogical encounter. In addition, I define central concepts used for analysis of the pedagogical encounter (experience, communication, and the concept of task), and conclude with an assessment of the merits of using the pedagogical encounter as a unit of analysis.

The Pedagogical Encounter as the Unit of Analysis

In this section, I define the pedagogical encounter as the unit of analysis, and explain three main levels of organization of the learning environment in which the encounter takes place that are central to my analysis. Then I illustrate the kind of information the researcher must seek in order to document, analyze, and describe what happens at the three levels.

A Definition of the Pedagogical Encounter

Erickson (1982b) proposes a model for examining classroom learning that has potential for bringing together the two research approaches discussed in Chapter I (focusing on the classroom as a speech community and focusing on the pedagogical relationship) so as to capture the interconnections between the academic and social aspects of the learning process. As I studied and attempted to implement the framework for research that Erickson's work suggested, I adapted his model to reflect more closely the way I saw the learning process unfold over time, and to develop more fully some areas of his model that were not specified in detail. In this section I describe my adapted model since it is central to my choice of unit of analysis for this study, and was used as a central focus of my analysis of classroom life in Chapters III, IV, and V. By bringing together views of classroom structure and interaction patterns, and views of various aspects of the pedagogical relationship, I intend to get a more complete picture of the learning process as a whole. In particular I intend to get a picture of students' interpretations of activities as they develop in a social context and how their interpretations serve as opportunities to understand subject matter.

Erickson's approach to studying taught cognitive learning suggests using the "pedagogical encounter" as the unit of analysis:

> The center of attention...would be a focus on the pedagogical encounter itself, on the sequential organization of interaction between the individual learner (and teacher) and the *materia paedagogica* present in the immediate environment, on changes in the character of that interaction across real time, and on the meanings to the actors of the action that takes place. (Erickson, 1982b, p. 174, emphasis in original)

Thus, the "pedagogical encounter" includes three aspects: (a) the sequential organization of interaction among participants (teacher and learner) and the interaction among the participants and the materials in the environment; (b) changes in the way the interaction takes place over time; and (c) the meanings to the participants of their experiences. The notion of direct instruction (during a "pedagogical encounter") is broadened to include not only the face to face interaction between student and teacher, but also the meanings participants derive based on their prior knowledge of and experience in the learning environment. Using the pedagogical encounter as the unit of analysis means focusing on learning activities that are intended to help students understand subject matter knowledge.

As a way of thinking about and analyzing the three aspects of the pedagogical encounter as it is experienced across time, Erickson envisions three "levels of organization" in the Immediate Learning Environment in which the encounter takes place (shown in Figure 1a, p. 44). I have shown the three levels of organization as three nested boxes to emphasize that the three levels are mutually constitutive, or shape one another. The two boxes shown below the main figure (Figures 1b and 1c) are "unnested" boxes that were covered up

Adapted from: Erickson, F. (1982b). Taught cognitive learning in its immediate environments: A neglected topic in the anthropology of education, Anthropology and Education Quarterly.

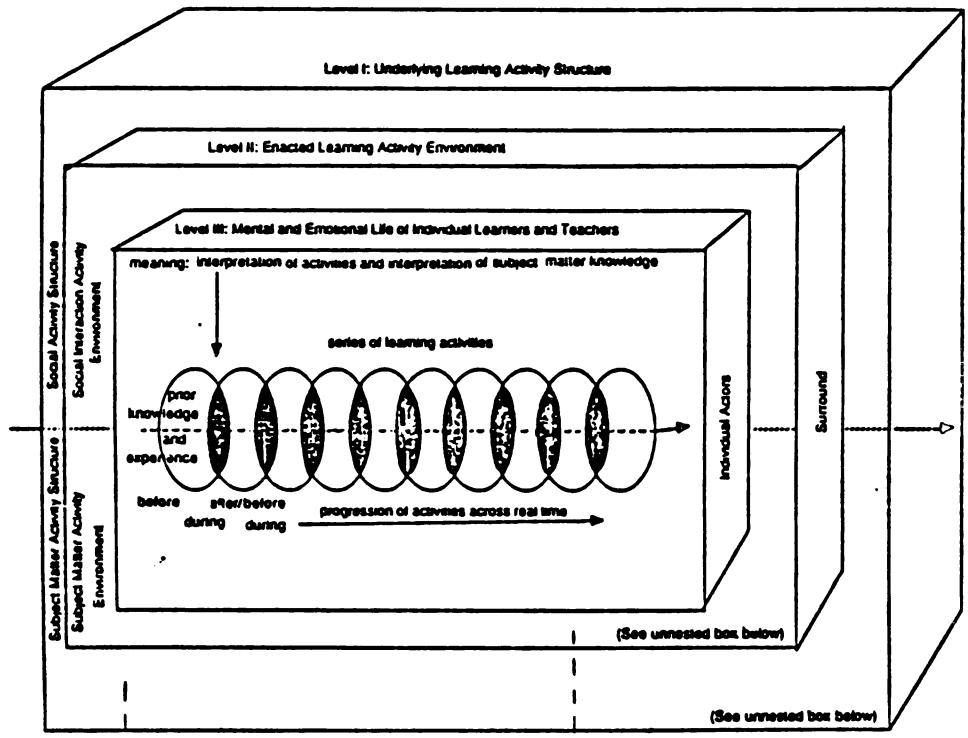


Figure 1a

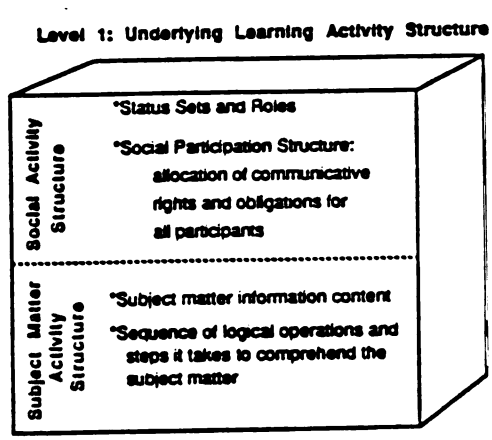


Figure 1b

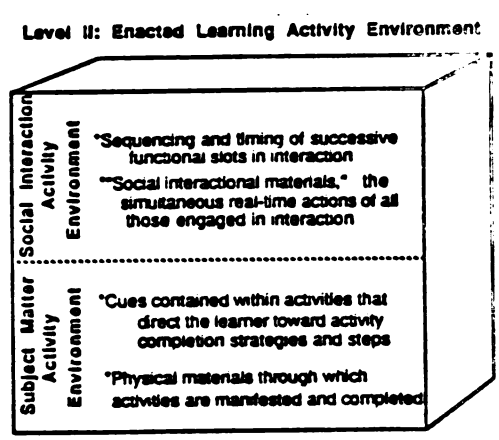


Figure 1c

Figure 1: The Immediate Learning Environment

in the main figure. They are shown separately to illustrate their features. First I will discuss each level, and then discuss how they are interconnected

The first level of organization, The Underlying Learning Activity Structure[1], is shown in Figure 1a as the largest box, or as the overall context in which levels II and III take place. The features of level I that I will now discuss are illustrated in Figure 1b. Erickson argues that there is an underlying organization to the academic world students encounter (the subject matter activity structure) as they are manifested in the way subject matter is organized, and the way assignments and activities are logically organized and sequenced. Further, the social world of students (the underlying social task structure) is organized by the status sets and roles participants play in relation to the set of operating principles by which participants conduct their social interaction. Moreover, these underlying social and academic worlds are intertwined, as shown by the dotted line, and shape one another over time as participants interact socially about subject matter materials and activities. This level of organization (level I) is inferred from what is physically present as activities occur, or from what happens as activities are enacted (level II). A more detailed discussion of this level, how it gradually develops over time, and how it connects with issues in this study, is provided in Chapter IV.

A second level of organization, The Enacted Learning Activity Environment, is shown in Figure 1a (p.44) as the middle box, or the actual actions of the individual actors that take place within the larger context (the largest box). The features of level II are shown in Figure 1c (p. 44). This level

[1] Throughout this study, I will replace the term "task" with "activity" when I discuss Erickson's model. I use the term "activity" because it encompasses a broader notion of what the actions of participants might entail. For example, in this study, as part of the "task structure" I will examine closely whole-class activities and general classroom routines as well as assignments individuals complete. The term "task" seems to more narrowly connote individual assignments that an individual might complete at the direction of the teacher.

includes the enacted curriculum, or the activities as they are carried out in the classroom. Erickson asserts that the academic world (the subject matter activity environment), as it is enacted, is organized by the actual materials themselves, and the cues the materials contain that let the participant know what is necessary to complete the activity (e.g., a worksheet with blanks cues to the student that something should be filled in those blanks). The social world (the social interaction activity environment), as it is enacted, contains social relations as "material" of curriculum as students carry out activities in a certain sequence at certain times. Just as at level I, at level II the social and academic worlds shape one another (as shown by the dotted line in Figure 1c) as participants interact with one another through activities that are designed to teach subject matter. Level II also connects in important ways to level III, to be discussed below.

The third level of organization is The Mental and Emotional Life of Learners and Teachers. Its place in the learning environment and its features are shown in Figure 1a as the smallest of the nested boxes. This level of organization includes the organization of the pedagogical encounter (both the academic and social worlds as they interconnect) as it is experienced and interpreted by the learner and teacher. This level, like level I, is inferred from what occurs at level II. I have developed this part of the model in detail, since this level in Erickson's model is unspecified.

The interface or common boundary between the individual and the learning environment encompasses two ways the individual and the learning environment come together. One way the individual and the learning environment interact is during activities, represented by a series of overlapping circles. This is where individuals, teachers and learning materials come together. They come together in the learning environment (level II), and operate

on understood patterns of behavior (level I), so the circles are inside all three nested boxes. The unshaded portions of the circles represent individuals' prior knowledge and experience that they bring to the learning situation. The shaded portions represent the meaning participants assign to activities, and the interpretation of subject matter knowledge that subsequently develops during and after participation in learning activities. As meaning arises from one activity, it then becomes part of the individual's prior knowledge and experience for the next activity. These activities are shown to progress across real time, so that activities and the meaning individuals assign to them include the "before, during and after" phases of the experiences. Yet which of the three phases they are depends on their place in chronological time relative to other activities. For example, the white portion of the activity starts as a "before" phases of the learning process, as the prior knowledge and experience the individual brings to the experience. As the activity is experienced by the individual, it is also the "during" phase of the learning process. Once the activity is completed, it becomes part of the "after" phase of the learning process, but also becomes a part of the prior knowledge and experience (the "before" phase) for the subsequent learning experience. In this way, the gradual, cumulative, interactive nature of meaning construction in the learning process is included in the model. Similarly, since teachers design and assign learning activities based on prior plans as well as what they see happening in the learning environment, their interpretations of the "before, during and after" phase of the learning process are also included in the model.

A second way the individual and the learning environment come together (as shown by the sides of the nested boxes resting against one another) is where the individual actors and the surrounding environment connect. The participants are influenced by the learning environment, but also

bring with them characteristics (e.g., thought, action, intentions, dispositions of temperament and personality) that shape the construction of the learning environment.

In this study, I focus on the interconnection among the three levels of organization of the learning environment (see Figure 1, p. 44) to learn about level III, or how students come to interpret learning activities to understand American history. As the description of the features of level III suggests, there are many aspects of meaning one could study to fully capture the learning process, so I had to make choices about what to include and what to leave out in this particular study. Instead of focusing on meaning construction as specific learning outcomes such as specific knowledge, or specific concepts, or specific applications of knowledge for individuals (which researchers seem to have fairly good methodology already for documenting), I chose a different phase of meaning construction in the learning process on which to focus. My primary focus was on how students interpreted activities in the American history unit, and how their specific interpretations of activities shaped their opportunities to develop their understanding of American history. If I wanted to figure out how to account for specific understandings that students developed, I needed to learn more about features of the learning environment that shape understanding. I sought to understand how activities might serve as a "filter" through which students develop subject matter understanding, and understand how various filters or ways of approaching activities affected the nature of knowledge students would have the opportunity to develop. By finding a way to describe the interconnection among the three levels in the model, with a particular focus on how students interpreted the learning activities, I hoped to achieve a fuller understanding of learning opportunities available to students in their immediate learning environment. Chapter V includes a detailed discussion of level III,

where I detail ways in which students' interpretations of activities in the American history unit evolved over time and accordingly changed their opportunities to develop subject matter knowledge. I illustrate connections between the development of their interpretations of activities with changes in the underlying learning activity structure discussed in Chapter IV.

In summary, although the three levels in the model are represented by three separate boxes, they are shown as nested because they are mutually constitutive, or shape one another. That is, the underlying learning activity structure (level I) emerges from the enacted curriculum (level II), as level II occurs over time. Similarly, the meaning participants assign to the enacted curriculum (level III) develops in the immediate environment (level II), but also develops from interpretations of patterns that have developed over time (level I). In this way, the levels of organization are interconnected. Furthermore, the academic and social worlds at the three levels are interconnected as well, as participants interact with one another during the pedagogical encounter, or during interaction among participants as they engage in activities designed to teach subject matter. In the following section, I offer an illustration of a "pedagogical encounter" as I have defined it, and point out the challenges to the researcher who intends to document and describe such an event.

An Illustration of a Pedagogical Encounter

The following is an excerpt from my field notes, written on the second day of my observations, that illustrates the complexity and the elusiveness of the "pedagogical encounter" and the potential difficulties a researcher encounters in trying to capture the learning process. I have indicated in italics some of the questions that emerged during this and subsequent observations. These

questions came up again as I analyzed my data and began to try to describe the organization of the different levels in Chapters III, IV, and IV.

> By almost 10:00 a.m. on a Tuesday morning, the second day of a typical weekly cycle, I had observed three out of the thirty-six students work on anything that appeared to be related to the research project. So when I saw Carl leave his classroom to go to the other room to get a book to read for research, and Steve mentioned to me, "Well, so much for doing research," I thought, "Aha! I'm finally going to have a chance to observe research in action!"
>
> What I learned from Steve is that he was waiting to use the book that Peter and Ken were using, but they were not finished with it, so he could not do his research at that point. Yet he seemed determined to do research at that point, or at least was determined to work on the same kind of work Carl was working on. I kept seeing Steve follow Carl around saying things like, "Why don't we work on..." While Carl seemed more focused on his own decisions, Steve seemed to want to work in parallel on the same type of work, and working in parallel with his friend seemed more important than what the activity was. At this point I noted my curiosity about *how or in what ways resources, the availability and array of choices available, shape what is investigated for research and subsequently shape opportunities to understand subject matter.*
>
> I then had the opportunity to observe Carl and Steve work in parallel on their research over the course of the next hour. Steve was reading about the Liberty Bell. Steve told me he had not been able to obtain the book he wanted on the Statue of Liberty, so he switched topics to the Liberty Bell, presumably so he could do research now while Carl was working on his. I also noted, though, that the after-lunch discussion on Monday included a discussion of the crack in the Liberty Bell, and wondered if that influenced Steve's choice of topic as well as availability of material. Carl was reading about pioneers. I learned later when I discussed his research with him that Carl chose pioneers "...because it was on the [reading] list." This information made me wonder, *how do students choose their topics, and how does that topic choice shape what they focus on to understand subject matter?*
>
> During this next hour while Carl and Steve worked on reading for research and writing the rough copy, there were several aspects that I wondered about regarding the way they approached the activities. For example, there seemed to be a number of interruptions, occurring at three to five-minute intervals, during their work time: one talking to the other, a third student

joining their conversation, getting up to sharpen a pencil or get materials, getting up to talk with one of the teachers. *To what extent are these "interruptions" in the sense that they interfere with or contribute to the activity at hand? How much concentration is going into the reading and writing activity for these two students? How does that affect what students pay attention to?* I noticed that the teachers and aides may have been concerned about the "interruptions" since I saw Mrs. Stanford, the teacher, approach Steve and Carl at least three times during this one-hour time period and comment:

> "I have seen you talking every time I have looked over here this morning."
> "Steve, you've been talking too much."
> "Steve and Carl, that should be done by now. You guys are fooling around."

Mrs. Davis, the aide, also approached the boys twice during this time period to question:

> "What are you doing besides talking?"
> "Carl, have you done your rough draft?"

I noticed *I needed a better understanding of how teachers monitor students' work and how they decide what is too much talking about the wrong topic.* Earlier in the morning, these two boys had gathered around the globe and conversed at length with others about the bombing of Libya that had occurred the day before, and no one interrupted this conversation. Was this overlooked, or purposely permitted?

There were several other points worth noting about the writing process as I conversed with Carl and Steve and overheard others' comments. One interesting point is that Andrew reads and writes at the same time because "...it doesn't take as long." *Does he think he is doing this just to get done?* Carl knows when he is done with his research when he fills up the front of his page. *In his mind, is writing research a quantitative task?* Steve, in an effort to "prove" to Mrs. Stanford that he is not "fooling around," shows her that he is writing on the other side of his sheet already. *To what extent does quantity mean quality to Steve or Mrs. Stanford?* Finally, while I was taking field notes, Nancy came up to me to ask if my goal is to fill up my note pad. When I responded that I'm not really worried about how much I write, she persisted, "But do you have a goal?" (Field Notes, 4/15/86)

This brief sketch of a portion of a "pedagogical encounter," where students used materials to complete research activities, raised more questions

than it answered about how students assign meaning to activities. From this brief observation, I already had important questions about how resources affect topic choice, and how topic choice shapes learning opportunities. I also needed to know more about the overall work patterns so that I had a better understanding of what is an "interruption " in the eyes of the students and the teachers. In addition, I needed to learn more about how students define their goals for activities such as writing, and how they come to define their goals. I could see that I needed information about all three levels of organization in the learning environment (see Figure 1, p. 44) to find answers to these questions, and that the academic and social worlds at each level seemed to be intricately connected. For example, I was not sure how to interpret Steve's topic choice yet (level I), but I saw every indication that his choice was shaped by his participation in the classroom community (level II) as well as by the requirements as assigned by the teacher (level I). I also thought I saw a "give and take" in what teachers allow as informal conversation among students, where Mrs. Stanford seemed to allow quite lengthy conversations about Libya because it seemed to be interpreted as "worthwhile" but tried to stop what she seemed to interpret as general visiting (intertwining of the academic and social worlds at level II). Again, I was not sure how to interpret these events yet, but I could see that some kind of interconnection existed between the academic and social aspects of this classroom.

In an effort to try to figure out how to document and analyze the complex, elusive learning process and begin to sort out the interconnections between the academic and social worlds, I examined more closely methods used in two research traditions: ethnographic and sociolinguistic research traditions and cognitive science research traditions. I wanted to learn more about how and what researchers have learned from analyses of the classroom as a speech

community, and analyses of various aspects of the pedagogical relationship. In my examination of these traditions (in the following section), I show that they tend to place in the foreground of study aspects of either the academic or social worlds. In order to document and describe the learning process on the three levels I intend (see Figure 1, p. 44), and to understand interconnections between the academic and social worlds, I argue for the need to integrate the traditions and use multiple approaches to data collection and analysis.

Research Traditions that Inform the Approach

In this section I examine methods used in two research traditions: (a) combined ethnographic and sociolinguistic perspectives and (b) cognitive science perspectives. I discuss methods used in the two traditions in terms of the extent to which they provide information about aspects of the learning environment in which the pedagogical encounter takes place. I show the need for integrating the methods used in the two traditions, so that multiple ways to approach data collection and analysis are used in order to fully capture the learning process, and follow this with a discussion of central concepts that underlie the analysis of the pedagogical encounter. I conclude with a discussion of the benefits of using the pedagogical encounter as the unit of analysis in order to learn more about how students come to understand subject matter.

Combined Ethnographic and Sociolinguistic Perspectives

The research tradition that focuses on understanding interactional competence in the classroom (see Chapter I, pp. 25-28) combines

ethnographic and sociolinguistic methods[2]. That is, these researchers are concerned with the ways members of school and classroom speech communities use language and non-verbal behavior to create together and make sense of social interaction (Florio, 1978). The unit of analysis is the speech community, and information is sought regarding what actually happens in the speech community (form) and the meaning the participants attach to events (functional relevance) as they occur (Hymes, 1979). This requires researchers to observe participants in their natural context (the classroom, in this case) in order to document and examine what people say (speech messages), the natural occurrence of events (what things people do and the order in which they do them), and things people make and use (cultural artifacts) (Spradley, 1980). This type of documentation is typically done through taking field notes, videotapes, and audiotapes, and collecting documents (Bogdan & Biklen, 1982; Schatzman & Strauss, 1973). The intent is to understand the meaning the participants assign to communicative events as they are functionally relevant to the participants, not just as they are externally obvious to outside observers (Pike, 1967). Getting at the participants' perspective also requires interacting with and/or interviewing participants as well, since their thoughts are not observable (Gorden, 1986; Bodgan & Biklen, 1982; Schatzman & Strauss, 1973). From observations and interviews, the researcher infers a description of the participants' cultural knowledge (Spradley, 1975), or (in the case of classroom research that focuses on the

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[2] There are many ways one could define "ethnography" and "sociolinguistics," depending on the particular focus of researchers in either tradition. The research that is referred to in this section falls in the category of focusing on the "ethnography of classroom interaction," where face to face interaction during the teaching/learning process in the classroom setting is analyzed to learn more about how teachers and students use language and nonverbal behavior to create together and make sense of social interaction (Florio, 1978; Cazden, 1986).

speech community) knowing how to appropriately display academic knowledge in a given context (Mehan, 1980).

This approach to examining classroom interaction yields rich descriptive information about central aspects of the three levels as Erickson (1982b) defines them (see Figure 1, p. 44): level I (the underlying learning activity structure), level II (the enacted learning activity environment) and level III (the meaning the participants make). At level I, this research approach yields information about the status sets and roles of teacher and learners. In addition, it also provides information about the social participation structure, or the allocation of communicative rights and obligations. At level II, this approach provides information about the social interaction task environment, or how functional slots in the learning environment are timed and sequenced, and the social interaction that surrounds the occurrence of events. At level III, this approach provides a view of the meaning of the social interaction in the classroom from the participants' perspective. In summary, this approach provides important information about the social relations as a context for learning (McDermott, 1977), and about communicative expectations of and demands on the learner. However, there are areas of the academic life in the classroom that have not been closely analyzed with this approach: close analysis of the subject matter content and materials, or analysis of specific individuals' interpretations of subject matter content. The cognitive science perspective, described in the section below, addresses some of these aspects of the learning environment.

The Cognitive Science Perspective

Recent research in cognitive psychology has focused on ways to get a better understanding of how and what teachers and students think about subject matter. These aspects of the learning process have not been focused on closely by researchers who have studied the classroom as a speech community. There has been a move in the cognitive science perspective away from sole use of pre- and post-test analysis toward methods that attempt to capture more fully the learning processes. Several sources of information used by researchers in this tradition provide ways to seek understanding of connections between the academic and social life in the classroom.

One source of information typically used to understand how teachers and students think about subject matter is the academic task[3]. By examining classroom tasks (the purpose, the cognitive operations required to complete the task, the resources or conditions available, and the reward structure), researchers consider how content is represented to students (e.g., Doyle, 1985). Some researchers also consider what the teacher's conception of subject matter is that leads to structuring classroom tasks (e.g., Dyson, 1983, 1984a, 1984b, 1984c; Edelsky, Draper & Smith, 1983; Madsen-Nason & Lanier, 1986). They may infer the conception of subject matter from the task structure itself, or may directly ask the teacher in an interview format. Investigation of the structure of classroom activities as they are negotiated by students and teacher in the classroom is a way to explore ways in which academic and social aspects of the learning process interconnect (see Figure 1a p.44).

[3] Researchers such as Doyle (1983) argue that curriculum consists of a set of academic tasks. The term task helps the researcher focus on different aspects of students' work in the classroom (the products students are to create, the operations needed to generate the product, the resources available, and how the work fits into the reward structure of the classroom).

A second source of information that provides insights into both teachers' and students' understanding of subject matter is classroom interaction. Examination of classroom interaction may take the form of discourse analysis where researchers focus on the type and content of the classroom talk (e.g., Greenleaf & Freedman, 1986; Sperling & Freedman, 1986; Green & Wallat, 1981), as well as its sequencing and timing (e.g. Erickson 1982; Merritt & Humphrey, 1979; Michaels, 1981; Wilkinson & Calculator, 1982; Au, 1980). The purpose of the analysis is to understand the interaction between the discourse itself and the participants' access to and their understanding of subject matter content. Thus, the focus on interaction is a means by which interconnections between the social and academic aspects of the learning process can be uncovered (see Figure 1a , p.44).

A third source of information that may reveal ways in which the academic and social lives of students interconnect is observing and talking with the individual participants as they complete their work in the classroom. Researchers focus on students as they complete tasks, and interact with them to find out more about their thinking as they complete them. This might take the form of protocol analysis where students are asked to "think aloud" as they work (e.g., Flower and Hayes, 1980), or report back their thoughts about instruction after it is over (e.g., Peterson & Swing, 1982) or it might combine classroom observation with informal discussion of how one's work is progressing (e.g., Dyson, 1983, 1984a, 1984b, 1984c; Anderson, Brubaker, Alleman-Brooks, Duffy, 1984). This means of finding out about student thinking is especially valuable for helping researchers account for how thinking develops over time as they interact with materials, rather than looking at what people think after an experience is completed (see Figure 1b, 1c, p.44).

A fourth source of information about students' and teachers' understanding of subject matter is people's thoughts about it (see Figure 1c, p.44). Of course there is no direct way to "see" these thoughts, so the main technique used is the interview. This might take the form of the clinical interview (e.g., Roth, 1985; Nussbaum & Novak, 1976; Posner & Gertzog, 1979), or a more general approach to interviewing as part of classroom observation and other types of data collection (e.g., Barnes, 1979; Doyle, 1985; Erlwanger, 1973; Rowland, 1986). These kinds of interviews provide an in-depth look at students' current conceptions of subject matter, and also provide an opportunity for learners to recall aspects of the learning environment that were particularly salient for them (see Figure 1a, p.44).

These various methods have been developed in an attempt to capture teacher and student thinking as it occurs in the classroom context. Returning to the levels of analysis as Erickson (1982b) defines them (see Figure 1a, p.44), different methods yield different information about each level. Those that study academic tasks are primarily finding out about the subject matter task environment at level II (see Figure 1c: The Enacted Learning Activity Environment). Those that study classroom interaction (both discourse and students completing tasks) are also finding out about both aspects of level II (see Figure 1c), the subject matter activity environment, and the social activity environment. Those that focus on the individual as sense maker are learning about level III (see Figure 1a), the mental and emotional life of teachers and students. Most often, researchers bring together two or more these methods (e.g., examine academic tasks, classroom interaction and interviews) to provide a more complete, contextualized picture of the learning process.

In summary, by studying the combined ethnographic and sociolinguistic methods and by studying the cognitive science methods used by researchers

who are interested in exploring the learning process, I learned about multiple ways to approach data collection and analysis that would capture different parts of the academic and social lives of the participants in the classroom, and ways to explore the interconnections between the two areas. Yet I also conclude from this review that each tradition, in selecting what to bring into view through data collection methods and analysis, has framed some portion of the learning activity environment out of view. Therefore, it is necessary to integrate the use of methods from the two traditions for data collection and analysis in order to capture the social and academic aspects of the learning process at all three levels (see Figure 1. p.44). Finally, review of this literature also revealed some important concepts around which I could center my analysis, as described in the section below.

Central Concepts Used for Analysis of the Pedagogical Encounter

It is important for researchers to examine their underlying assumptions about classroom life since those assumptions will shape the questions they ask and the ways they go about seeking answers to their questions. As indicated in Chapter I, the focus one chooses for study of classroom life brings certain aspects of the learning process into view, while framing others out. Therefore, a close examination of the unit of analysis as it is defined and understood by the researcher reveals more fully which aspects of classroom life need to be included in the view the researcher expects to get. As the pedagogical encounter has been defined in this study, there are some underlying assumptions about the concept of experience, about the concept of communication, and about the concept of task that are central to how data was

collected and analyzed. I will describe these assumptions in the three sections that follow.

Underlying Assumptions about Experience

As noted in Chapter I (p.13), Dewey's (1938/1976) principle of continuity of experience is a fundamental principle from which concepts central to this inquiry are derived. The essence of this principle is that as students participate in experiences in school, there is a cumulative effect that will influence how students approach subsequent experiences. This is because what students bring to a learning situation influences how they experience the environment:

> What he has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with the situations that follow. The process goes on as long as life and learning continue (Dewey, 1938/1976, p. 44).

For Dewey, the principle of interaction is inseparable from the principle of continuity. The principle of interaction encompasses the notion that people live in a series of situations with which they interact:

> An experience is always what it is because of a transaction taking place between an individual and what, at the time, constitutes his environment...The environment...is whatever conditions interact with personal needs, desires, purposes and capacities to create the experience which is had (Dewey, 1938/1976, p. 44).

Finally, Dewey argues that all experience is ultimately social, that it involves contact and communication. In the school setting, there are aspects of experience that become particularly important if one is to understand it:

> Unless experience is so conceived that the result is a plan for deciding upon subject-matter, upon methods of instruction, and upon material equipment and social organization of the school, it is wholly in the air (Dewey, 1938/1976, p.28).

In summary, this inquiry (the questions asked, and ways of seeking answers) is guided by the assumptions that "experience" in school includes what one brings to the learning situation, one's interaction with people and the environment, and that the "environment" includes subject matter content, instructional methods, instructional materials, and the social relations in the classroom and school. In addition to underscoring the interconnected nature of the social and academic aspects of classroom life, Dewey's ideas emphasize the cumulative nature of experience as it shapes one's approach to and interpretations of subsequent experiences.

The Concept of Communication

A key concept to understanding the nature of the interaction among the learner, the teacher, the subject matter, the learning tasks, and the socially constructed meaning that is derived, is communication. It is an "...intermediate concept...which is common both to the public, shared order of belief and to the private ordering of belief by individuals" (Barnes, 1979, p.188). It brings together a theory of how learning comes about and how the learning takes place in an individual who operates in a social milieu. The concept of communication serves the dual function of looking at what is intended in

communication, and what actually gets communicated (Hymes, 1980). Therefore, the focus of classroom research must be on understanding of and description of processes related to classroom learning, with communication serving as a central concept for approaching the investigation of processes in the classroom (Vygotsky, 1978). Communication or language is an important mediator between one's thought and action (Vygotsky, 1962); it is through speech that children can realize and express intentions and purposeful action through symbolic representation (Vygotsky, 1978). Speech is the medium and the message (Erickson, 1986b).

An example of using communication to understand learning processes is the investigation of teacher talk. What teachers say in the classroom, how they phrase questions, can function as a lens (e.g., indicating to students what to focus on during instruction), and also as a filter (e.g., what not to focus on during instruction) (Greenleaf & Freedman, 1986). How the teacher's talk functions involves not only what the teacher intended to communicate, but how the students interpret what is said.

The Concept of Task

Doyle (1985) and Nespor (1985; and in press) argue for the use of the concept "academic task" as an analytic tool for examining subject matter as a classroom process. Does analysis of the academic task provide a way to understand all three of Erickson's levels of analysis (see Figure 1, p. 44)?

Recall that level I (see Figure 1b) is the underlying social and academic activity structure in the classroom, while level II (see Figure 1c) is the enacted social and academic activity environment. Going back to Bernstein's (1975) notion that educational knowledge is realized through three message systems,

the curriculum, pedagogy, and evaluation (See Chapter I, pp. 29-30), the academic task or activity as conceived and as enacted is a representation of those message systems. Examining the academic task or activity is a way of looking at how a teacher's conception of curriculum is made concrete, or how content is represented in the classroom (Doyle, 1985). The task or activity as *conceived* and *announced* gives a view of the underlying subject matter structure (See Figure 1b, p.44). It also provides information about factors that arise out of the broader social and academic milieu such as the teacher's underlying assumptions about the nature of subject matter, the learner, and the teacher's role (See Figure 1a, p.44).

The learning activity brings together the individual and social lives of the participants. For example, as learners experience learning activities, learning occurs socially while it also occurs individually. This means that as students participate in learning activities (a social action that requires them to interpret others' expectations), they are also interpreting activities to make sense of subject matter knowledge. If the learning process is thought of in this way, it is very difficult to separate learning from activities. For example, students may perform (complete) activities at they same time they are developing organizing principles that they can creatively apply to new situations (Vygotsky, 1962), thereby intertwining the two so that learning is in the doing of the activity. Moreover, the social participation structure (see Figure 1b, p.44), the participants' statuses and roles, are revealed in the way academic tasks or activities are *negotiated* and *interpreted* in the pedagogical relationship. Because the way the tasks or activities are negotiated and interpreted involves the active mental lives of the individual learner and the teacher (what they know, what they perceive, what they want), level III (see Figure 1c) is also an important part of understanding the academic task or activity as it evolves over

time. Therefore, focus on the academic task or activity as an analytic tool is a way of managing analysis of all three levels of classroom learning processes.

These three concepts, experience, communication, and the academic task or activity, carry with them assumptions about the learning process that encompass all three levels of Erickson's model (see Figure 1, p. 44), and require the researcher to consider the interconnection among all three levels. They are an important part of the unit of analysis, the pedagogical encounter, that is to be used as a means to understand the learning process. I turn now to a consideration of the merits of the unit of analysis.

How Will this Unit of Analysis Improve the View of the Learning Process?

Is this approach to studying and understanding learning processes merely "additive" in the sense of combining the two research approaches (discussed in Chapter I), and calling them investigative "levels"? Is there any qualitative difference in the view of learning one can get from focusing on the pedagogical encounter as the unit of analysis? Without consideration in some way of all three levels and their interconnection (see Figure 1, p. 44), the researcher cannot avoid pitfalls of studying objects instead of processes, of studying surface features rather than dynamic relationships, of studying fossilized behavior instead of discovering the source of points of development (Vygotsky, 1978, p. 65).

A detailed view of the pedagogical encounter, as it evolves and is experienced over time, brings together the academic and social aspects of classroom life. Instead of separating either one out for specific study, both aspects and the interaction among aspects are studied from three viewpoints:

the underlying structure, their enacted structure, and how the enacted structure is interpreted by the participants.

This approach to studying classroom life assumes and seeks to preserve the dynamic, constitutive nature of the component parts researchers identify as individual points of study. Although parts are separated from the whole for the purpose of analysis (e.g., classroom tasks or individual meaning), the analysis requires consideration of the place the part has in the whole (e.g., the enacted learning environment, and the broader context of which the environment is a part). Although some depth of understanding may be sacrificed (e.g., level of detail of an individual's knowledge of subject matter) by focusing on so many levels at once and by focusing on students' interpretations of activities, this approach has potential for increasing our understanding of the interaction among the constituent parts (e.g., how the communication in the classroom and the structure of the task influence the student's opportunities to understand subject matter).

With this integrated approach to looking at the interconnection between the academic sides of the learning environment at three different levels (see Figure 1, p. 44), the quality of the view of classroom life is improved because of its potential for making available for study and analysis classroom processes as they occur from moment to moment, as well as how they fit within the larger context of classroom life. Often, classroom research identifies what we do or do not get in classrooms that we want (e.g., appropriate content representation, intended learning outcomes). The promise that this approach holds is to reveal what understanding students *do* get in classrooms and *how or why* particular understandings comes about. It provides a view of how students interpret activities to understand subject matter, not just of the understanding itself.

In the three chapters that follow, I describe the study I conducted where I implemented this integrated approach to studying classroom life by focusing on the research project in an American history unit as a "pedagogical encounter" in an elementary classroom. In Chapter III, I provide background information about the unit of analysis for this study, how the approach was implemented, and information about the community, school, and the school's stated curriculum. In Chapter IV I describe the underlying learning activity structure, how it functions in the classroom, and how it changes over time as the American history unit progresses. In Chapter V, I provide an analysis of the evolution of students' interpretations of activities over time as they complete activities to understand American history. I show ways in which the course of students' developing interpretations of activities are connected to the changes in the underlying learning activity structure as it evolves over time, and are connected to changing opportunities for knowledge development.

CHAPTER THREE

BACKGROUND INFORMATION ABOUT THE STUDY

Overview

In this chapter, I provide background information about the study I conducted in an elementary classroom to learn more about how the academic and social worlds interconnect in the learning process. First, I describe the unit of analysis for this study, which is the weekly research project and its part in a unit on American history. Then I describe how the research approach was implemented (types of data collected and data analysis). I end the chapter with background information about the school and its community, and the school's stated curriculum. The purpose of this chapter is to provide a context for the analysis of the learning process that will follow in Chapters IV and V.

The Learning Environment as a Window in this Study

As described in Chapter II, the learning environment is the context in which the pedagogical encounter takes place, and carries with it three levels of organization (see Figure 1, p. 44): the underlying learning activity structure, the enacted learning activity structure, and the mental and emotional life of the participants. In this section, I will provide a general overview of the pedagogical encounter I studied (weekly history research carried out in an elementary classroom) and describe how it fits into the larger context of an American history unit (the school year, the curriculum in the school, and the daily lives of the participants). Finally, I will explain the study's purpose, and the choice of research site as it relates to the purpose.

A Focus on Weekly History Research

I have chosen to focus on the pedagogical encounter as it occurs in the context of the learning environment as a way to look at how the meaning students assign to classroom activities evolves, and how students' interpretations of activities shape opportunities for knowledge development. The pedagogical encounter that I will will focus on in this study is the weekly research cycle as it occurred within the last seven weeks of a twelve-week unit of study on American history in an early elementary classroom. The teachers' broad goals for the unit of study were "...to provide information and reference to historical happenings" in American history (Teacher Interview, 4/28/86). The two teachers I studied wanted children to get a sense of what history is, and how one might generally characterize four time periods in American history (pre-1600's; 1600's and 1700's; 1800's; 1900's). The twelve-week unit started with the children reading and writing about famous people, then shifted to important historical events, and important inventions. In general, there were four themes that emerged over the course of the seven weeks regarding what history is:

--History is the record of individual and groups

--History is the record of political arrangements (formation of states)

--History is the record of problems of human beings and how they have faced their problems (including cooperation and conflict)

--History is the record of ideas and inventions

In addition to wanting to help children understand what history is, these teachers wanted children to understand the processes by which people make sense of history. That is, they wanted students to learn to interpret history by learning how to characterize the kinds of events that fit within a particular time

period, as well as to discover connections among historical events within a particular time period so the learner links them in a meaningful way (Teacher Interview 4/28/86 and 8/19/86).

Given these goals and intentions on the part of the teachers, how might one go about studying learning processes to discover what sense the students did make of the activities available in the learning environment, and how the sense they made came about as part of their academic and social lives in the classroom?

The History Unit Within its Larger Context

In this study, I wanted to capture a view of the pedagogical encounter at all three levels of analysis (see Figure 1, p.44), and to capture curriculum as it is lived in the classroom and as it changes over time. Capturing these qualities of the learning process would bring in views of both the social and academic aspects of learning and how they interconnect. Therefore, I focused on the activities in which students participated to learn American history. Observing activities in action is a starting point for exploring connections between the students' and teachers' academic and social lives (see pp. 62-64 for a discussion of the concept of task). These activities are studied as they are nested within a larger context, as a means of accounting for how the activities (as conceived, announced, negotiated and considered retrospectively) came about. Therefore, I focused on the weekly research cycle as embedded in its overall context as shown in Figure 2 (p.70). The unit of analysis, the "pedagogical encounter," includes the entire research cycle (see Figure 2a). I include as part of the cycle reading, writing, drawing, discussion, copying activities, checkout activities, and special events or activities, because in the

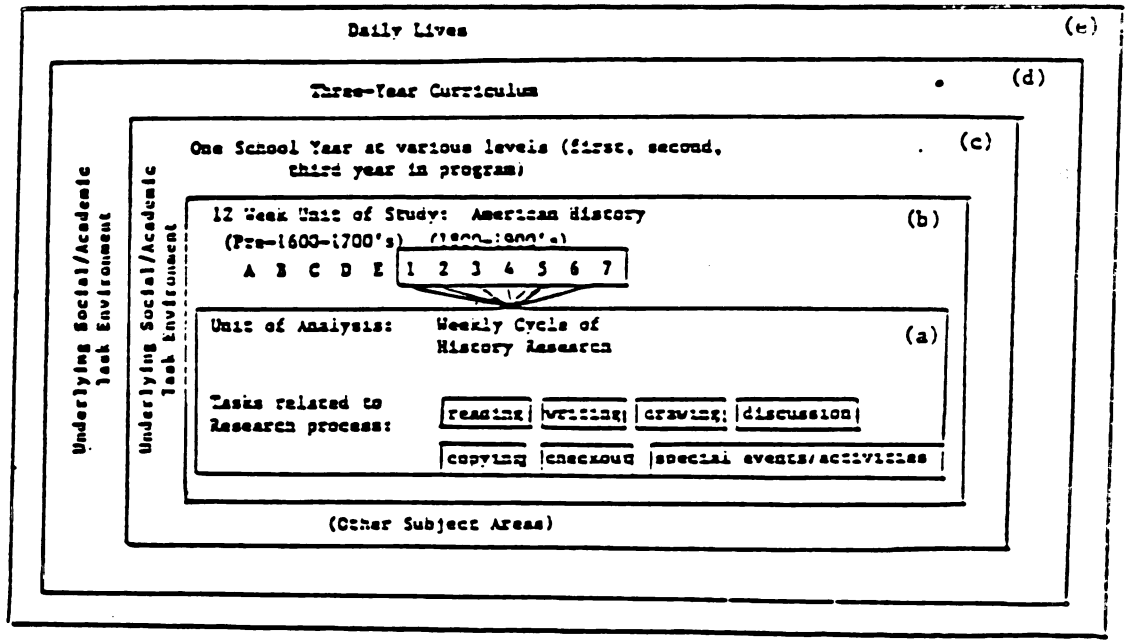


Figure 2: The Weekly Research Project Within its Overall Context

teachers' minds, these are all activities that are intended to contribute to students' understanding of American history. My observations began in the sixth week of a twelve-week unit of study (see Figure 2b), so my study of the pedagogical encounter must take into consideration what has occurred previously if I am to understand the cumulative effect of experience (Nespor, in press; Connelly & Clandinin, 1985; Dewey, 1938/1976), and how students' current understanding arises out of prior knowledge (Posner, Strike, Hewson, Gertzog, 1982; Barnes, 1979; Bruner, 1960; Vygotsky, 1962, 1978). In addition, the unit on American history is one of many subjects taught in the classroom, as well as being part of a progression of study that has occurred since the beginning of the school year (see Figure 2c). Again, the cumulative effect of learning must be accounted for, as well as the connection(s) between this unit of study and others that may have occurred in the classroom over the course of the year. Since the students in the classroom are a mixed age group (either first, second or third year students as shown in Figure 2c), the point at which this section of the American history unit occurs in their overall experience will vary, and this must be kept in mind as I study their developing understanding. Moreover, the teachers' goals for this particular unit, and for particular activities, develop out of their goals, beliefs and intentions about how the curriculum should evolve over an extended period of time (see Figure 2d). Since this is a "lower elementary" classroom whose curriculum is conceived of in three-year blocks, I have chosen a three-year block in which to envision the larger curriculum (see Figure 2d). Finally, the school curriculum is enacted as part of the participants' daily lives, and how the sense they make of activities and subject matter may connect in important ways to their daily lives as well (see Figure 2e). If I am to capture the cumulative nature of experience as I describe

the learning process, I need to take these multiple layers of context into consideration as important sources of information to make inferences in Chapters IV and V about the meaning students assigned to activities in the classroom during the American history unit. In the following section, I will turn from discussing the unit of analysis to a description of the overall purpose for the study.

The Study's Purpose

The overarching purpose of this study is to take a comprehensive approach to understanding students' learning in the classroom that describes how students' interpretations of activities shape their opportunities to develop subject matter knowledge over time. To implement this approach, three additional purposes emerge: to learn more about the meaning students assign to classroom activities and the corresponding opportunities to understand subject matter that develop; to provide detailed descriptive information about the interrelationship among factors that may shape meaning; and to try to account for how the interrelationship comes about. Specifically, the interrelationship among the following four areas is explored:

--teachers' and students' goals for learning
--the learning activities designed and carried out for subject matter acquisition
--the social interaction in the classroom surrounding those activities
--the learners' interpretations of the learning activities, and how interpretations shape opportunities for knowledge development.

As this interrelationship is explored, that is, as I examine how each factor shapes another, I try to account for how the relationship comes about within this classroom context.

As my story about Abe at the beginning of Chapter I indicates, I began this study as an educator in search of research methods to answer questions I had about how students assign meaning to classroom tasks, and how understanding of subject matter comes about. In the section that follows, I explain why the site at which my questions originated was also an appropriate site to investigate these questions.

Choice of Research Site

In this section I explain two aspects of the research site that make it an appropriate place to pursue the research questions. First, I describe the research project itself, and the characteristics of the project that lend it to studying the learning process. Second, I consider features of the classroom (e.g., classroom organization, teaching style and format, age grouping of students) and explain how those features make this classroom a good choice of site to investigate the interconnection between the academic and social aspects of the learning process.

The Research Project as the Unit of Analysis

I view the weekly research project as it is carried out in the classroom under study as an "extended pedagogical encounter." It is comprised of an array of activities, all directed toward reaching fairly well defined goals (as defined by the teachers). There are several features of the research process as it is designed that lend itself to implementing this new approach to studying

learning processes, and to examining the specific questions raised in this study. For example, the weekly research process includes several types of activities that culminate in students writing a research report each week (e.g., read, write a rough copy, write a final copy, draw a picture). In addition to these independent activities, there are surrounding events (e.g., discussions, field trips, class activities) that are also intended to contribute generally to the group's study of American history. This variety of activities provides multiple sources of information about subject matter content and social interaction to consider.

Shown in Table 1 (p.76) is a summary of the weekly activities that occurred in cycles, and special events or activities that were interspersed throughout the unit. Across the top of the table are listed the topics students studied each week, which are organized in time periods. The weeks I observed included the last two time periods out of four altogether (pre-1600's; 1600's and 1700's; 1800's and 1900's). On the top half of the table are listed weekly activities that are typically completed independently, and paced by the use of a checklist students follow. These include: reading several selections about a time period, writing a rough draft and final copy about one of the selections, drawing a picture to accompany the final copy, copying lists of presidents and states that correspond to the time period under study, and going through a "checkout" process each Friday where students are accountable to teachers for the work they have completed independently that week. I also include group discussions in the list of weekly tasks because they occurred at the same time each day (after lunch), they were usually about American history, and often contained directions and information related to the checklist work. Each square that contains an "x" indicates that during a particular week, that activity was assigned by the teachers. In Chapter IV, I describe the nature of the activities in

greater detail, and infer from the activities I observed the underlying learning activity structure. I show how the underlying structure for the activities slowly changes and evolves over the course of the seven weeks I observed.

On the bottom half of Table 1 are what I call "special events or activities" that are teacher-directed. In the left hand column, I have provided categories that describe the nature of the activity in relation to the subject matter content. For example, some special events, such as the Civil War game during week 2 and the invention work during week 3, were designed to provide a way for the students to participate in an experience that will help them understand what it feels like to have been part of a historical event. Experiences like the field trip during week 1 and the songs learned during music during week 2 were designed to provide the opportunity for students to visit artifacts of the time period under study. The genealogy activity in weeks 5 and 6 was designed as a study of "personal history" (Field Notes 5/16/86). Finally, the picture timeline, story problems, and riddles were activities that were part of a retrospective summary of the four time periods students studied. In Chapter IV I describe how these special events contributed to the changing underlying learning activity structure, and in Chapter V I describe the connection between these activities and the weekly research activities in shaping students' opportunities to understand American history.

Another characteristic of the research project that makes it an appropriate unit of analysis for this inquiry is the way it is implemented in this classroom. The classroom is organized in what is usually called an "open classroom" style (Westbury, 1972; Barth, 1969) since work is assigned for the week (along with choices for other work made available), and the students are

Table 1: Summary of Activities in American History Unit

	Topic:	1600's	1800's	Inventions	1900's	1930's	1900's (and Retrospective Summary)	1900's
	Week	1	2	3	4	5	6	7
Activities directed by checklist:	Weekly Tasks:							
	read	x	x	(none)	x	x	(none)	(none)
	write rough copy	x	x	x	x	x	x	x
	write final copy	x	x	x	x	x	x	x
	draw illustration	x	x	x	x	x	x	x
	discuss (group)	x	x	x	x	x	x	x
	copy presidents and states	x	x	x	x	x	x	x
	checkout	x	x	x	x	x	x	x
Activities directed by teachers:	Special Events or Activities (Blank square indicates no activity)							
	Similar event: feel what it's like		Civil War Game	Invent				
	Place self in history					Genealogy - - - - ▶	Genealogy - - - - ▶	
	Visit artifacts	Field Trip	Music Gettysburg Address					
	Retrospective Summary					Picture Timeline - - - - ▶		Story Problems Riddles

responsible for managing their own time in order to complete the weekly research process. The flexible work schedule affords the opportunity to examine how students and teachers work together over time, and to see what changes in interpretation of activities occur over time. Student and teacher talk about their work (their progress in completing it, and talk about the actual content of their writing, and the actual content of American history), and students' and teachers' roles can be monitored during the research process.

The topics for research are often open-ended, or a choice of topics will be given within a broad category (e.g., Fall, biographies, animals). Studying the process of topic selection, and watching how the topics develop over time (e.g., what students say about their topic, the relationship between available resources and topic selection) provides the opportunity to examine participants' intentions, how they go about making decisions about their topics, and how they will develop them. It also provides an occasion for looking at how divergent the topic selection and development is. Teacher and student talk about their topic choice, help needed or difficulties in finding information, or teacher and student discussions about their rough drafts could potentially reveal information about their assumptions about the nature of knowledge and how they act on those assumptions. This research process also provides an opportunity to examine the roles of teachers and students, and the nature of their interaction during the research cycle.

Finally, the research process as designed by the teachers appeared to include multiple long-term goals, toward which teachers see themselves gradually working with students over a three-year time period. The research project as intended by the teachers and as enacted provides an opportunity to

examine the extent to which students and teachers coordinate or share purposes (Newman, 1985).

In addition to these characteristics of the research project making it an appropriate unit of analysis, it is a common enough approach to studying subject matter in an elementary classroom (e.g., reading, writing, discussing, and having special events about a topic during a unit of study) that it is fairly likely that one could find these kinds of activities going on in any number of elementary classrooms. Therefore, although this classroom and the way the research project is organized and carried out has its own individual characteristics, insights about the learning process and issues that arise out of the pedagogical relationship that are discussed in Chapters IV and V are likely to apply to other teaching and learning situations in other elementary classrooms as well. I now turn to describing features of the classroom where the research project was carried out.

The Choice of Classroom

The classroom itself has several features that make it a promising place to implement this new approach to studying learning processes, and to study the research questions. The open style of the classroom provides opportunities to study a variety of types of interaction (one to one, small group, large group), and examine how the underlying activity structure comes about. Second, the teachers appeared to intend to design a learning environment that takes children's goals into account, and allows for divergent interests and pursuit of subject matter knowledge. Therefore it is an appropriate occasion for the study of how individual sense-making occurs within a social context. Third, this is a multi-age classroom that contains children between the ages of six through nine

years old. This means these teachers have had some of the children in their classroom for more than one year, which provides a source of information about students' progress for an extended period of time. Finally, the two teachers in the classroom work as a team. Since they discuss the students' progress with each other and with the instructional aides on a daily basis, it is likely that this daily articulation would enhance their ability to articulate what they think about the students relative to what teachers who work in a self-contained setting might be able to articulate about their students' progress.

Features of this research site and the nature of classroom activities make it an appropriate place to investigate the research questions, and make the research project an appropriate unit of analysis. In the section that follows, I will describe the research procedures.

Research Procedures

In this section I describe the research procedures used in the study. First I describe types of data collected (e.g., documentation of classroom interaction, self-report, documents). Then I explain data analysis and reduction procedures, by discussing types of analysis used, and by providing a description of how I managed and analyzed data to discover information about the three levels of the learning environment (see Figure 1, p.44).

Types of Data Collected

My purpose for this study is to provide description at three different levels and account for interconnections among the levels: the underlying and enacted learning task structure, and the mental lives of the participants (see Figure 1,

p.44). My choice of types of data collection was influenced by that goal. Of the three levels of analysis undertaken, the only level where data is directly observable is level II, the enacted learning environment (Erickson, 1982b). Information about level I (the underlying learning environment) must be inferred from what happens, and what people say about what happens. Information about level III (the mental lives of the participants) must be inferred from what happens, and what people say they think about what happens. Therefore, data is required that documents events in the classroom, and how people interpret those events. The following three sections include descriptions of three kinds of data collected in order to accomplish the stated purposes. In the final section I discuss how I made documentation decisions.

Documentation of Classroom Interaction

I chose three different ways to document classroom events and interaction (summarized in Table 2, p.83). The main data source is detailed field notes. For the first two of the seven weeks of data collection, I was a participant observer in the classroom under study. The first week, I observed for full days to get a sense of the overall routines in the classroom, and the nature of the work children encountered so that I would have an understanding of the overall context in which more focused observations might take place (Erickson & Shultz, 1981; Shultz, Florio & Erickson, 1982). Each day after I left the field, I returned to my original notes to add details, clarify ideas jotted down, and make notations about things I would want to be sure to look for in my next visit (Schatzman & Strauss, 1973). During the second week, I continued to observe for large blocks of time (one or two hour segments) to check out my impressions from the first week about overall routines. I also began to select events on

which to focus for specific observations (e.g., spelling, math and language groups, after-lunch discussions about American history, discussions about rough copies of research).

During the second week, I also began videotaping two types of interaction: "key events," and overall routines. These tapes were supplemented with field notes as well. I determined which key events to tape according to the following criteria:

a) Is the event part of learning about American history? Does it potentially contribute to the research project in some way? Examples of events that were videotaped are after-lunch discussions about American history, one of the teachers composing research with the first-year students as a group, and the teacher returning rough copies to students (see Table 2, weeks 2,3,4).

b) Does the event potentially contain observable interaction that is likely to yield inferences about any of the three levels? For example, I chose to videotape the teacher reading to the first-year students for their history reading instead of taping a student reading individually. The conversation surrounding the reading was likely to provide some clues about what kind of information the teacher focuses on from the reading, and what children pay attention to.

I used my field notes and ongoing analysis during the data collection process to decide each week which kinds of key events to record. In addition to those key

events already discussed, I videotaped silent reading time during week 4, and the genealogy and picture timeline introduction during week 5.

I also videotaped larger segments of time (one to two-hour segments). This provided a way to triangulate my impressions from week 1 of the overall routines (Gorden, 1986), and also provided a way for me to look back at the nature of the interaction within the routines. For example, I videotaped a Friday morning "checkout" time (see Table 2, week 2), where students bring their assigned work for the week to the teacher to determine if they are finished for the week. I also taped larger segments such as an entire morning and an entire afternoon (see Table 2, week 5) as a way of having the opportunity to contrast the extent to which the nature and amount of interaction differs in different parts of the day.

Audiotapes of some key events supplement field notes, so as to make available verbatim records of what people said during a particular event. Decisions about which events to audiotape were made on the same basis as decisions about videotaping key events. I also audiotaped interviews with teachers and students (see Table 2, weeks 3, 4,). I audiotaped at times in lieu of videotape to reduce the amount of videotaping to a manageable amount. Audiotaping is also much less intrusive than videotaping.

While field notes, audiotaping and videotaping were the three main data sources for documenting classroom interaction, described below are additional ways I obtained information that was important to the inquiry.

Self- Report

Formal and informal interviews were carried out with teachers and students during the data collection period. Formal interviews were audiotaped and transcribed. I interviewed the teachers during the second week of data

Table 2: Summary of Documentation of Classroom Interaction

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1 (1800's)	FN 9 a.m.- 3 p.m.	FN 9 a.m.- 3 p.m.	FN 9 a.m.- 3 p.m.	FN 9 a.m.- 3 p.m.	Field Trip FN afterwards
Week 2 (1800's)	FN 9 a.m.- 1 p.m. Video after-lunch discussion Video aide reading to first-year students	FN 9 a.m.- 9:17 a.m. Video aide reading to first-year students FN 1 - 3 p.m.	FN 9 a.m.- 10:30 a.m. Video teacher composing rough copy with first-year students	Video teacher returning rough copies Video after-lunch discussion	Video Friday Checkout FN 1-3 p.m.
Week 3 (Inventions)	Audiotape student interviews Audiotape teacher Interview Audiotape after-lunch discussion	Audiotape student interviews	Audiotape student interviews	Audiotape teacher returning rough copies FN after Parents Night	Audiotape monthly notebook checkout
Week 4 (1900's)	Audiotape after-lunch discussion Audiotape silent reading time	Audiotape student interview	Audiotape teacher returning rough copies	Audiotape teacher returning rough copies	
Week 5 (1900's)	Video morning routine	FN 9 - 11:40 a.m. Video after-lunch discussion		FN 9:25 - 11:15 a.m.	Video geneology & picture timeline activity
Week 6 (Summary)	Audiotape after-lunch discussion Audiotape teacher composing research with group Audiotape geneology discussion	FN 9 - 11:30 Video teacher composing research with group			
Week 7 (Summary)	(no school)	Video morning directions 9 - 9:17 a.m. Video after-lunch discussion	FN 9 - 10	Audiotape morning directions 9:12 - 9:27	

collection, and again two months after the data collection period was completed (See Appendix A for Teacher Interview Questions). The first formal interview provided a record of the teachers' thinking and planning about mid-way through the twelve-week American history unit. The second formal interview provided information about the teachers' retrospective view of the unit. They had spent considerable time during the summer thinking about how the past year had developed, so I had the benefit of their active evaluation of the unit as we discussed how they thought things went.

During week 3 of data collection, I conducted formal interviews with nine students (See Appendix B for Student Interview Questions). I asked for volunteers to sign up to be interviewed, and interviewed those nine who volunteered. The main purpose of the interview was to get a sense of how students interpret the research process in which they participate weekly, and to try to get a view of what they think research is, and what it is for. I also wanted to find out from them what their own goals are as they do research. We used the written products (pieces of research they had recently written with accompanying drawings) as a focus of discussion during the interview. Included in Appendix C is a transcript of one student interview with copies of the documents we discussed.

I had plans to conduct a series of short follow-up interviews with each student during the fourth week that would document the stages of the writing process (rough copy, review edited rough copy, final copy with drawing). However, the pace of the research had changed that week from the previous weeks (due to students reading and writing research together). I was unable to keep up with these various stages, so I abandoned the idea.

In addition to formal interviews, I talked frequently with the teachers and students as part of the observation process, about how things were going, and

about particular pieces of research . I also volunteered to help students with their work during weeks 5 and 6 so I would have the opportunity to interact with students as they wrote their rough copies. I took some field notes during this process, and wrote down more details and impressions after leaving the field. I found that during my formal and informal discussions with students, the documents I will describe below were particularly helpful as a focus of the discussion.

Documents

I collected two main types of documents. One type is copies of students' written work (rough drafts and final copies; drawings). These were used frequently during my discussion with students about their work, and to help them remember their work if we were discussing work they had completed in the past. Several examples of these documents are included in the text of Chapter IV, and examples of one student's writing and drawing is included in Appendix C. Since they were saving these documents in their history folders, I did not collect the documents as the history unit progressed (except for making copies of those pieces of research I discussed with students during their interviews). This turned out to be a fairly unreliable method of collection, which resulted in some history folders not containing all the written work that students had actually completed for the time period under study. It did, however, give me potential access to all written work during the entire twelve weeks' study of American history, instead of my just being limited to the last seven of the twelve weeks when I observed.

I also collected copies of all teacher-produced materials made available to students. These include the weekly checklists students use as part of the

classroom routines (see Figure 6 in Chapter IV), and the reading lists provided to the students (see Appendix F). Appendix D includes worksheets provided to students during various parts of the unit (e.g., crossword puzzles, maps, special activities).

Documentation Decisions

During fieldwork, data collection is a process of progressive problem solving, where gathering data, generating hypotheses, and testing hypotheses occur throughout the documentation process. Strategic decisions must be made about what to document, when to document, and how documentation will help the researcher develop and test working hypotheses so that there is a consistent relationship between research questions and data collection (Erickson, 1986b). During the documentation phase of this research, I was particularly sensitive to two overall questions as I made decisions about what to document in subsequent fieldwork:

a) What am I learning from the data so far? Does the information gathered provide opportunities to search for confirming and disconfirming evidence related to my working hypotheses? Am I searching for discrepant cases? Am I learning about the meaning perspectives of students and teachers?

b) Is the information adequate? Do I have enough evidence and/or a variety of kinds of evidence to support working hypotheses?

These two broad questions were applied to each level of information I sought (see Figure 1, p.44) as a way of checking to see if I was taking advantage of all available opportunities to seek information about each level. As I preliminarily examined my field notes, documents, and initial interview data on an ongoing

basis, if I noticed an area where more information was needed, I made plans to adjust my data collection in subsequent field work. For example, as I interviewed students during week 3, I noticed that some students seemed to have just the "right" explanations for why they were doing research work (perhaps what they thought an adult might expect to hear). So I decided to work with children on their research during their individual work time during weeks 5 and 6 as a way to informally ask them more questions about their work in a more natural setting than the interview setting provided. My field notes show a different kind of information about some students' approach to their work than my interview data for them reveal. This additional information might provide a means of seeking and finding disconfirming evidence for generalizations I was making about how children approached their work.

In summary, the documentation phase of research is where ongoing analysis begins. That is, as the researcher makes decisions about what to document and why, those decisions may shape emergent interpretations the researcher makes regarding the validity of working hypotheses. For example, the data collected must be a representative sample of the range of activities in which teachers and students routinely participate so that the researcher has an adequate stock of information to consider regarding what actually happens in the setting. This involves finding ways to document what students and teachers do and say, while taking care not to mix indiscriminately descriptions of behavior with interpretations of speech and actions. In addition, as researchers document behavior, they must pay attention to how their working hypotheses may shape the way they focus on actions or speech, so that their selected focus does not inadvertently leave out information that may be important to discovering local meaning to the participants. For example, a decision to audiotape a given event provides a verbatim account of the words spoken in a

situation, but leaves out the physical movements and facial expressions that a videotape can potentially capture. This could have consequences for what the researchers learn or leave out about the participants' interpretations of the event. This means that as researchers proceed inductively, they must be sensitive to the extent to which their focus as they document events is actually an instance of interpretation based on what they come to believe is "typical" or "predictable" in the setting. These emerging interpretations must be tested for discrepant cases or disconfirming evidence, so that as researchers decide what to document and why, they are careful to see that their developing units of analysis and ways of thinking about how real-time events are organized in relation to one another are part of the analytic process and need to repeatedly be tested. In the sections that follow, I describe more specifically how emerging interpretations of data affected documentation, data reduction and analysis, and final interpretations of the data.

Data Reduction and Analysis

In this section, I provide information about how I reduced and analyzed data for the study. The description of the research process in this section moves from the general to the specific in that I provide an overview of approaches used in collecting and analyzing qualitative data, then provide a summary of types of analysis used in the study, and end with a specific account of data mananagement and analysis during the process of writing the research report. That is, I begin by giving an overview of the types of analysis used in the study, describe analytic categories that were used, and then show how I related various data sets to each other. This is followed by a specific description of data

analysis for each of the three levels of the learning environment: the underlying learning activity structure, the enacted learning activity environment, and the meaning students and teachers assign to learning activities (as shown in Figure 1, p.44). I conclude with an account of how I managed the data and how the various approaches to understanding the three levels of the learning environment were woven together during the analysis and report writing process to create the narrative and interpretive account of learning provided in Chapters IV and V.

Types of Analysis Used in the Study

Two main types of data analysis are important to educational ethnography, and therefore were a central part of the research process in this study. One type is ongoing analysis carried out during data collection (Spradley, 1980). As discussed in the previous section, the purpose of ongoing analysis is to help the researcher make decisions about how and where to selectively focus subsequent observations. Since ethnographic analysis is a process of "question-discovery," instead of a process of investigating specific questions from the start, it is from analysis of the field notes and other forms of documentation that more specific questions arise. This ongoing analysis occurs in cycles where observation and taking field notes are followed by analysis, which leads to new questions, which is followed by more data collection and subsequent analysis. It is in this way that patterns of action and categories arise out of the data, instead of being specified a priori (Spradley, 1980; Schatzman & Strauss,1973; Bogdan & Biklen, 1982). I began the study with four broad categories of inquiry: what are teachers' and students' goals for learning; what are the learning activities designed for subject matter learning; what is the

nature of the social interaction in the classroom surrounding those activities; and what are the learners' interpretations of the learning activities, and opportunities for understanding subject matter content. As data collection and analysis progressed, I was able to ask more specific questions, and discover relationships across categories. For example, once I had general documentation of the overall "research process" in the classroom and could identify those activities that were associated with learning American history, I could then focus more specifically on obtaining descriptive information about each activity's structure, its intended purpose as interpreted by teachers and students, and how it was carried out each week. As I proceeded with this more focused documentation and ongoing analysis, I confronted issues regarding the amount and type of data to collect and consider; this process will be detailed in a later section in this chapter.

A second type of analysis occurs more often during the end of the research cycle when writing begins, but also takes place as the researcher writes up field notes and memos during data collection (Spradley, 1980; Bogdan & Biklen, 1982). This is the time when the researcher launches into more intense investigation of data. At this time, data is indexed, sorted, resorted and coded according to categories, themes, concepts, metaphors and analogies that have arisen out of the data itself (Bogdan & Biklen, 1982), and a description is created. This type of analysis is like ongoing analysis in that the researcher proceeds inductively, developing, testing and retesting inferences as he or she proceeds during the phases of the study. However, it contrasts with the first type of analysis in that intensive investigation of data that takes place after the researcher leaves the field affords the researcher the opportunity to more systematically look across the data to seek disconfirming evidence, and test generalizations about emerging patterns against discrepant cases. In

addition, the researcher has the opportunity to look systematically at the amount and type of data available to support or disconfirm an inference, so that alternative explanations for discrepant cases can be developed, or triangulation (multiple sources of data can be provided to support an inference) can be used (Gorden, 1986).

It is the interplay between these two types of data analysis that yields a view of the classroom from the participants' viewpoint. That is, the researcher must make sure contact with students and teachers is extensive enough to adequately and accurately document what happens in the setting, while assuring that the selection of events to document and the selected focus during documentation afford opportunities to explore a rich stock of data to develop, test, and support inferences (or develop alternative inferences as they are discovered through analysis) about meaning as it is understood by students and teachers. All types of data collected in this study were used for both types of data analysis, and specific examples of how the analysis proceeded are provided later in this section.

In Figure 3 (p.93) I summarize the overall approach I used to analyze the data I collected. In a later section in this chapter (Data Analysis and the Writing Process), I will recount the analysis process more specifically and describe issues that were central to my analysis. If I was to capture the three levels of organization as described by Erickson (see Figure 1, p.44), I needed to make sure I not only sought information about each level, but that I analyzed the information at each level, and looked for ways the levels shaped one another. Figure 3a shows the overall approach to analysis I used over the course of data collection, and during the analysis and writing phase of the study. Later in this section, I will elaborate more specifically what the analytic categories mean, and how they were used to develop, test, and support or disconfirm inferences

about each level. As Figure 3a shows, I considered the enacted learning activity environment by weekly blocks, since the teachers conceived of and organized their instruction on that basis. For each week, I examined the three levels of organization: the underlying learning activity structure, the enacted learning activity environment, and the meaning the teachers and students assigned to events and activities. I also considered the way one level might have shaped another level, as indicated by the arrows pointing from one level to another. In addition to analyzing the weekly occurrences at all three levels, I considered the changes that occurred at all three levels across time (as shown by the arrows with broken lines). That is, relative to one another, how was each week similar to or different from other other weeks, and why? The purpose of looking at these levels across time was to try to capture the cumulative nature of the learning process. For each week, my analysis started with the enacted learning environment (level II), or what actually happened, and from that analysis I could make inferences about the underlying learning activity environment (level I) and meaning to students and teachers (level III).

Figure 3b is an enlargement of the three levels as they occur during one week, and shows the types of data I had available (sources of information), and analytic categories I used for each type of data. For example, from the subject matter activity environment, I collected documents such as worksheets, checklists, and student writing and drawing. For each of these data sources, role relationships and structure of the subject matter were categories I used to infer what the underlying learning activity structure is like in the classroom, and to infer how students and teachers assign meaning to activities. From the social interaction environment, I used field notes, videotapes and audiotapes to document: lessons, checkout procedures, individual work time, and special events or activities. For each of these data sources, I used two categories to

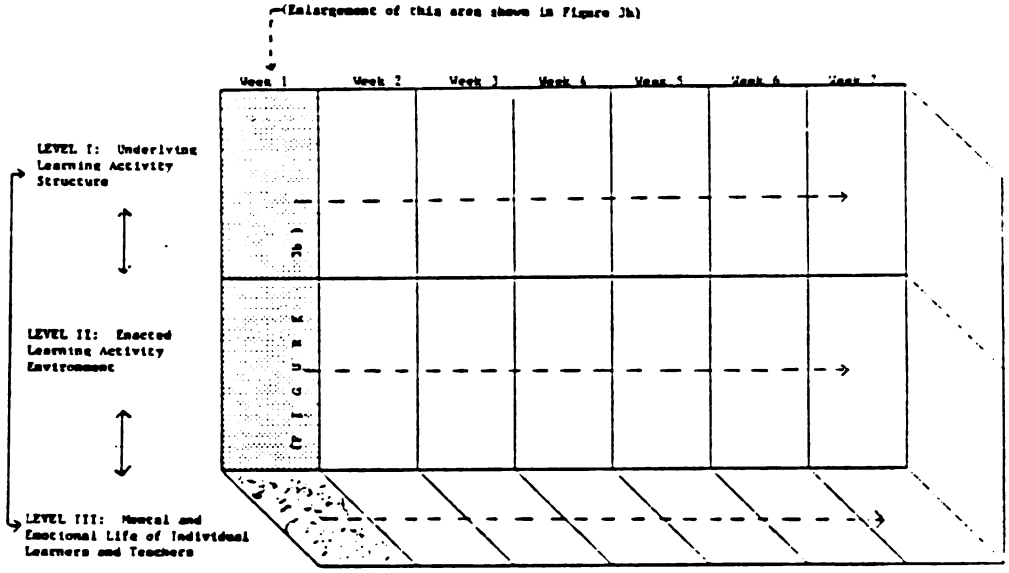


Figure 3a: Overview of Types of Analysis During Seven Weeks of American History Unit

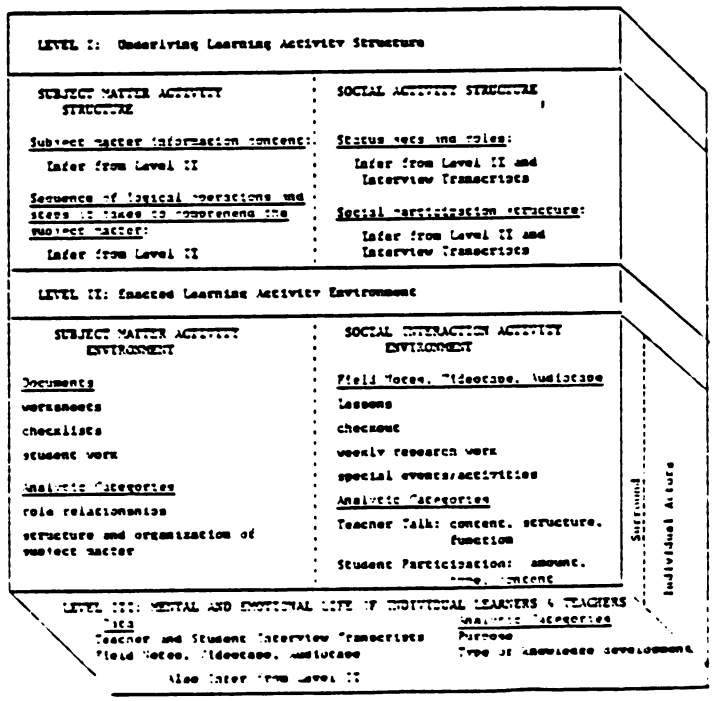


Figure 3b: Enlargement of Types of Analysis for One Week During American History Unit

Figure 3: Summary of Types of Analysis Used in the Study

make inferences about what the underlying learning activity structure is like, and to make inferences about the meaning students and teachers assign to the activities. One category is teacher talk, which I analyzed for content, structure, and function. A second category is student participation, which I analyzed for amount, type, and content. These categories were chosen as a means to examine the social interaction surrounding the activities in which students participated, which might provide clues as to how and why students interpreted them in the ways they did. For example, if I wanted to understand how students interpreted activities, I needed to explore how they were enacted, or what happened as they completed them that might influence the students' interpretations. More specifically, examining what teachers say about activities in the classroom, how they say what they say, and the purpose or function served by the utterances could provide clues as to how and why the students interpreted activities as they did. Similarly, a close look at the students' amount of participation (if any), what type of participation was involved, and what they actually said or did could provide clues as to how they understand their role in the classroom as well as how they interpreted a specific activity. Therefore, these two categories provided ways for me to think about how students and teachers interacted with each other as activities were completed, and to explore ways in which what they did or said influenced meaning.

Since I analyzed subject matter content for both the social and academic aspects of the learning environment (by looking at content in documents as well as in social interaction), I was able to seek understanding of ways the two worlds connect. Important sources of information for level III, meaning students and teachers assign to activities, were the interview transcripts and field notes about people's actions. From the interview transcripts, I considered teachers' and students' intended purposes for learning. I also considered the teachers'

intended course of knowledge development, as well as the students' actual course of knowledge development. While these two data sources were important to uncovering meaning, they were not sufficient. Before I illustrate more specifically how data were analyzed for each level, I will discuss the importance of having such an elaborate array of sources of information for making valid inferences.

Multiple Sources of Information

Multiple sources of information not only have the potential for providing a more detailed description of classroom life, they are essential to responsible ethnography and to a complete view of how students come to understand subject matter. One reason multiple sources are needed is that the field worker has innate limitations which keep him or her from being able to document all details simultaneously. What might be missed from the observer's notice during note-taking may be documented in an audiotape or a videotape, or might be brought to the field worker's attention during an interview. It is close to impossible to get a verbatim account of talk for more than a few minutes at a time without the aid of audiotape, videotape, or someone taking dictation. Also, what is significant in the data may not become apparent until the field worker has been out of the field for some time. So records that document classroom events from more than one source have the potential for providing a more detailed, a more accurate, and a more significant account (Schatzman & Strauss, 1973; Bogdan & Biklen, 1982; Erickson, & Wilson, 1982).

In addition, communication among individuals occurs within a context, and the meaning assigned to the communication arises from the situation itself (Erickson, 1979; Hymes, 1980). While an audiotape or videotape provides a

verbatim account of the words spoken, the meaning of the words arises out of the context of the conversation. Therefore, an audiotape or videotape without field notes or other explanation of the overall situation or context will only be a record of words and actions, not of potential meaning.

The goal of good ethnography is not one of objectivity, but of "disciplined subjectivity" (Erickson, 1973). The goal is to make explicit classroom life from the viewpoints of the participants, from the insider' points of view. This requires not only observing what happens, but also finding out how people interpret events. There are times when people tell us what they know, and times when they show us what they know in how they interact with one another (Florio, 1978). The researcher must therefore create a view from within by bringing together multiple data sources (e.g., field notes and interview data). At the same time, using these multiple data sources allows the researcher to "triangulate" or cross-check the inferences made about people's viewpoints (Gorden, 1986). That is, if an inference is made about how a teacher interprets an event, the researcher's chances of making a valid inference are increased if he or she has considered what happened during the event, what people said during the event, and what the participants say about the event in retrospect than if he or she simply makes an inference based solely on what was observed. In this way, multiple sources of data allow the researcher to test inferences based on analysis of one type of data against other types of data and provide multiple sources of support for inferences.

With this overview of the approach to analysis in mind, I now turn to illustrating, in the two sections that follow, how I used the data and analytic categories described in Figure 3 (p.93) to make inferences about the three levels of organization in the learning environment (see Figure 1, p. 44).

Understanding the Underlying Learning Activity Structure

To understand the underlying learning activity structure in the classroom under study, I needed information about the subject matter and social task structure. Field notes and videotapes were analyzed to determine the hierarchical and sequential structure of the classroom (Mehan, 1978). Field notes, videotapes and audiotapes were analyzed to determine the patterns of interaction within that framework that create the status sets and roles and allocation of communicative rights and obligations across participants (Erickson, 1982b). I also analyzed transcripts of formal interviews with teachers and students to find out how they interpret their rights and obligations in the classroom. The variety of student checklists available to students for keeping track of their work were analyzed for the degree of control they allowed students over pacing, timing and selection of their work (Bernstein, 1975).

To learn about the underlying subject matter activity structure (the subject matter content and how it was logically laid out for students), I examined field notes, audiotapes and videotapes to look closely at teacher talk. That is, I wanted to examine what kinds of subject matter content were discussed, with whom, and in what ways. I also extensively analyzed teacher interview transcripts to learn more about the teachers' thinking and rationale for organizing the subject matter in the ways they did. Worksheets made available to students (e.g., reading lists, crossword puzzles) were analyzed for subject matter content. After my initial two weeks of overall observation, I focused in on the writing activities (read, write a rough copy, write a final copy) as being central to the inquiry. As I completed my interviews with the students (weeks 3 and 4) and began to work with them on their writing (weeks 5 and 6), this interaction led to gradually shifting my focus of inquiry to subject matter content.

So I initially thought of "subject matter content" as writing and as American history, and shifted my viewpoint during the data collection period from thinking about learning to write as an end goal in itself, to thinking about writing as a means to learn subject matter content (American history).

I drew on what I learned about the underlying learning activity structure to analyze and understand more fully the enacted learning activity environment and meaning students construct.

Understanding the Enacted Learning Activity Environment and Meaning

To understand the social and subject matter aspects of the enacted learning environment, I studied not only what happened, but how the events that took place interrelate with the underlying learning activity structure, and with the meaning participants assign to events. This is where all three levels of analysis come together, since both the underlying activity structure and the enacted learning environment (what happens) influence how people function in the environment during activities, and how they interpret events as well. A key way I tried to understand the interrelation among the three levels is by looking at change across time (see Figure 3a, p.93). I analyzed data within one-week time periods for the three levels, and also looked across the weeks at the nature of the three levels, and tried to explain changes in aspects I saw at any one level by asking questions about what occurred at another level. The changes I noted, and how I interpret them are detailed in Chapters IV and V.

As I examined how events took place, through studying field notes, videotapes and audiotapes, I tried to understand influences that shaped classroom events. Face to face interaction was analyzed for structure (who talks when, and why), content (what kinds of things are said), and function (how

does this interaction shape what is going on). The analysis was based on the notion that talk is viewed "interactionally" (Goffman, 1976, p.308). In this way, analysis of talk takes into account the intersubjective world of the participants (Vygotsky, 1978), the connection of the talk to the context in which it occurs, and the sequencing of moves that evolves. For example, the meaning students assign to learning materials is shaped by what the teacher says about them, how the learning activity fits into the underlying activity structure in the classroom, the sequencing and timing of how interaction is negotiated, and the nature of the materials themselves (e.g., what cognitive skills are required to complete the activity, what subject matter information is involved). It is out of the integration of the social and academic aspects of the learning process that meaning arises.

I analyzed transcripts of formal interviews with students and teachers to cross-check inferences made about meaning. In other words, does what the teachers and students say about what happened and what it means to them mesh with what I saw through their actions in the classroom? In addition, analysis of transcripts of teacher interviews provided a source of information about their underlying assumptions about the learner, the teacher's role, the academic and social learning environment as past experience, and their assumptions about the nature of subject matter knowledge. Comparison of what teachers say about these beliefs with what actually happened is a source of understanding how curriculum evolves over time. I also examined field notes for further information about what people said to me informally to cross-check inferences made.

Transcripts of formal interviews with teachers were a source of information for understanding how teachers' underlying assumptions about teaching, about students, about the learning environment, and about subject

matter influence the way they structure learning activities. These interviews also provided a way of comparing the teachers' initial goals as they conceived the curriculum, and their retrospective view of how they think the curriculum was interpreted by students. I learned that these teachers intend to use information about student progress as an integral part of their further planning, so it was important to investigate this comparison to see how that source of information gets implemented in the enacted learning environment.

Important sources of information were the writing and drawings completed by the students, both in their rough and final form. I used the documents as a way to discuss the meaning students assign to the writing activity, and also as one way of trying to assess the students' conceptions of writing and how their interpretations of the writing activity shaped what they paid attention to regarding American history content. However, I could not just look at them as documents by themselves, since this is only a retrospective view of understanding, and I wanted a view of how students come to an understanding as well. Therefore, these documents were analyzed in conjunction with the amount, type and content of students' participation in all events related to research. For example, I considered questions such as: how much reading did students do prior to writing; what kinds of subjects held their interest; in what ways did students participate in discussions; and what indications of interest did I see in the subject matter?

As discussed previously in Chapter II (pp. 62-64), the concept of task or activity was used as a tool for analysis of how meaning that teachers and students assign to activities evolves or develops over time. Four aspects of task were considered (Doyle, 1983; 1985): teachers' and students' goals; the reward structure; the cognitive operations or processes required to carry out

activities; the resources or conditions available to students. This framework was used as a way of thinking about curriculum as a dynamic entity.

While these various forms of data reduction and analysis were carried on as separate activities (e.g., the analysis of the student transcripts occurred separately from analysis of videotapes), they also informed one another. That is, they were viewed as multiple sources of data that must be taken into consideration simultaneously. A key way the various levels of analysis and sources of data come together is when the researcher tries to document assertions, and create key linkages among various assertions. Much of this process was done in the form of writing during the documentation and analysis phase, and in the final phase of writing this research report. In the section below, I describe how the analysis process and the writing process are connected.

Data Analysis and the Writing Process

The report writing process includes several kinds of writing: empirical assertions, analytic narrative vignettes, quotes from field notes and interviews, synoptic data reports (e.g., maps, tables, figures), interpretive commentary that frames particular description and general description, theoretical discussion, and accounting for the natural history of inquiry in the study (Erickson, 1986b). As I worked with each form of writing, data reduction and analysis continued. That is, as I searched for and tested assertions to find key linkages among various items of data, I was at the same time reducing and organizing data in the sense that I was tentatively deciding what to include and what to leave out of any provisional plan I had in mind for organizing and telling a story about how meaning evolved in the classroom setting. In this section I describe the main

issues I confronted during the analysis and writing process, how I managed the data as I searched for and tested assertions, and how I developed provisional plans for organizing and telling the story of learning I recount in Chapters IV and V.

Main issues confronted during analysis and writing process.

There were three main issues that permeated this study in all phases of its implementation, from deciding how to document classroom interaction and meaning, to how to tell the story of what I learned. One issue was how to balance my focus between paying attention to the individual and paying attention to the group and the general context for learning. A second issue was how to balance my focus on subject matter between paying attention to what students learned about writing and what students learned about American history as subject matter content. A third issue was how to balance my focus on meaning between paying attention to how students interpreted activities and how students interpreted specific subject matter content. I will briefly discuss each issue below, and treat each one more specifically as I discuss data management and provisional plans for organizing the data and reporting the findings.

The first issue, balancing the tension between the attention focused on the individual versus the group and the overall learning context, was one I struggled with throughout the research process. I wanted to provide a view of meaning from the learners' viewpoint, but I operated under the assumption that the account of how meaning evolved would be incomplete if I sacrificed information about the general learning context (e.g., how the students generally understood the work to be accomplished, and how the general patterns of

social interaction developed). Therefore, I continually wrestled with decisions about how much detail to seek and provide about individuals in the setting, and how much general description to seek and provide about the class as a group of individuals. During data collection, I attempted to document as much as I could of both kinds of information so that during analysis I could place individuals' meaning within the overall learning context. More about this issue will be said when I discuss provisional plans for organizing and telling the story that I developed.

A second issue, whether to focus on students learning to write versus students learning American history, stemmed from the teachers' multiple goals for the history unit, and how I was to define subject matter content. Since this American history unit centered around writing the weekly research report about history topics, it was possible to examine what students were learning about writing in addition to what students were learning about American history. Also, the teachers intended for students to improve their writing as they learned about American history. While it might be argued that writing is a process, and not subject matter content per se, students' conceptions of the purpose for writing, their sense of audience, and their understanding of how they were to approach the process are part of the "content" of what writing is. Moreover, the two areas were intricately connected during this unit of study, since writing was the means through which students were to develop much of their subject matter knowledge. As I collected data during the first three weeks, I began to broaden my orientation toward focusing on the writing process to include American history as subject matter content as part of my main focus as well. This shift occurred as I began to see the place of the writing process from the participants' viewpoints, where the subject of history was figure, and the writing process was ground, or one of several means through which students developed subject

matter knowledge (e.g., discussions, field trips, reading activities, music activities).

A third issue that continued to permeate my research activities was the extent to which I should focus on how students interpreted activities versus how they interpreted subject matter knowledge. The model I was using as a framework (Erickson, 1982b) did not specify what kind of "meaning" Level III holds for the participants. As I interviewed students about the writing process during week 3, it became evident to me that their interpretations of activities (e.g., what they understood to be the requirements, how the writing process fit in with the rest of their daily requirements, how they understood the directions for the assignment, how they defined their role in completing the assignment) shaped the focus of their attention on American history content. That is, without an understanding of how students interpreted the activities through which they were to develop their knowledge about American history, I would not be able to account for how specific understandings came about. Therefore, while I needed to focus on specific understanding if I wanted a complete view of meaning (Level III), the view would not be complete without an understanding of their interpretations of activities as well.

As I described in an earlier section, while I was in the field I was more concerned with the amount and quality of data I collected than with what sense I could make of the data. However, I also noted that analysis begins with data collection, where the researcher must carry out a problem solving process where working hypotheses are explored so that the direction of the researcher's focus takes fruitful directions. The three issues of balance described in this section encompass three working hypotheses that I generated and tested throughout the data collection process:

a) Meaning derives from what students bring with them to the learning situation as well as from how they make sense of the socially created context in which they work.

b) Students gradually construct knowledge about American history from their experiences with writing about it. Therefore, their evolving knowledge and understanding of the writing process are intricately related to their evolving knowledge and understanding of American history.

c) Students' construction of knowledge about American history is shaped by their understanding of the activities through which they are to develop their knowledge and understanding.

In sum, these three issues were ones that I needed to confront during the data collection and analysis process. I turn now to discuss how I managed the data, and how I selected a focus as I searched the data for assertions, and tested assertions.

Data management during analysis.

The three working hypotheses described in the previous section helped me focus my data collection, and helped me focus my attention as I reviewed the data. That is, the working hypotheses needed to be tested for the extent to which specific illustrative instances were present in order to find support for specific assertions, for the extent to which I was able to find supporting and disconfirming evidence, and for the extent to which discrepant cases showed flaws in the assertion. In this section I describe more specifically how I reviewed and analyzed the data.

Upon leaving the field, I reviewed my field notes first. My first aim in reviewing the field notes was to get a general sense of what events occurred

across time. I examined the subject matter content (the time period and the specific topics studied), and the kinds of activities that were available for each time period. I initially used as an organizer the weekly cycle that paced the individual work the students were to complete, so I summarized the history unit in weekly cycles. This summary took the form of a table (see Table 1, p.76) which I was able to use as a reference for locating events within the overall context of the seven weeks I observed. I also initially separated the weekly research activities into two categories: individual work paced by the checklist, and group activities led by the teachers. Throughout my analysis I used this table as the "big picture" of the history unit, within which I could see the place of the reading and writing process and how it fit with the other kinds of activities available during the history unit. I also used it as a way to chronologically place specific instances of meaning I learned about as I searched through the data, and to compare specific instances according to when they occurred in the unit. As my analysis progressed, I was able to redesign the table (see Table 3) to reflect a better understanding of the activities in the unit from the participants' perspectives. In my second version of the table, I tried to show changes in the underlying learning activity structure that I discovered from the data analysis, and use these changes as a way to explain changes in individuals' interpretations of activities across time. Thus, the first table functioned as a tool for placing individual examples within an overall framework, and as my understanding of the nature of the framework developed, the second version functioned not only as a means for placing events within a context, but also functioned to help explain changes over time.

I examined transcripts of my interviews with the teachers to embellish my understanding of the learning environment. I searched the data for information about: goals, means to goals (scaffolding), daily and weekly routines, use of the

daily checklist, assumptions about the learner, assumptions about the teacher's role, views on change over time. These helped me understand the "big picture" from the teachers' viewpoint, and to understand more fully what teachers intended during the history unit. I compared the two interviews (one was conducted at the beginning of data collection, and one after I left the field and began analysis) to see if views were consistent, and to see what changes in views had occurred over time. I also used the second interview as an occasion to find out more about the teachers' viewpoints to gain information I was missing from my field notes. I also tested generalizations about the teachers' views against field notes and tapes to see if what the teachers said about their actions was the same as or different from what they actually did in the classroom.

Once I had an overall framework within which to think about specific events, I began to explore my field notes from a variety of viewpoints. One way I explored the data was to pay attention to overall patterns and try out various coding categories. For example, I noticed a variety of kinds of social interaction taking place as the school day progressed, so I tried out various ways of keeping track of the kinds of interaction. I began with categories such as:

Types of interaction: directions, explanations of assignments, directing students back to work, help with work, correcting work, direct instruction

What is interaction about: history, writing, checkout, getting work done, other subjects

Demands in the setting: pacing, management of work, interruptions, concentration span, self regulation, motivation, accountability

Format of activities: independent work, group work, pairs, informal groups, recess, lunch, special events

Approaches to work: choice of topic, purpose for writing, what to

include in writing, response to activities, influences on activities

These categories helped me to initially keep track of and organize the information I had in my field notes.

I took a similar approach to examining my audiotapes and videotapes. I viewed or listened to each one and wrote synoptic summaries of what each one contained. I also made notations on my field notes as to events for which I had corresponding tapes that embellished the detail in my field notes. For the content of the audiotapes and videotapes, I noted:

a) What is this tape contain examples of? (e.g., Does it provide further examples of patterns I see in the field notes, or does it disconfirm a pattern?)

b) What might I learn from examining this tape more closely about the three levels of the learning environment (See Figure 1, p.44)?

During the analysis I returned to various tapes for closer examination each time I reviewed the field notes. For example, if I needed more detail about how an assignment was explained, or how students participated in a certain activity in order to test an assertion, I would return to a videotape and examine it more closely at that time. In this way, the audiotapes and videotapes supplemented the field notes, and provided a way to revisit actual interaction in a way the field notes alone could not do.

In sum, the field notes, audiotapes, and teacher interview data provided a way to examine the overall learning environment in which specific instances took place and a way to look at how the underlying learning environment changed over time. They also were a source of information about particular interaction during the learning process, or a starting point for understanding individual meaning. I now turn to describing how I worked with student interview

data and documents to understand how individuals made sense of the learning environment.

As I interviewed the nine volunteers about their research report writing, I began to sense some general patterns to their approach to completing the research cycle. I therefore examined transcripts for similarities and differences across students, and generated categories that encompassed the similarities and differences: topic choices, purpose for writing, what to include in research, overall response to the research process. I chose a table format for displaying the responses so I could easily look for similarities and differences (see Tables 5,6,7 and 8). Within these broad categories, I considered the similarities and differences in responses, and created subcategories that reflected the content of their responses. These were then tested against information in my field notes and tapes for accuracy (does the student do what he or she describes?) and generalizability (is this typical of the student?). I paid particular attention to my field notes that describe students' approach to their work when I was a helper in the classroom, to see if their work in the classroom matched up with their description of their actions. I noticed after the first set of interviews that I obtained more information about students' approach to their work than about specific subject matter knowledge. As previously described in this chapter, I had plans to "track" students doing their research by observing them and conducting "on the spot" interviews, but the pace of the work in subsequent weeks increased so suddenly and dramatically, I was unable to keep up with them, and had to abandon the idea. Therefore, I had to look to other sources of information, the subject of the following paragraphs, to find out about their specific understandings.

The conversations I had with students during the interviews focused on student work (copies of research reports and accompanying drawings students

completed recently). In addition to examining that work with the students, when I left the field, I examined all the work in the students' history folders (research reports and drawings, worksheets, picture timeline). I paid particular attention to the research reports and drawings, since they held a more central focus in the overall unit than the other written work in the folders. I examined the writing for format (the order in which information about topics was treated, and overall paragraph structure) and content (the nature of the information included). Throughout the data collection process I had noticed the uniformity of the research reports. The information I obtained from studying field notes and tapes (what students said and did) and the information I obtained from the students during the interviews about how they approach their work helped me explain how they arrived at the uniformity. Thus, I examined the written documents by applying what I had learned about the underlying learning activity structure and the enacted learning environment to account for how the written product had developed. I approached examination of the drawings in a similar way. What I discovered is that while the two activities (writing and drawing) appeared similar, the content was different. I could not provide the same explanation for the written report as a product as I could for the drawing as a product. This led to a careful examination of the structure of the activities themselves, how the activities were enacted, and how the activities were interpreted in order to explain the differences I was seeing. I also began to consider other activities such as the picture timeline and the riddle activity to see what I could learn about how students interpreted them, and to see if I saw the same kinds of contrasts.

It was at this point in the analysis that the "big picture" I had created of the overall unit (Table 1, p.76) became particularly important. That is, I found that I not only needed to examine specific instances in relation to each other (more or

less comparing and contrasting activities to see how students interpreted them and why), but I also needed to carefully examine their chronological placement within the unit. My initial coding categories for my field notes provided a way for me to return to my notes to think more specifically about the underlying learning activity structure. I noticed that while I could substantiate some generalizations about how students and teachers approached their roles and how they interacted with one another, I was also seeing several exceptions to those interpretations, and needed to account for them. It was at this point in the analysis that I realized that within the general framework for working together that was defined and understood in this classroom, subtle changes were taking place as well. I also began to see that it was possible to explain some of the differences I was seeing in students' work in terms of changes in the underlying structure--that as the roles and patterns of interaction changed, so did the students' approach to their work change. (These changes are detailed in Chapter IV.) Accordingly, I also began to examine the underlying structure and organization of the subject matter content (as evidenced through the activities), and saw shifts there as well. That is, I could see differences in the kind of content that was included in the written reports, in the drawings, and in the riddles, and placed the development of these differences on the revised chronological framework I developed that reflected my new understanding of the underlying learning activity structure. (These changes are detailed in Chapter V.) Working back and forth between developing and testing assertions about the development of changes in the underlying learning activity environment and developing and testing assertions about specific instances of meaning, I developed key linkages among various items of data by finding analogous instances of the same phenomena, or explaining differences through identifying and explaining changes across time. I was able to tie the

changes I saw in what happened (interpretation of activities and subject matter knowledge) to the changes in the underlying patterns that gradually evolved.

This iterative process occurred during analysis, but also during attempts to write the research report. I was still discovering new assertions as I began to organize the data, write about it, and find a way to tell the story of learning I was uncovering. In the section that follows, I recount how I tried out several provisional plans for writing the research report.

Provisional plans for a storyline.[1]

As I discussed earlier, the writing process began during the data analysis phase. Many of the tasks I described in the previous section were accomplished as I wrote parts of the research report. The process of developing and testing assertions was moved forward by writing analytic narrative vignettes with accompanying interpretive commentary. It is at this point that I could test whether I had sufficient amounts and types of evidence to support an assertion, and whether I had sufficiently explored the data for disconfirming evidence. Another way I tested and tried to support assertions was by developing tables and charts that displayed data, and writing accompanying interpretive commentary. Again, I could assess the adequacy of the amount and type of data provided, and search the data for disconfirming evidence. Thus, the writing process was important to developing and figuring out a way to share the findings. I turn now to a discussion of provisional plans I tried for sharing the findings and how they influenced the analysis process.

[1] The use of the term "storyline" is not intended to suggest elements of fiction that might be included in the research report. Rather, it is intended to emphasize the great amount of discretion the author has when describing classroom events in narrative form, and to emphasize the choices the author must make as to what to include from the corpus of data in the narrative , and what to leave out, since everything cannot be included.

In an earlier section in this chapter, I discussed three issues that permeated the research process: balancing a focus on the individual versus the group; balancing a focus on history versus writing as subject matter content; and balancing a focus on students' interpretations of activities versus interpretations of subject matter content. These three issues influenced how I planned to tell the story of the learning process during the American history unit. For example, I had to decide if this was to be a story about a few individuals, or about a group of learners. First I tried writing stories of a few individuals' evolving learning experiences. This took the form of using one student's experiences to illustrate how his conceptions of writing and learning about history developed over time (primarily using interview data, field notes, and samples of his writing), and trying to relate the changes in his development to the way he approached his work in general. While this provided a view of one student, it did not tell the story of how learning evolved for the class. However, it did give me a starting point for exploring the meaning other students assigned to their work. I then more closely examined commonalities and differences across my student interview data (also using field notes, videotapes and written work as a means to cross check or triangulate inferences), and began to see more clearly instances where the individual student's approach to his work (that I had previously written about) was or was not an example of what was typical of the nine students whom I interviewed. I ended up with a series of assertions about how students approached their work. What I was missing at this point was a key linkage, or a way to tie together the series of instances I was able to document. I had a series of stories, but still needed a coherent way to string them together.

One problem I had with searching for patterns across individuals was the variety of topics from which students were able to choose for their writing

assignments. I could generally compare their written work for format and for content, but since they rarely wrote on the same topic at the same point in time, I had difficulty finding a way to compare specific subject matter understanding across individuals. I also noticed that much of my early report writing thus far focused on how students approached the writing task itself, not necessarily how they approached learning about American history. One avenue I explored to get closer to students' understanding of subject matter was to choose a topic of study, the Civil War, that seemed more common across individuals and to look at all experiences students participated in that related to learning about the Civil War. These experiences included: reading, writing research reports, drawing pictures to illustrate the research reports, discussions, a Civil War simulation, drawing a picture timeline to illustrate each era of study, and writing riddles. Of these activities, only the discussions, the simulations, the picture timeline and the riddles were common to all students. As I wrote vignettes and analyzed written work surrounding these activities designed to learn about the Civil War, I began to notice some contrasts in the overall atmosphere in the classroom, and in the way students approached some of the assignments. As I explained in the previous section, when I placed these instances in their chronological time frame, I began to notice that changes in the underlying learning activity structure (e.g., different role relationships, different patterns of interaction, different enthusiasm levels for the work) had gradually evolved and changed over the seven weeks of my data collection, so that many aspects of the early weeks contrasted greatly with many aspects of the later weeks. When I looked to see if there were corresponding differences in the kinds of knowledge students were including in their written work, I found another important contrast. In the early weeks, the knowledge the students included in their written work (their research reports) was more factual and limited than the kind of knowledge they displayed

during the Civil War simulation, or in the riddles they wrote about the Civil War. Here is where I discovered my key linkage, a way to account for so many of the series of assertions I felt confident in documenting. As the underlying learning activity structure changed, so did the way students seemed to think about knowledge. This linkage also provided a way to balance the focus on the individual and the group. By analyzing and understanding more about the underlying structure within which individuals functioned, I was able to better understand their individual interpretations, or account for how they came about. In addition, I found a way to balance the tension between focusing on writing versus focusing on American history as content. By broadening the focus of my analysis and description from the students' written reports to include other activities as well (the simulation, the riddles, the picture timeline), I was able to discover more about how students thought about American history.

The third tension, balancing the focus on activities versus the focus on subject matter understanding also influenced the kind of story line I eventually developed. There were many aspects of meaning I could study and describe to fully understand and document the learning process, so I had to make choices about what to include in my analysis and description and what to leave out. One possibility was to focus on specific learning outcomes such as specific skill knowledge, or specific concepts, or specific applications of knowledge for individuals. A second possibility was to focus on how students interpreted activities in the American history unit, and how their specific interpretations of activities shaped their opportunities to develop their understanding of American history. I chose to focus my description on the latter for two main reasons. One reason is that researchers have fairly good methodology already for documenting specific learning outcomes (e.g., use of written work, clinical interviews, stimulated recall). What researchers need better methodology to

document is how to account for how the specific understandings develop, and one source of information for providing that information is the learning activity. I decided to describe in this study how activities serve as a "filter" through which students develop subject matter understanding, and understand how various filters or ways of approaching learning activities affected the nature of knowledge students would have the opportunity to develop. Therefore, I chose to limit my focus on subject matter to describing the opportunities for knowledge development that became available for students within the specific context of how students interpreted the activities provided.

In sum, my story line for this research report (Chapters IV and V) developed out of three tensions I tried to balance, and out of discoveries I made and was able to document throughout the analysis and writing process. The process was iterative, in that as I developed and wrote about assertions, I was continuing analysis to try to find key linkages that would enable me to logically string the assertions together through a coherent story line, so that the parts would add up to the whole. In the end I resolved the three tensions by choosing a story line. That is, I focused on the group with individual's interpretations serving as examples. I focused on the writing process as a means to learning about American history. And I focused on how students interpreted activities to learn American history, and how their specific interpretations shaped their opportunities to understand American history. In this way, I documented the learning process during the American history unit.

Summary

As background information for the study, I have thus far provided a description of the unit of analysis for the study (the weekly research project as

part of an American history unit), and research procedures (types of data collected, and data analysis and reduction). Information about these areas provides a context for the analysis of the learning process that will follow in subsequent chapters. Another type of background information that is helpful to understanding the learning process in the classroom studied is information about the school itself: the community in which the school is located, the school, and the school's stated curriculum. This information is provided in the section below.

Background Information About the School

The purpose of this section is to orient the reader to the overall context in which the learning process during the American history unit was studied. I will provide information about the community in which the school is situated, the school building itself, the physical features of the classroom studied, the teaching staff, and the researcher's role at the school. In addition, I will describe the school's stated curriculum (underlying assumptions, and overall goals), and discuss the teachers' understanding of the learning process. As I described in the first section of this chapter (see Figure 2, p.70), these are important contextual features to understand as part of the embedded context in which learning takes place.

School and Community

The Community

Lancaster School[1] is a private school which offers a pre-primary and primary program. The county in which it is located is comprised of rural towns. The residents of this county pride themselves on the open spaces and natural terrain that have been preserved in the area. The people generally seek to maintain a "country atmosphere" even as the population of the county experiences periodic growth spurts. The school is located in a bedroom community, 50 miles from the nearest large city, and equidistant from three major universities. This town, located at the crossroads of two major interstate highways, is currently experiencing rapid growth, in contrast to the previous five years when the population declined. Some of the newcomers are leaving the large city suburbs approximately 50 miles away, and others are coming to the community from out of state and plan to commute to their work. Other towns in the county (aside from the town in which the school is located) are basically farming communities which contain little industry. All other non-public schools in the community are church-affiliated.

Over the past ten years, the public schools in the county have not had an easy time gaining consistent financial support from the community, with the exception of the school system in the town where Lancaster School is located. This lack of consistent financial support has created a negative image of many of the local schools, even during stable financial times, and has caused some

[1] Pseudonyms are used throughout this research report for the school and its participants

parents to seek alternatives to the public schools. While the enrollment in the public schools in the county has declined up until recently, the enrollment at the private school studied has grown steadily over the past five years. The population of Lancaster school is drawn from the entire county, as far as 15 to 20 miles away, although the majority of the students live within ten miles of the school. Lack of financial support is not the only reason parents in this county seek alternatives to the public schools.

When they inquire about the school, parents indicate to the school administrator several other reasons for seeking alternatives to public schools. Many parents attended private or parochial schools themselves, and have never considered sending their children to public schools. Many assume their children will get a "better education" in a private school (what this term means varies a great deal from one individual to the next). In addition, many are looking for a more intimate, personalized learning environment for their children, and do not believe personal attention is available to their children at the public school. Some have tried public school, and their children have either had problems there (e.g., bored with school, not able to do the work, not getting enough help with the work), or have not had specific problems, but the parents do not think the curriculum is adequate for their children. One or more of these reasons are typically made explicit or implied as parents discuss the school with the administrator and with the teachers.

The School[2]

Enrollment.

Lancaster School is a privately operated non-profit Montessori school whose philosophy and program is based on the writings and teachings of Maria Montessori[3]. It offers a pre-primary program to children ranging in ages from two and one-half to five years old, and a primary program to children six through twelve years old. The school is supported solely by tuition and small donations and fundraisers. Children who attend the school come from a variety of socio-economic backgrounds, mostly middle to lower-middle income families. The school started five years ago with a total enrollment of 58, and now has a total enrollment of 114 children (60 pre-primary and 54 primary). These children come from a group of approximately 85 families, so there are several children whose siblings also attend the school.

The Building.

The school leases three large rooms that are located in 5 bays of an 8-bay shopping center-style building in the country. There is open land all around the building so that there is space for a playground in the back, and a playing field along the side of the building. The building was originally intended to be used as retail space, but instead it is used by Lancaster School, and a dancing school; one of the bays is currently vacant. No other retail buildings are in the general vicinity. A diagram of the overall school and where the classrooms are

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[2] General information about the school (enrollment, the building, the classrooms, the staff) is drawn from the general knowledge I have about the school from being administrator of the school since its beginning.

[3] More information about how school personnel draw from and interpret Montessori philosophy and methods will be provided in the section entitled "The School's Stated Curriculum."

placed is shown in Figure 4 (p.122) . The shaded portion indicates the early elementary classroom which is the focus of this study (to be described more fully in the following section).

The pre-primary classroom uses approximately one third of the available space for its classroom and offers two classes that meet five days per week, one in the morning and one in the afternoon. Each class contains 30 children. The children in these classes range in age from two and one-half through five years old. The primary program uses approximately two thirds of the available space and has two classrooms. The larger classroom is an early elementary classroom (children ages 6 through 9 years old), and is the focal classroom in this study. The smaller classroom is an upper elementary classroom (children ages 9 through 12 years old). The early elementary's enrollment is 36 children, and the upper elementary's enrollment is 18 children. There is a door connecting each class directly to another, instead of the usual set-up where classrooms are connected by a hallway. There is an office at the back of the larger elementary classroom that is shared by the teaching staff and the administrator. This means that to get to the office from the outside or from one of the other classrooms, one must walk through the early elementary classroom.

The Early Elementary Classroom.

The early elementary classroom, shown in Figure 5 (p. 123), is the larger of the two primary classrooms (2,400 square feet). It houses 36 children between the ages six through nine years old, and the teachers' and administrator's office. There is plenty of natural light that fills the classroom from the extremely large window at the front of the room. As shown in Figure 5, instead of the usual

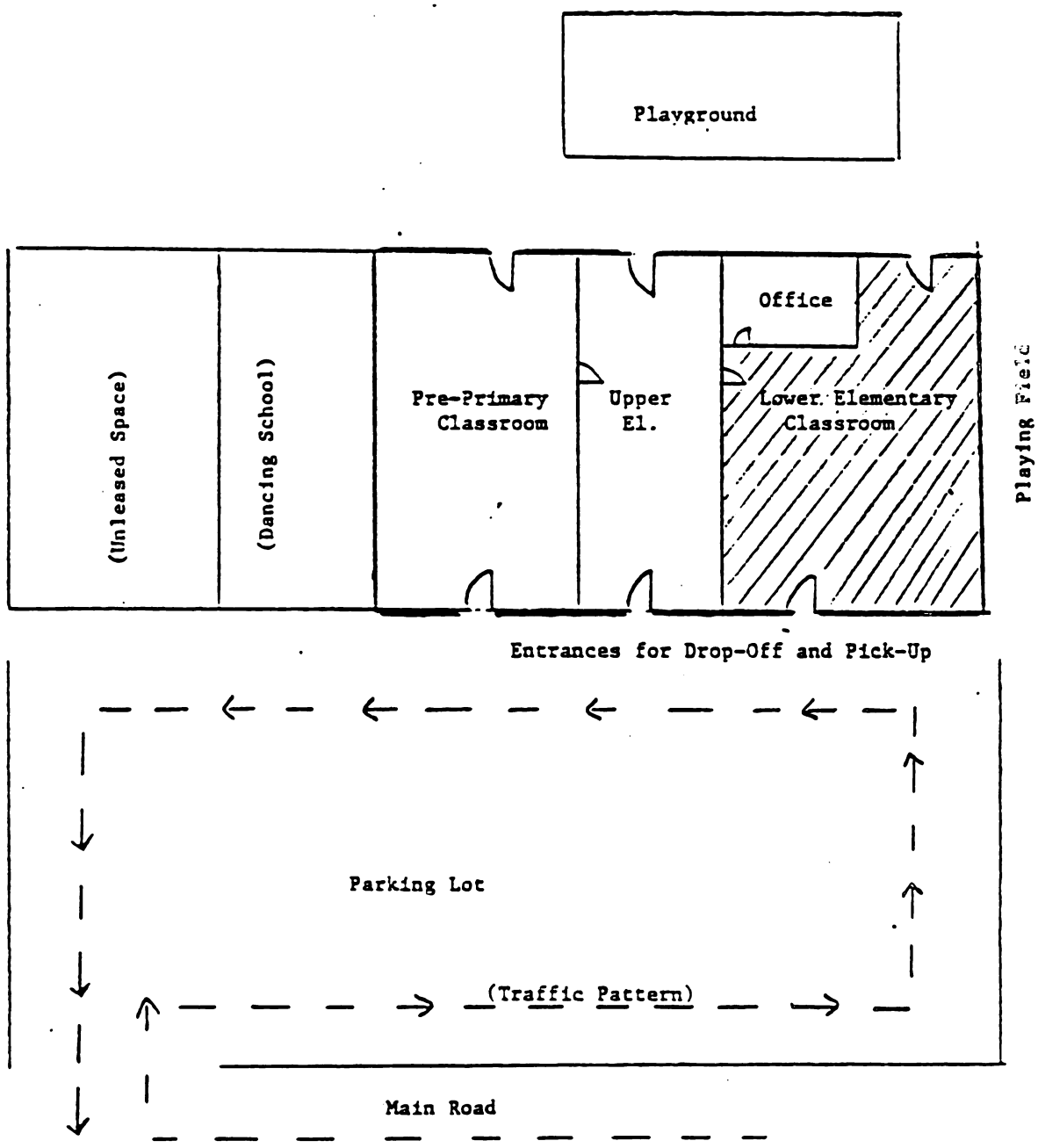


Figure 4: Diagram of Lancaster School

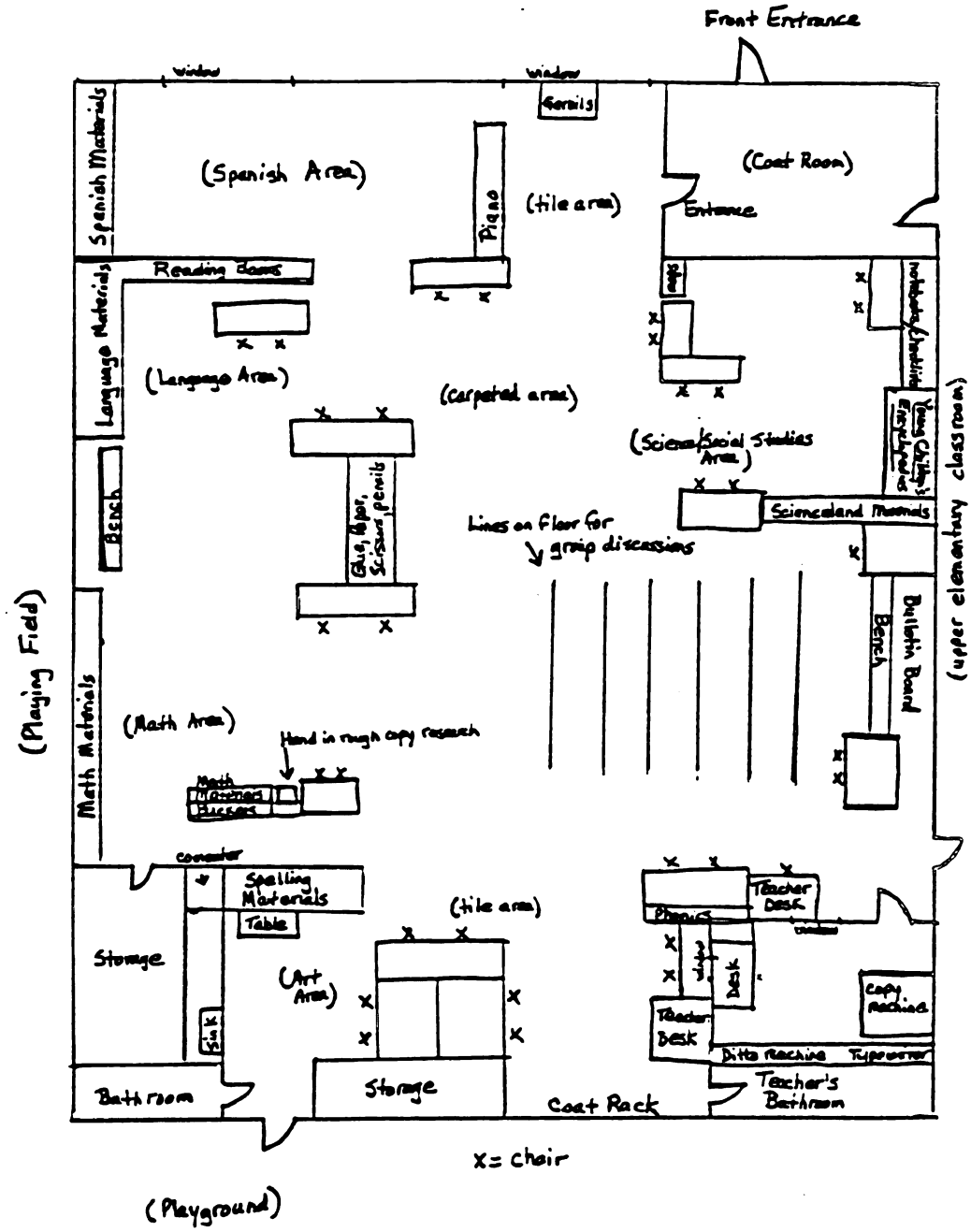


Figure 5: Map of Lower Elementary Classroom

desks in rows that one might find in an elementary classroom, materials are clustered according to subject areas around the room: Spanish, language, mathematics, cultural, art. This kind of room arrangement fits with the "open classroom" style in which the curriculum is implemented, as described in the first section of this chapter.

There are 14 tables arranged around the room that each hold two people, which provides enough seating at tables for 28 out of the 36 children. The remainder of the space in the classroom is purposely left open for the children who wish to work on the carpeted floor instead of at a table. Sometimes children choose to work on the floor because they need more space to spread their work out than the table surface provides. Some prefer being able to sit alone, while others feel more comfortable working on the floor. The flexible seating arrangements and frequent opportunities for students to move about the classroom at will to obtain materials or seek help as needed increase the amount and types of conversations available to the researcher to document. However, they also make the occurrance of the conversations unpredictable, and difficult to monitor, and it is difficult for the researcher to predict in advance where any student will be seated.

There also needs to be open space for teachers to work with groups of children, and this is done on the floor. Whenever children from both the upper elementary and the lower elementary classrooms gather together, they do so in the space near the center of the room where lines are marked on the floor. This seating pattern is similar to the rows of desks one might find in a typical classroom, and provides a way for children to organize and space themselves instead of bunching up randomly when all 54 children are seated together. When students are expected to congregate in this location, they are asked to "sit on the line." This is the location where most of the after-lunch discussions

during the American history unit take place. Other smaller group discussions might take place in any corner of the room where the teachers happen to ask students to gather.

The Teaching Staff.

Lancaster School has a teaching staff of nine teachers, six of whom work full time and three who work half time. The pre-primary program has one head teacher and two instructional aides per class. The entire primary program has two head teachers and two instructional aides. In addition, a Spanish teacher works half time in all classrooms. The staffing for the primary program is flexible in that instead of assigning one head teacher and one aide per class, all the primary staff works in both classrooms. Where a staff member will be at any given time depends on which students need help with independent work, and which instructional groups are scheduled. This means there may be times when as many as three teachers are in one room, and one is in the other. During the American history unit when I observed, Mr. Stanford was basically in charge of the unit itself (planning the weekly research projects, organizing and explaining special events, correcting papers, etc.), but Mrs. Stanford was present during all activities, and contributed to some of the planning as well. In addition, since they are both available (along with the two aides) during independent work time for students to ask for help, they both interacted with students frequently during the course of the unit. Therefore, I focused on studying them as a team of teachers for this study, instead of just focusing on Mr. Stanford. I asked them both to participate in interviews (and interviewed them together), and frequently asked questions of whoever was available at the time.

The background of the two teachers focused on in this study is important to consider as part of the data for this study. What teachers believe about learners, their own role as teachers, and subject matter is influenced by their prior, as well as their current experience. Mr. and Mrs. Stanfords' background does not fit the image of the modal female primary teacher (e.g., works for "second income" or for "something to do"). The two head teachers in the primary are a husband and wife team. Their teaching backgrounds differ considerably. Mrs. Stanford taught in public elementary schools for eleven years before she was laid off and forced to find other employment. Teaching is a life-long career for her, and she devotes much of her time outside of regular school hours and during summers to her work. She has extensive experience in teaching reading and language arts, including spending a year as a reading consultant in one school district. Before coming to Lancaster School, Mrs. Stanford's pattern over her eleven years experience had been to innovate in her classroom (e.g., team teaching, open classroom). She has taken risks to make major career changes such as leaving a teaching position she held for nine years to move to a rural community and try something new. She also was willing to take the risk with Lancaster School's administrator to start an elementary program that only had eight students enrolled in the fall the first year. By the second year, the enrollment in the primary was large enough to add an instructional aide to the staff

Mr. Stanford came to Lancaster School at the beginning of the school's third year of operation when the size of the primary class had grown to the point where a second head teacher was needed. Unlike Mrs. Stanford, he was not laid off from his teaching job; he chose to leave it to work at Lancaster School, and saw it as an opportunity to try teaching methods and ideas in a freer, more positive atmosphere than he had taught in most recently. While his teaching

certification is for the K-12 level, his thirteen years teaching experience were at the middle school and high school levels. He had been active in developing programs at middle schools in two different locations, and like Mrs. Stanford, had experience in team teaching situations. Mr. Stanford was a math major in college.

Despite the fact that both Mr. and Mrs. Stanford have masters degrees and had done extensive reading about Montessori methods and philosophy, the summer before they began teaching at Lancaster School together, they chose to take Montessori training for elementary school teachers. This rather expensive undertaking meant they had to live out-of-state for several weeks that summer while they took classes, and they had to return to the training site the following summer for several weeks as well. The training served several functions for them that they often refer to in their work with the administrator as very valuable. It gave them a common base of knowledge from which they could work together. It gave them a model curriculum to follow, and a variety of specific methods from which they could draw. As I will show in Chapters IV and V, their background in Montessori influenced the way they set up and operated in their classroom. Another thing they liked about the training is they had the opportunity to participate in a community of professionals who are committed to the same philosophy and methods, and who face the same financial constraints they face in a privately run school with a tight budget. Finally, it gave them ways to think about organizing their classroom day, and their overall program. They both felt that all this information was not necessarily new, however, it was presented within a new framework (relative to their previous education in teacher education programs in large universities, and their teaching experience) that was consistent with their current goals.

Mr. and Mrs. Stanford draw on their educational backgrounds and expertise in the way they set up their two classrooms. Mrs. Stanford is in charge of all reading instruction, and a great deal of the language arts. Mr. Stanford is in charge of all the mathematics instruction. This means they are responsible for providing lessons for their respective subject areas (usually accomplished in small groups), and in charge of providing the appropriate materials and equipment in the classroom for children to work with independently. They both teach the cultural subjects, which include science, social studies, art, music, physical education.

The instructional aides in the classroom are exceptionally well qualified for their roles in the classroom. Mrs. Bonner has elementary certification and previous teaching experience at the elementary level. She left teaching to have her family, and upon deciding to return to teaching, she decided to seek this type of position instead of a regular teaching position. She has been an aide at the school since its second year of operation. Mrs. Davis joined the staff at Lancaster School the year this study took place. She has secondary certification in Spanish education, and has teaching experience at the middle school level. She had substituted at Lancaster school the previous year when the Spanish teacher was out for an extended period of time, and agreed to take the aide position because she liked the program so much, and in hopes that a Spanish teaching position would eventually open up.

The Administrator as Researcher: Issues to Confront

I became interested in Montessori education when my first child attended a Montessori pre-primary program. When that program was going out of business, I wanted the pre-primary program to continue in the area, and I also saw the opportunity to develop an elementary program that would provide an

alternative to what was currently available in the area. So I started Lancaster School by purchasing some Montessori equipment from the Montessori school in the area that was going out of business, found a location, and hired a staff. I now have three children attending the school, and I am the school administrator. Like Mr. and Mrs. Stanford, I had several years' teaching experience at the middle school and high school levels, and had experience in this community with the frustrations of trying to teach within the fiscal and bureaucratic limitations of a public school system. I saw this as an opportunity and a challenge.

The teaching staff has known from the time the school was established of my interest in studying issues related to teaching and learning. While it was not a forgone conclusion that I would conduct research at this site, they knew it was a definite possibility, and was something I talked about with them periodically as the years rolled by. Therefore, my entry into the site was different from the course of action an outsider would need to take when trying to begin a study. Since we all have a common interest in understanding the learning process, and since we had a past history of working together to accomplish that goal, my research interests were compatible with the work we had done together on developing curriculum at Lancaster School. Therefore, the entry process for me was one of clearly communicating my intentions--to understand the learning process better as it occurs at this site--and showing how those intentions are compatible with and potentially helpful to the program at Lancaster school.

An ongoing issue I had to confront is that of "the boss" closely looking at teaching practices of the teaching staff. The physical layout of the building (with my office almost being part of one of the classrooms), and my past practice of regularly visiting and passing through the classrooms laid the groundwork for the teachers feeling comfortable with this type of inquiry. These teachers were

used to my presence in their classrooms, and our pattern of communication had already been to jointly solve problems with curriculum, parental relations, or learning. In addition, the purpose of the study is descriptive, not evaluative, and the primary emphasis of the study is on learners as they interact with the teacher in the classroom context, not solely on the teachers. With that understanding in mind, the teachers agreed to participate in the study. Parents of the children in the school were informed of the study's purpose, and had the opportunity to grant or deny written permission for me to include their child or children in the study.

In addition to successfully negotiating entry, and maintaining a positive relationship with the informants, I had to cope with the potential problem of being too closely involved with the situation because of my role as administrator in the school. As in all field research, total objectivity is impossible. Rather, the goal is to maintain "disciplined subjectivity," where I need to take notice of how my assumptions, hunches, and hypotheses originate, and take measures to triangulate the data, or make sure I have support for an assertion from more than one source (Bogden & Biklen, 1982; Gorden, 1980). For example, there were several instances where I thought I "knew" what the teachers would say about a situation, or what reason they would give for certain actions. Yet it was important for me to directly ask them, to interview them, and to examine their actions and communication to find out if what I thought I "knew" was actually accurate, and truly reflected their viewpoint, not mine. Guidelines for responsible data collection, analysis and interpretation, as discussed earlier in this chapter, were followed as measures to cope with this potential problem.

The School's Stated Curriculum

As discussed in the first section of this chapter, the curriculum under study (the twelve-week history unit) must be examined within the broader context of the total school year, which must also be examined within the context of a three-year overview of curriculum (the first three years or "lower elementary" time span). I will first begin by describing some overall goals of Montessori education that Mr. and Mrs. Stanford use as guiding principles to conceive of their curriculum, and follow with a description of more specific goals for students in the first three years of the program. This information will be linked to my analysis and discussion of the underlying learning activity structure in Chapter IV and my discussion of students' evolving understanding of history in Chapter V.

The Montessori Curriculum

Mr. and Mrs. Stanford's Montessori training emphasized certain principles that are to guide the way teachers approach curriculum development in the Montessori school. They draw from these principles to make decisions and to think about the extent to which they accomplish the goals they have in mind.

Underlying Assumptions.

Maria Montessori's broad goal for the "process of education" in a Montessori elementary classroom is to introduce the child to society at large, to culture, to human knowledge and ways of knowing. The process of education should

provide opportunities for the child to gradually join society, at a pace suitable for the individual, as a productive member (Jones, 1979). That is, instead of just teaching children to read, write and perform mathematical operations, the Montessori curriculum is intended to use knowledge as a natural aid to children's development of themselves, not as an end in itself (Miller, 1974). Knowledge is viewed by Montessorians as relative and everchanging; it develops and changes as people do. Further, Montessorians believe that the meaning of knowledge is personally and socially constructed for each individual.

Overall goals.

Overall goals fall into four broad areas. First, content goals include helping students understand the principles of each discipline, the structure of each discipline, the history of the development of each discipline, and the relationships among the disciplines. Intellectual goals are to provide ways for children to master tools or skills (e.g., reading, writing, mathematical skills, reasoning skills, ways to find information) needed for the pursuit of knowledge, and for functioning in a complex society. The ultimate intellectual goal is for the child to become a "learner who becomes independent of the adult" (Miller, 1974, p.24). A third type of goal, physical goals, are for the children to develop control of their movements for writing and manipulation of materials, participation in organized activities such as sports, and performance of daily functions in life. Finally, goals in the social-emotional area include development of those qualities in individuals that allow them to function productively in society (e.g., awareness of one's own feelings, sensitivity to others, awareness of one's effect on others, a sense of responsibility towards others), and qualities that allow them to be life-long learners (e.g., self-

awareness for making choices, independence, sense of success as a learner). These four types of goals always include development of the person at the personal and social level, since the overarching goal is to acculturate the individual (Jones, 1979).

"The Process of Education" as the Teachers Describe It

Since these are overall goals for the entire primary program, Mr. and Mrs. Stanford assume that they will start by providing a foundation in each area, which children will use to make sense of new information as they encounter it (Teacher Interviews 4/28/86 and 8/19/86).

> Mr. Stanford: ...they'll remember at least which historical figures went with which [time period], so then when they do other things it starts to bring it [knowledge of historical figures] into more intelligently with what they are doing. And hopefully if they stay around for three years, and we get into the swing of things, they would be able to pick it up at a different level, like we do with the Montessori great lessons where we pick it up at another level. (4/28/86)

> Mr. Stanford: ...maybe it'll click this year more than it did the year before. It'll make more sense to them. (8/19/86)

This notion of a deepening understanding of curriculum over time is similar to Bruner's (1960) notion of the spiral curriculum, where children are introduced to fundamental concepts within each discipline at different ages, and their understanding of these concepts will become clearer and deepen each time they encounter them.

The process of education, as Mr. and Mrs. Stanford understand Montessori's goals, must take place within a particular type of context that will facilitate and promote the development of Montessori goals. The quality of

relationships in the Montessori classroom is very important. The basis for the relationship is mutual respect and cooperation between teacher and child, and among children, so that just as the teacher has the responsibility to act as facilitator for helping children assume the role of learner, children have rights to be themselves but also a responsibility to the group as a whole. That is, children have the right to work alone if they choose, repeat work as needed, choose their own workmates, plan their day, ask for and receive adult help, choose their level of participation in an activity, and to become independent. Yet the exercise of these rights must not conflict with the rights of others in the classroom. The three-year age groupings typical in Montessori classrooms (two and one-half to five years; six to nine years; nine to twelve years) is intended to provide a heterogeneous group within which children can learn to synchronize their own development with development of the group as a whole.

The curriculum is a means to children's self development. Therefore, the materials are designed to focus on one concept at a time and provide for a series of steps of graded difficulty. Children discover "keys" to fundamental concepts through manipulation of the materials, and through engagement in problem solving situations, while they are provided with a constant overview of the development of knowledge:

> Mr. Stanford:...the Montessori idea is to teach them, show them everything, and let them fill the pieces in. (Teacher Interview 8/19/86)

The "everything" Mr. Stanford refers to is the overview of the development of knowledge as a framework within which students can place their understanding. This is done so that their own development is placed within a larger cultural context as much as possible.

The classroom should be set up so that the entire range of curriculum is accessible to children when they need it, to allow children to develop according

to their own "inner time clock for growth" (Jones, 1979; Miller, 1974). As shown in Figure 5 (p.123), materials are clustered according to various subject areas, and available to students on open shelves. Children are free to move about the room to get whatever materials they need at a particular point in time, and are held responsible for finding the materials they need for learning activities. Large group lessons are general introductions to the "development of the universe" or the overview for children's learning. Small group lessons sometimes elaborate on general introductions, sometimes prepare children for excursions into the world that are related to their learning, and sometimes provide information on exact techniques for manipulation of materials. Individual lessons are intended to help children master skills, typically in mathematics, geometry, and language (Miller, 1974). Large, uninterrupted blocks of time must be available to children to make and pursue choices, so that their work follows a "natural work cycle" and helps them develop a long concentration span. In addition to flexible time schedules and flexible methods of instruction, children need flexible access to the teacher to ask questions, and receive help if needed. All of these experiences occur within a social context that also requires children to work cooperatively so as to simultaneously meet their own needs and the needs of the group.

Summary

The information in this chapter is intended to provide background information as a context for the study. The unit of analysis, the weekly research project in an American history unit, is explained. The research procedures (types of data collected, data reduction and analysis) are explained. Background information about the school, the school's community, and the

school's state curriculum are all part of the context in which the weekly research project takes place, and part of the context that was considered as part of the data analysis. In the two chapters that follow, I describe my findings for this study. That is, I describe the learning process as it is revealed in the underlying learning activity structure in Chapter IV. I also describe the learning process and as it is revealed in the students' interpretations of learning activities and how their interpretations shaped learning opportunities in Chapter V. In these two chapters, I show how the three levels of the learning environment are interconnected and shape one another.


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CHAPTER FOUR

A VIEW OF THE UNDERLYING ACTIVITY STRUCTURE AND HOW IT FUNCTIONS IN THE CLASSROOM

Overview

As Erickson (1982b) defines the underlying learning activity structure in the classroom, it includes both the academic and social structures that underlie what goes on in classrooms. In this chapter, I examine the meaning of the term "underlying learning activity structure" as I use it in this study. This is followed by an examination of the observable aspects of the enacted learning environment--the overall routines, sequencing and timing of events, social interaction patterns, the space and materials through which activities are made available and completed--from which one can infer what the underlying learning activity structure is like (Erickson, 1982b). This examination includes a description of the weekly routines in the classroom in terms of their overall organization and patterns of implementation. I then describe what the organization and patterns of implementation reveal about the way the subject matter content is organized by the teachers in the American history unit, and what they reveal about the unspoken norms by which teachers and students interact with one another.

With the foregoing description serving as background information, I explore the implementation of the weekly routines from two viewpoints in order to understand how the underlying learning activity structure and the enacted learning environment interconnect. One way I explore the relationship between these two levels is to look at two issues surrounding their role relationship with the students that Mr. and Mrs. Stanford seem to struggle with as they implement their curriculum. First, I explore how teachers and students interpret and use

one of the major tools intended for pacing students' individual work in the classroom, the checklist. Then I examine the issue of choice of work in the classroom, as it is intended by teachers, and as it is interpreted by teachers and students. A second way I seek understanding of interconnections between the two levels is to describe how several academic and social aspects of the routines change over the course of seven weeks during the American history unit. I show how the structure that underlies the learning activities changes and evolves over time. I will eventually show (in Chapter V) how these changes connect with students' evolving understanding of American history.

The Meaning of "Underlying Learning Activity Structure"

In this section, I will examine the meaning of the term "underlying activity structure" and how it connects with issues in this study. The underlying activity structure, as Erickson (1982b) defines it (see Figure 1, p.44), has two parts, the social activity structure, and the academic activity structure. First I will interpret what is meant by the social activity structure. A classroom can be thought of as a speech community, or a group of people who frequently get together to communicate, and who share knowledge of rules for the conduct and interpretation of speech (Hymes, 1974; Gumperz & Bennett, 1980). This knowledge of rules for conduct is often not stated explicitly, but rather emerges out of patterns of interaction that become "understood" by participants over time (Mehan, 1980). The patterns of interaction, or the experiences from which people gradually come to "know" how to communicate with each other, emerge out of two features of the social task structure. One way people experience interactions with each other is from their role relationship, or how they come to expect to interact with each other based on their respective status and roles. In

the classroom, the teachers take on a particular role and status in relationship to their students as teacher, and by doing so, also define the students' corresponding role and status as learner. The roles and status sets, as they are defined, are enacted through a second major feature of the social task structure, a set of communicative rights and obligations. While role relationships and status sets may at times be explicitly described, they are often defined through patterns of actions rather than through direct statements. Therefore, the set of rights and obligations is somewhat fixed by institutional norms, but rights and obligations are also negotiated in face to face communication as roles are enacted. It is in this way that the social task structure underlies what happens; people (students and teachers) use a set of unspoken but shared operating principles that they have discovered through participating in a speech community (the classroom).

Similarly, the subject matter in the learning environment has its own underlying structure, just as the social relations do. Activities contain subject matter content that has been chosen to be included over other content; they contain main points and connections among main points. Moreover, learning subject matter through activities not only entails what is learned, but also the sequence of logical operations and steps it takes to comprehend the subject matter. That is, the content itself and the way it is sequenced and organized are both important determinants of what is learned. As learners complete activities over time, patterns emerge as to what is taught (e.g., main points and connections among points), as well as to the cognitive operations (e.g, kinds of thinking required) and ways of manipulating materials (e.g., steps to follow) that are necessary to complete the activities. Thus, there is an unspoken logic of the activity's tacit structure as it is enacted in real time by which subject matter

is organized and sequenced that makes up the underlying subject matter activity structure.

The social activity structure and subject matter activity structure are interconnected by communication in the classroom. That is, teachers and students talk about activities that contain subject matter content. Their communication links the academic and social worlds of the learning environment. In this study, I will focus on the physical materials used (materials used for activities and work students complete), and the communication surrounding those materials (lessons, individual work, special events and activities) to understand the underlying learning activity structure that emerges from several weekly cycles of the research project. I also intend to learn more about and provide description of ways in which the underlying structure connects with the enacted learning activity environment and the meaning students and teachers assign to the activities in the environment.

In order to infer what the underlying learning activity structure is like in Mr. and Mrs. Stanford's classroom, in the next section I will describe the weekly routines that provide the organizational structure to this classroom (individual work and checklists, scheduled instruction, "incidental" instruction). I will then show how the overall structure of the routines connects with the two parts of the underlying learning activity structure, the subject matter activity structure, and the social activity structure.

The Weekly Routines

A closer look in this section at the overall organization and implementation of the weekly routines will provide information about the academic and social worlds of the underlying learning activity structure. The

social structure is "underlying" in the sense that the norms for operating within the environment are unspoken and shared by members of the speech community (teachers and students in the classroom). The subject matter structure is "underlying" in that the materials, the set of steps to complete activities, and the communication surrounding the completion of activities contain an unspoken organization and logic by which subject matter is organized. An examination of the overall organization and implementation of routines will also show how Mr. and Mrs. Stanford put into action the underlying principles and assumptions about teaching and learning that were described in Chapter III in the section entitled The School's Stated Curriculum. That is, given what Mr. and Mrs. Stanford want to accomplish, how do they go about it?

While a monthly time block provides an organizer for sharing information with parents about their children's work, the weekly time block is what organizes and drives the way the curriculum is implemented in this classroom. For example, all assigned individual work is due at the end of each week, and Mr. and Mrs. Stanford decide which work to assign based on what the child accomplished the previous week. Spelling groups start a new cycle each Monday (e.g., get new words to study). A new research topic (the focus of this study) is chosen each Monday or Tuesday, followed by writing a rough draft on Tuesday or Wednesday, followed by writing a final copy and drawing to illustrate by Friday. New handwriting activities and language activities are assigned on Monday, to be completed by Friday. Mathematics activities are started on Monday, and points are totaled up by Friday. Basically, the only type of work that does not follow the weekly cycle is what is referred to in the classroom as the long term goal work. Long term goal work in this classroom consists of extended projects that students work on gradually each day or week after their assigned work is finished. These weekly time blocks that include

assigned work (as described above) that is to be completed on an individual basis, are paced by checklists, the subject of the following section. Later in the chapter I will discuss the centrality of the checklist in how students and teachers understand the underlying learning activity structure in this classroom.

Individual Work and Checklists

To implement classroom routines that are intended to be consistent with the type of context needed to realize Montessori goals (e.g., mutual respect and cooperation, make entire range of curriculum available, provide uninterrupted time blocks, provide flexible schedules), Mr. and Mrs. Stanford developed five possible checklists the students can use to pace their individually assigned work (shown in Figure 6, p. 145). There are two types of checklists available for the first year students. The first type is a daily checklist (Shown in Figure 6a) that specifically lists four to five subjects the student is to be sure to work on each day (e.g., spelling, language, math memorization and arithmetic on Monday). The order in which these subjects are worked on is up to the students, to the extent that they are not dependent upon a group (such as spelling group providing this week's new words on Monday) to get started on that type of work. After the students complete each day's work listed on the checklist, they are free to go on to the next day's work, or to choose a different type of activity to do that is available in the classroom. Typically, the amount of work the teachers try to assign is designed so that students will have some time left over to make choices. The second type of checklist available to first year students (shown in Figure 6b) is generally used with just two of the students who are not able to complete as much work as the other first year students (Field Notes, 4/25/86). This checklist only lists three subjects per day to work on, so that these two

students will still successfully complete their assigned work and have the opportunity to make choices if their work is done.

There are three types of checklists available to the second and third year students. The most commonly used is the the daily checklist (shown in Figure 6c) (Field Notes, 4/25/86 and Student Interviews 4/28, 4/29 and 4/30/86). Like the first year students' checklist, this lists five subject areas for students to complete work in each day (e.g., spelling, language card, math stamps, arithmetic and reading on Monday). At the bottom is also a place to indicate which long term goal the student should work toward after the daily work is completed. A second type of checklist available (shown in Figure 6d) is the weekly checklist where students are given a list of 13 categories of subjects (e.g., spelling, language, reading, handwriting, research, etc.), but they are not laid out on a daily schedule. Long term goals are listed at the bottom. This means students have the option of choosing whether or not to work on a particular subject on a particular day. The checklist is used to help the student identify curricular areas they are responsible for working in for the week, but does not plan their day for them. A third type of checklist available to the second and third year students is one that is seldom used (Field Notes, 4/25/86). It is a blank version of the daily checklist (shown in Figure 6e). Students would fill in what they plan to do each day (with a teacher's assistance if needed) and follow their own plan for the week. According to what Mr. and Mrs. Stanford learned in their training, if Montessori methods were working at their best, this open checklist is the kind of checklist all students would use. However, Mrs. Stanford comments that in reality, she thinks students need more direction from the teacher:

> ...one of the things I learned in Montessori is that you're supposed to just introduce it and then they should be allowed to go to their interests...there are still some things that

> they still have to do, you know, they have to do math, they have to do reading, and so on. And even though in Montessori they say, "No, just let them evolve and they'll learn it eventually, "I don't believe that. (Teacher Interview 8/19/86)

The type of checklist students are allowed to use depends on the "level of responsibility" at which the teachers think the students can work. Shown in Appendix E is a handout that was sent home to parents in September with the students' notebook (containing the past month's work), making explicit the teachers' criteria for deciding which level of responsibility matches with each student. The teachers also communicated these standards to the students at the beginning of the school year when they explained the procedure for sending the notebooks home each month. Generally, the better work habits students display (i.e., the better students keep up with the work that is on their checklist in a timely manner), the more flexible the work schedule they are allowed to use. The teachers encourage students to work toward the first level of responsibility which will allows them to plan their own week, since this format most closely reflects Montessori methods working at their best.

Most types of checklists structure the first four days of the week (see Figures 6a, 6b, 6c, 6e), with the assumption that Friday morning is available to finish up any incomplete work for a "checkout" process that takes place just before noon. When students check out, they bring all their work for the week to one of the teachers or aides to be looked over. At this time, all finished work is removed from the daily folder and placed in the student's notebook that goes home once a month for parents to see. Work that is not finished stays in the folder to be completed the following week (whether it is unfinished assigned work, or long term goal work). The teacher or aide will give the student a new checklist for the following week, and indicate whether there is anything else the

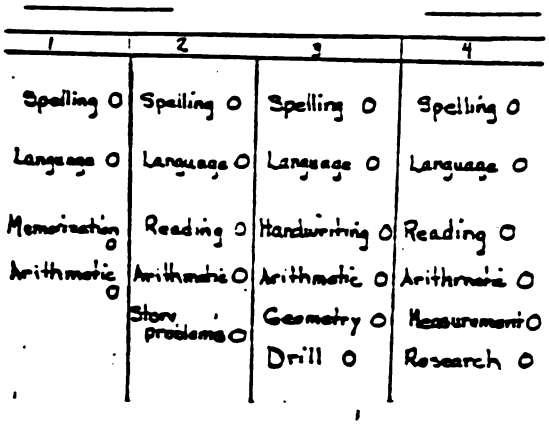


Figure 6a: First-Year Students Daily Checklist

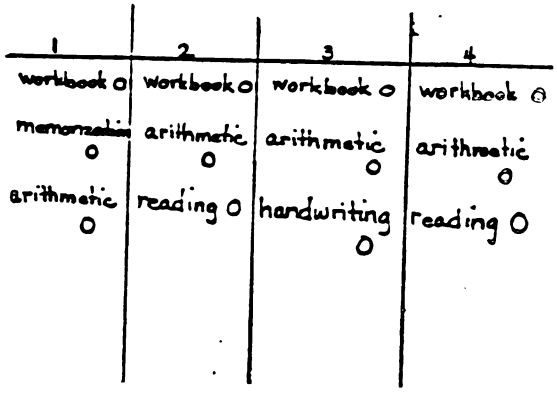


Figure 6b: First-Year Students Special Checklist

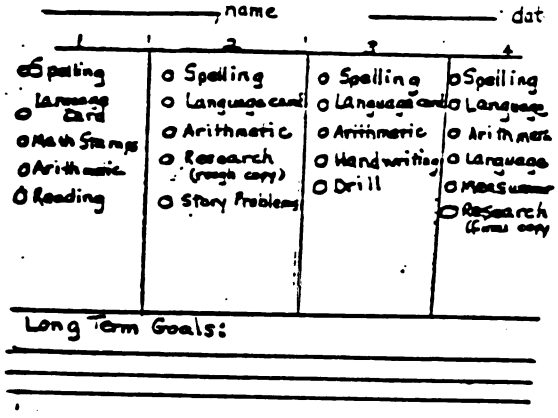


Figure 6c:
Second- and Third-Year Daily Checklist

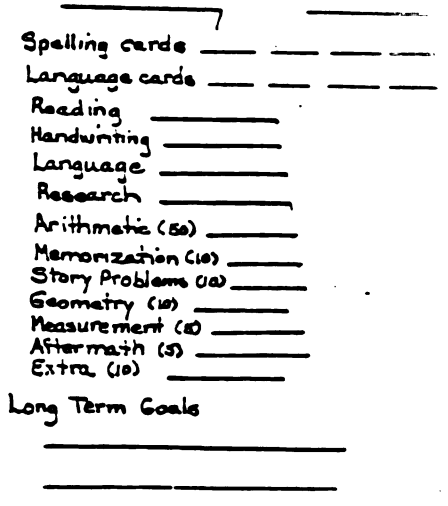


Figure 6d:
Second- and Third-Year Weekly Checklist

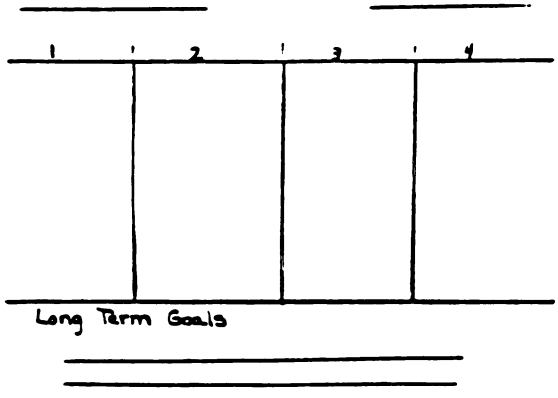


Figure 6e:
Blank Version of Daily Checklist

Figure 6: Checklists Used to Pace Student Work

student needs to do before he or she is considered "checked out." When checkout is completed, the student is free to work on activities of his or her choice in the classroom until it is time to clean up for lunch (Field Notes 4/25/86 and 5/2/86).

The checklist system is designed as a means for students to pace and monitor their own work. It also provides a means for teachers to keep track during the weekly cycle of how students are progressing on their assigned work (Teacher Interview 8/19/86). I will detail in a later section in this chapter ("Working Toward a Delicate Balance") the struggle Mr. and Mrs. Stanford have with assuring that the checklist is interpreted by students as a means to completing their work, not just as a goal in itself. I will also show how they struggle with their role in the educational process, and the part the checklist plays in this struggle.

Scheduled Instruction

While students work independently on their assigned work for the week, teachers and aides call groups of various sizes together for various types of instruction in language, mathematics and Spanish. Spelling groups contain approximately nine or ten students, while language groups may be as small as two or three students, and reading aloud is generally done with one student at a time. The size of the groups will also vary from one week to another as some students, for example, are ready to progress in mathematics to the next topic, while others still need more work in a certain area. The purpose of the groups will vary from explaining which mathematics activities to complete, to dictating spelling words, to working on language skills, to teaching mathematical concepts to students using concrete materials (Field Notes, 4/14 to 4/18/86).

The teachers and aides coordinate scheduling of these groups so they do not expect students to be in two places at one time. Most of the groups will be called on Monday, Tuesday, Wednesday and Thursday mornings (e.g., spelling, mathematics, language, Spanish). However, groups are also called in the afternoon as well (e.g., handwriting group for learning cursive) (Field Notes 4/14/86 through 4/25/86). Many of these groups follow a pattern so that students begin to learn when to expect certain groups to be called, and in fact wait for group to be called based on their past experience (Field Notes 4/14/86):

> I noticed during the Monday morning routine that Ken was pacing in one area of the room, and looking up frequently at the clock. He approached Mrs.Bonner to ask when his spelling group would be called. She explained that she was waiting for the math group that was meeting to finish, since several students in the math group were also in her spelling group.
>
> As the math group disbursed, Mrs. Bonner immediately called out the name of her spelling group. She then turned to Ken and commented, "You can tell it's Monday morning, can't you?" She was referring to the increased number of groups that meet on Monday morning and therefore make the schedule run a little late.

The cultural subjects are also taught with scheduled groups, usually in the afternoon. Science and social studies discussions or lessons usually take place immediately after lunch, either with the entire primary program (upper and lower elementary groups) or with the upper and lower groups separately. This time block directly after lunch is one where what I call "special events or activities" in the American history unit (see Figure 3, p.93) are generally introduced and carried out. Music and physical education are scheduled on Wednesday afternoons and are divided into upper and lower elementary groups. Art is usually taught to the entire group on Friday afternoons. As in the

morning, if a group is not scheduled for a particular individual, students work on assigned work, or choice work if assigned work is completed for the day.

"Incidental" Instruction

Mr. and Mrs. Stanford are firm believers that much of the important teaching and learning that occurs at Lancaster School takes place spontaneously as the routines and activities are carried out (Teacher Interviews 4/28/86 and 8/19/86). Much of the teachers' and aides' time in this classroom is unscheduled time where they are available to help students with any work they need help on. Their availability is typically "announced" in one of two ways. One way is to walk around and stop at various students' work space (the floor or at a table), talk with them about it, or ask how they are doing. This often results in the teacher sitting with some students longer to work on something the student needed help on. A second way is for the teacher to sit in a chair in the classroom. There is almost always a student who immediately approaches with some work in hand, and often a line begins to form as children wait their turn. Sometimes the interaction becomes more public as others who gather around begin to participate in what started out as a one-to-one conversation between teacher and student (Field Notes 4/15/86).

With this context of how the weekly routines are organized and carried out in mind, I will now turn to a closer examination of the subject matter as it is structured and taught through the routines.

The Underlying Subject Matter Activity Structure

The weekly routines are an important indicator of what the underlying subject matter activity structure is like. That is, which subject matter or content is

included, and what is the logic by which it is organized and sequenced? Instead of trying to answer these questions for all subjects included in the curriculum, I will concentrate on the subject area that specifically relates to this study: the study of American history. As it occurred in this classroom, the study of American history falls under the "research" category in the weekly cycle. In this section, I will provide an overview of the research cycle in general as revealed in the way the routines were designed and organized. In the section entitled "Changes in the Underlying Learning Activity Structure" I detail the evolution of the routines over time. In Chapter V I will examine in detail how evolving routines unfolded as students learned about American history.

Overview of American History Content

The twelve-week unit on American history was divided into four time periods, each having the following content focus:

a) The pre-1600's: study of the Vikings, the Indians, explorers, Christopher Columbus

b) The 1600's and 1700's: the pilgrims' arrival in America, the colonization of the United States, the Revolutionary War, the Declaration of Independence, the presidents and states

c) the 1800's: the Louisiana Purchase, Wars during the 1800's (War of 1812, the Civil War, the Spanish-American War), the presidents and states, famous and important inventions

d) the 1900's: further inventions, the two World Wars, the Korean and Vietnam Wars, presidents and states

The famous people and events that were studied were organized by time periods as a way for children to "sort out" or be able to place what they read and wrote about into some kind of chronological framework (Teacher Interview 4/28/86 and 8/19/86). The overall content focus for all the students was to at

least be able to have some way of figuring out when an event might have occurred, and how it tied in with other events the class discussed or read about.

An Overview of Weekly Research Activities

Reading, writing, drawing, and participating in discussions about historical figures and events were a means by which students were to accomplish two major goals. One goal was to broaden the students' exposure to American history. That is, before one can tie events together or make sense of them in relation to each other, Mr. Stanford felt that students needed to know about an array of events or people. Second, Mr. Stanford wanted students to learn how to place these events or people in a chronological framework. This does not mean memorizing names and dates. Rather, it means thinking about the characteristics of a time period, and learning to logically reason how or why an event would be tied to a certain time period, or how an event would logically relate to another event the student knows about (Teacher Interview 4/28/86 and 8/19/86).

To accomplish these two major goals, students were asked, as part of the weekly research cycle, to choose topics to read about from an array of readings made available. Checklists of possible readings were provided (See Appendix F for reading lists for the 1800's and 1900's) and students were to read a minimum number of selections for each time period. Each week they also were to choose one of the topics they read about and write about it. To help the students manage the writing activity, Mr. and Mrs. Stanford broke it down into steps. First students were to write a rough copy, where they focused on getting their ideas down on paper, and were not supposed to worry about spelling and punctuation at this point. To help students decide what the write about (Teacher

Interview 8/19/86), they were to include the answers to the following questions, which were posted on the bulletin board in the classroom (Field Notes 4/15/86):

a) Who (or what) is your subject for research?

b) When did the event occur?

c) Why is it important?

When students finished their rough copy, they put it in the rough copy pocket posted on the wall in the classroom. This was to be completed by Wednesday at noon. On Thursday, the rough copies were returned to students, usually with some type of conversation between student and teacher about the writing. Mr. and Mrs. Stanford generally edited the copies for punctuation and spelling corrections, and occasionally would ask students what they meant to say when they returned the rough copy so they could help students construct sentences that communicated their intent. Writing the final copy was generally a copying task, where students make the corrections that were indicated on the rough copy. In addition, they were expected to draw a picture at the top of the final copy page. Shown in Figure 7 (p.152) are a typical rough copy and final copy paper for research. Note that the changes from the rough to the final copy are in spelling (which the teacher printed correctly above each word on the rough draft), in switching from printing to cursive writing, and the final copy has a drawing at the top of the page.

In summary, the study of American history was carried out in time periods in order to give students a framework for making sense of individual events under study. Mr. and Mrs. Stanford assumed that students would gradually acquire a more sophisticated understanding of each time period each time they studied it (over the course of the three years in the early elementary program), so that this was not looked at as the only opportunity the students would have to

My story is about the Little Bighorn
The battle was fought in 1876.
General Custer attacked the Sioux
Indians. Sitting Bull was the leader
of the Indians. Sitting Bull had lots more
men. All of Custer's men got killed and so
did he. It was Custer's last stand.
After the battle the white men took
away alot of the Sioux Indians land.

Figure 7a: Sue's Rough Copy Research



My story is about
the Little Bighorn.
The battle was fought
in 1876. General
Custer attacked the
Sioux Indians. Sitting
Bull was the leader
of the Indians. Sitting
Bull had lots more
men. All of Custer's men got
killed and so did he.
It was Custer's last
stand. After the battle
the white men took
away alot of the
Sioux Indians
land.

Figure 7b: Sue's Final Copy Research

Figure 7: Sue's Research on Little Bighorn

make sense of the material (Teacher Interview 8/19/86). Students were given the option of choosing which events to find out more about (through reading and writing) so that they had the opportunity to study areas that fit with their own interests, and could eliminate studying those they already understood. The large group discussed each time period daily (during the after lunch discussion) as a means for students to share what they were learning, and to help students learn ways to tie events together. In addition, students were occasionally given worksheets to complete (shown in Appendix D) which gave them further exposure to specific factual information such as the names of the 50 states, the names of the presidents, and significant events during each time period they studied. I will now turn to describing the context through which students and teachers communicated about the subject matter content, the underlying social activity structure.

The Underlying Social Activity Structure

The weekly routines and the underlying subject matter activity structure are important sources of information about the relative status of participants, the roles each are to play, and the communicative rights and obligations of the participants (Erickson, 1982b). In this section, I will give an overview of the social activity structure as it is revealed in the way instruction and routines are organized for learning about American history. Later in the chapter ("Working Toward a Delicate Balance" section) I will examine the nature of the actual social relations as the American history unit was carried out.

Relative Status and Roles

While Mr. and Mrs. Stanford see themselves as actively participating in the inquiry into subject matter (how the events fit into the chronological framework, and ways in which events are tied to one another), they clearly maintain overall control, or a rather "tight frame," over the selection, organization, pacing and timing of knowledge transmitted (Bernstein, 1975; for a more detailed discussion of this issue, see Chapter I, pp. 29 - 30). The teachers maintain control over the selection and organization of knowledge by selecting the time period under study, and selecting important events on which to focus class discussions. The reading materials available also dictate the content to be selected, since the three sets of books available in the classroom (Cornerstones of Freedom series, Golden Treasury of Knowledge, and Young Children's Encyclopedia) and the selections they include are essentially what define the available choices of knowledge to pursue. Within this framework, students are allowed to choose which selections for each time period they wish to read and write about (Field Notes 4/14/86). They also have quite a bit of latitude as to how many selections they read, since they can choose to spend more time reading selections that interest them as long as they complete their scheduled work. Students have the option of sharing further information they find out about at home or from other sources during the after lunch discussions, and often take advantage of those opportunities (Field Notes, 5/2/86). Mr. Stanford conceives of the "frame" or control issue in the following way:

> ...it's a long way toward giving them control...control is one of the whole basics of all the stuff we do in our school...it was the freedom to choose within the limitations...You have to set up some guidelines... (Teacher Interview 8/19/86)

The tight framing of the content is part of what Mr. and Mrs. Stanford see as providing guidelines and direction for students, a way of helping students learn to make choices. In addition, it is a way for them to give students clear direction as to what is expected of them.

The weekly routines are intended to provide structure for the pacing and timing of knowledge transmitted. As indicated earlier in this chapter, the teachers determine which checklist students are to use, based on their opinion of how much responsibility students are able to take for their own learning. Since the majority of students use some type of daily checklist, the content of the checklist further defines for students the pace at which they complete learning activities. Within this framework, students have the option to choose the order in which they complete activities, although many often follow the order in which items are listed on the check sheet (Student Interviews 4/28/86). In addition, they have some discretion regarding how much time they will spend on a given activity on a particular day, as long as they complete their assigned work by the end of the week. Again, students have "freedom to choose within the limitations" as defined by their teachers. As I describe how students completed their work as they learned about the American history in Chapter V, it will become evident that this freedom within limitations is at times a delicate balance for both teacher and students to maintain.

Within this framework of weekly routines through which subject matter has been organized in a manner the teachers believe to be logical and helpful for student learning, Mr. and Mrs. Stanford take on the role that I think is similar to a "tour guide." This situation is similar to the way people sign up for guided tours of museums and historical sites to learn more about them than they otherwise might on their own. Students enter into a relationship where they must be willing to actively participate in the "guided tour" (the set of experiences

that have been planned for them), at the pace at which it is planned, to take advantage of the learning experiences available. The teachers or tour guides are there to keep the pace moving, to offer new information and explanations, to answer questions, and to stimulate further inquiry into the subject matter. In some ways this seems to change the typical rights and duties in the teacher-student relationship since in this case the students ask the questions and the teachers try to answer them (or show students how to find out answers), instead of the usual situation where the teacher asks the questions and the students are to provide the correct answers. Yet, the teachers, in their role as tour guide have a more detailed overall picture of the subject matter content the participants will learn about than the students. They have an overall picture of the array of topics available, the amount of materials available for a given topic, and the amount of time they can spend at each "stop." The students, in the role of participant in the tour, are more or less counting on the teachers to make good selections, and make appropriate choices for stops along the way. While people often do not absorb all information or experiences on a tour, they get the flavor of the setting, the gist of the topic at hand, the opportunity to see where they need further inquiry. Then it is up to the people on the tour to follow up, at a later time, a topic that particularly interests them. It is this role relationship that the weekly routines suggest.

Communicative Rights and Obligations

With this type of relationship--mutual agreement to participate in the inquiry as it has been organized by Mr. and Mrs. Stanford--come rights and obligations of the participants. Mr. and Mrs. Stanford have taken it upon themselves to maintain the right to set up the overall learning structure, and see it as a necessary part of their role (Teacher Interview 4/28/86 and 8/19/86). Therefore,

they are obliged to provide and communicate the overall structure as promised. That is, they must provide the necessary resources (e.g., books, maps, pictures), experiences (e.g., discussions, field trips, special events or activities), and learning activities (e.g., reading, writing, drawing, worksheets) so that the "tour" can take place. In addition, they must consider the abilities of the participants to comprehend and succeed at the experiences, and structure the activities in ways that increase the likelihood of success. Finally, they must communicate to students what is available on the tour, and how they can go about participating in the tour.

Within the structure that has been provided and communicated, students have the obligation to actively participate in the tour, if it is to be successful for them. That is, they must keep up with the routines, ask questions if they need help or if the routines are causing them problems, and participate in the inquiry of the subject matter (e.g., read, write, discuss, participate in special events). In other words, they must not only participate in the routines, but need to communicate with Mr. and Mrs. Stanford about how they are doing. The communication may take place orally, but there are many "avenues" that Mr. and Mrs. Stanford look to to see if students are "in touch" or with them on the tour (Teacher Interview, 8/19/86). For example, students not only read and write about historical events, and need to meet deadlines within the routines regarding these obligations. They also discuss the historical events, draw pictures of them, and have the chance to participate in other events related to them (e.g., go on field trips, play simulated games, bring in something from home). Mr. and Mrs. Stanford rely on all these sources of information to make a judgement as to whether students are in touch with the group's inquiry. I will show in the final section in this chapter (entitled "Changes in the Underlying Activity Structure") how the communicative rights and obligations that emerge

out of the special events contrast in important ways with those that are experienced by students during weekly routines as the role relationships change. In Chapter V, I will show how these differences play a key role in the nature of the students' evolving opportunities to understand subject matter.

Hand in hand with Mr. and Mrs. Stanford's communicative obligations come the students' communicative rights. They have the right to know about and understand their responsibilities in relation to the routines (e.g., what will happen on the tour, and who is responsible for what?), and to ask for and receive help in keeping up with the routines or in completing the activities. They have the right to express their interest or lack of it in certain topics at hand as an indication of whether the study of history is making sense to them, and as an indication of whether the study of history is whetting their appetite to pursue further study of a particular area. The tour guide must be sensitive to how the group is keeping up with the tour, how members of the group are responding, and what further assistance participants need to enjoy and learn from their tour.

This overall relationship, as in all learning relationships, relies on the willingness of participants to take advantage of the available routines and experiences. This close interconnection of rights and obligations with the overall role relationship arises out of the patterns of interaction that emerge as the routines are implemented, and must continue if the routines are to carry on from week to week. For example, Mr. and Mrs. Stanford must carry out their teaching responsibilities, and must actively seek information regarding student progress as the tour progresses. In turn, the students in their role as learners must actively participate in the tour, must take hold of opportunities to inquire into subject matter, and must let the teachers know how they are doing. This is a tall order which requires the participants to understand the underlying learning activity structure and how to operate within it. As I have shown thus far

in this chapter, students must interpret cues from two main sources to understand the underlying structure: (a) how the weekly routines are organized and implemented (e.g., use of checklists, scheduled instruction, "incidental" instruction, weekly research activities); (b) the way the subject matter content is organized and sequenced, and activities designed for students to learn the subject matter.

With this overview of how the tour is planned and organized, in the section that follows I will examine how this underlying structure is enacted in the classroom from two viewpoints. From one viewpoint I look at tensions that emerge between what teachers intend and what happens as routines are implemented. For example, I will examine how the teachers and students interpret the checklists that are intended to pace student work, and how that shapes the underlying learning activity structure. I will also explore how teachers' and students' interpretations of choice in their work interconnects with messages students may be getting about what is expected of them. Following this analysis, I will examine the enactment of the curriculum from a second viewpoint, showing how the underlying learning activity structure changes over time as the American history unit progresses. An understanding of how the underlying learning activity structure changed over time is needed to account for opportunities for knowledge development that are described in Chapter V, and to account for interconnections among the three levels of the learning environment (the underlying structure, the enacted structure, and the meaning students and teachers assign to activities).

Working Toward Delicate Balance

When one infers what the underlying learning activity structure is like in a classroom, inferences come from evidence of what actually happens in the classroom. Sources of evidence include the reading, writing and drawing activities that were assigned as a means for students to learn basic knowledge of historical events and place them within a chronological time frame, which were part of the weekly work cycle, and labeled "research." In the following section, I will show how one student, Steve, interprets research as part of his weekly work, how other students show similar patterns, and how Mr. and Mrs. Stanford see their role in this process. The routines as they are experienced in the classroom seem to require a type of "balance" between personal goals and overall requirements. This issue will be elaborated through the following example.

The Checklist as Tool Versus Goal

Steve's story is a good illustration of what I believe to be typical of many of the students in the class in terms of how they approach their weekly work, and the place "research" has within that framework. I will show how Steve interprets the checklist that Mr. and Mrs. Stanford intend as a guide and a resource as an organizing system instead. Steve approaches his work quite systematically. That is, he seems to take advantage of the available organizational patterns or aids that are part of the classroom routines as they become available to him. For example, according to the way Mr. and Mrs. Stanford perceive his work habits, he qualifies for using a "weekly checklist", but chooses to use a "daily checklist" (See Figure 6c, p.145) because it helps him pace his work (Field Notes 4/30/86). However, as many of his peers do as well,

he does his work *in the order in which it appears* on the checklist, instead of seeing each day's list of work (as shown on the checklist in Figure 6c) as an array of possibilities from which to choose and then ordering his work himself. This means he does not begin his research until Tuesday morning or afternoon, because it takes him until that point to complete all the other work previously listed on his checklist (Field Notes, 4/22/86; Student Interviews 4/28, 4/29, 4/30/86).

Steve's overall impression of "how he's doing" in school each day seems to be tied very much to whether or not he is "on schedule," even if he is not ultimately accountable for whether he is "on schedule" (meaning all work is finished) until Friday. An example:

> I asked Steve how his day went at the end of the day on Monday. His overall impression was that it was not a good day. He proceeded to tell me his tale of woe. First, he was disturbed that his baseball team lost at recess. (Perhaps all it takes is such a dramatic and important event such as this to give him the impression that he has "blown" the whole day; I'm not sure.) Then he recounted that his morning had not gone well because he had spent almost all morning on a "very hard" alphabetizing card, and had to finish it, because, "...once you start a card, you have to finish it." Because of this extra time spent on the card, he felt that it had interfered with his getting his other daily work done. To top it all off, he was just about to finish something he was working on toward the end of the afternoon, and he had to go to a cursive writing group that had been called with just enough time to finish the group lesson before clean up for the day.
>
> He seemed to have the feeling that this group time interfered with his important work, which was to complete what was on his checklist. Or it at least severely interfered with what he thought at the time was first priority. Instead of focusing on what he *had* worked on or learned, he focused on what was *not* completed, which led him to the conclusion that his day had not gone well (Field Notes, 4/22/86).

Above all, then, Steve has interpreted the overall routines to be somewhat driven by the checklist, and has somehow lost sight of the idea that he has

chosen the daily checklist as a means of pacing his work, and that it was not meant as an end in itself. He seems to be struggling with the issue of keeping up with the "tour" (part of the role relationship as it is set up in the classroom), while at the same time he is expected to follow his own individual pace as a way of enjoying and getting more out of his work (part of what Mr. and Mrs. Stanford see as their overall goals). A portion of my interview with him further elaborates his use of the checklist:

I: Ok, how important is your research?
S: To me?
I: Uh huh.
S: It's, sometimes it's important and other times I don't really like it.
I: And what are those times?
S: Well, sometimes when I choose a really good book that I'm really excited to read, I like it. And when I have a whole bunch of things to do from yesterday or the day before, they, I um have, and it's Wednesday and almost noon, I have to do my rough copy research, and I have to do my rough copy research and all those other things...
I: Then you don't like it?
S: Yeah, at that time 'cause all of the other things, it takes longer to do my research than the other things and I'd rather do them, but had to do my rough copy. (Student Interview 4/29/86).

While Steve is rather skillful at using the routines to pace his work, he interprets participating in the routines in a timely manner as a goal in itself, rather than as a means to other, more specific learning goals as his teachers would like him to. He also seems to find that his concentration shifts from enjoying what he is doing to feeling some kind of pressure as the deadline nears.

I saw this "getting done" goal reflected quite often in the conversations among students, and between students and teachers, as evidenced in the examples in Figure 8 (p.163).

Figure 8: Examples of Focus on "Getting Done"

Date	Example
4/14/86	Mrs. Davis: Ellen, I'd like you to really concentrate on getting those spelling cards done. Steve, same for you. Steve: Last week I sat by Charles. Mrs. Davis: Oh, is that what happened.
4/14/86	Nancy: Well, I can tell you one thing. Abe and Chester don't do their work. They goof off.
4/14/86	Steve: I did today's arithmetic. Now I only have to do one thing and I'm done for the day. (This is said at 10:46 a.m.)
4/14/86	Nancy (11:21 a.m.): I can't believe I'm almost done for the day. I have all afternoon to mess around! Nancy (1:34 p.m.): I'm done for the day. (Gets science pass to go do experiment)
4/14/86	Mickey: Hmmm, I'm getting a lot done today. I have four things done.
4/14/86	Mr. Stanford calls a group of 12 students over after the after-lunch discussion and asks, "What happened here?" [refers to research from last week] Choral response: I didn't get mine done.
4/15/86	Carl: I wish the bank opened up today. [The bank is managed by students and is a means by which students can deposit funds they have raised for a school project.] Bruce: It takes up too much time and you don't get much work done. Anthony: You don't even work there. Bruce: I know.
4/15/86	Julie: I'm writing about the fire that was near my house. I'm working on writing it at home because there's so much to write I don't have time here.
4/15/86	Mrs. Stanford: Steve and Carl, that should be done by now. You guys are fooling around.

Mr. and Mrs. Stanford have a great concern about this "getting done" goal overriding other educational goals:

> Mrs. Stanford: ...That's where I feel we need some sort of checklist, but I have never been happy with a checklist, because it limits some kids. Andrew is a perfect example. He gets so paranoid 'cause he's not gonna get his checklist done, and other kids say, "Oh, I only have five more things to do. I did 16 things today," and I absolutely hate hate hate when they say that, because I don't feel they're doing anything other than doing something, checking it off, doing something, checking it off, and not intrinsically learning, or wanting to do it.
>
> And you know, every year we've done something different; we've tried to change it.
>
> Mr. Stanford: ...And what we're trying to do [for the next school year] is make the checklist more of them accounting for themselves what they did that week...Trying to sum up what their week was all about so that that tool (and we're gonna save the checklist) is the tool that their parent can look at at the end of the month...
>
> We're trying to get it so they can tie it all together... It's our own personal thing, striving to, to really run a classroom exactly the way we want it. We keep arguing back and jostling. We've never gone through a year with a consistent checklist. We modify it all the time for the kids, and we keep doing it. And what we're looking for is that fine line... (Teacher Interview 8/19/86).

The "fine line" that Mr. and Mrs. Stanford want is for students to use the checklist and the routines as a tool, as a means of pacing themselves, not as a goal. The tool should be a means for the children to actually become involved in their own learning, to actively try to "tie it all together." Yet Mr. Stanford wants to "really run a classroom exactly the way we want it." This suggests there is another type of balance going on besides the one involved in using the checklist, which I will explore in the next section.

Fulfilling Basic Requirements Versus Doing Chosen Work

Another aspect of the "fine line" Mr.and Mrs. Stanford are looking for is reflected in their pedagogical relationship with their students. In their ideal view of how the classroom would be run, students would use their checklists as a guide, and work because they "instrinsically" want to. In reality, Mr. and Mrs. Stanford find themselves having to be more directive with students:

> Mr. Stanford: So if...any of those kids just sit, they don't get themselves to do their research, the next week when we're going on to the next step in that history thing, we would make sure she did some basic things. Her responsibilities would be tighter, her checklist would be a little bit tighter. We would make her do the writing things that she probably avoided or didn't want to do... they have their certain basic things, and research has to be done and the drawing has to be done...we've seen most of the kids will be triggered...(Teacher Interview 8/19/86).

Even though they don't see themselves in the ideal as "making" kids do their work, they will if they see that that "have to" (i.e., if students are not completing the requirements on their own). Elsewhere in this same interview, Mr. Stanford referred to sometimes having to make students "plod through" the research, or having to "drag it out of them." They feel that it is necessary to keep the momentum of the routines going, to keep the students participating in the weekly cycle of gaining information, so that their interest will eventually be "triggered." If they are not at least participating at this level, there is little chance of sparking an interest somewhere along the way:

> Mr. Stanford: [not to be in touch] is really not a thing to do...The very few kids that don't do that [participate in the research process] find themselves really out on a limb. They'll come to the group, and they hear people talk, and they're looking around, and they have no place in the group... (Teacher Interview 8/19/86)

Mr. and Mrs. Stanford hope to help students avoid this problem by prodding them to keep up with their work if it is necessary for them to do so. As I indicated earlier in this chapter, in their role as "tour guides" they need to have the people on the tour actively participating in the investigative process, or nothing can be gained from the tour. Moreover, their responsibility as teachers (as they see it) requires them to provide an overall framework within which students can place information to comprehend it. At the same time, their overall goals tell them that they want students to participate out of interest and enthusiasm, not because they are made to. Therefore, they are faced with another situation to "balance." That is, they must provide enough direction and see to it that students fulfill requirements, while at the same time they must allow enough latitude so that students enjoy the experience.

Mr. and Mrs. Stanford justify their involvement and role in implementing the curriculum in terms of what they think students need to succeed. For example, in this classroom, the investigative process includes using reading, writing, drawing, discussion, copying activities, and special events or activities as various means to study and understand history. Bernstein (1975) would call this type of curriculum, where boundaries are blurred between subject areas by a relational idea (in this case, the process of learning to place historical events in their appropriate time frame), where ways of knowing count as valid knowledge (e.g., being "in touch" in some way is important), where the relative status of contents is open and varied (e.g., reading about Abraham Lincoln is just as valid as reading about the Statue of Liberty), an "integrated" type of curriculum. Yet I argued earlier in this chapter that Mr. and Mrs. Stanford maintain a relatively tight frame over the selection, organization, pacing and timing of knowledge transmitted. Their explanation is that they allow "freedom

to choose within the limitations" (Teacher Interview 8/19/86), and they see their role as one of needing to set up guidelines:

> Mr. Stanford: ...an untrained mind, just an unlimited, here's a blank piece of paper, just write research every week, without getting feedback...there are no bounds for them. It's like telling a kid, just do what you want to do, but then I'm gonna yell at you when you do the wrong thing. They don't know what the wrong things are, so you have to set up some guidelines, and we're not rigid on that, I don't think we're definitely rigid on that...That stifling isn't there. The creativity can come forth. (Teacher Interview 8/19/86)

There are guidelines such as using the focus questions and the corrections for research that are intended to help students "know what the wrong things are." Yet they do not want to be and do not see themselves as being rigid about implementing the guidelines in a way that would lead to stifling students' creativity. They see the need to balance providing "freedom within limitations."

At the same time they provided guidelines that were set within limits, there were times when they loosened requirements, as I have indicated in the underlined segments of Mr. Stanford's interview:

> Mr. Stanford: The older kids, [at] the tail end, the older kids that were writing a lengthy research were finding that... they were using the research handwriting paper, and finding that they were doing three and four pages of it, and were making pictures on three or four pages. And the kids that like to do the art, we didn't make them at the end, but some of the older kids that were doing longer ones, we would let them do, draw the picture, one picture...some of them drew three or four pictures, and some of them didn't choose to draw a picture. (Teacher Interview 8/19/86; emphasis added)

In this instance, from Mr. Stanford's choice of words, it is unclear as to whether he feels that he and Mrs. Stanford consciously decided to forego the drawing requirement, or whether the students chose not to, and they went along with it. This is an instance where they somehow decided not to "make" students do the work, whereas in the quote above (p.165), they still would "make" a student

write the weekly research. There seems to be a bit of inconsistency or contradiction here. Consider, for example, the following quote:

> Mr. Stanford: Maybe they didn't want to play around with this writing. Writing just got to be a drudgery. Then they would get into the mural, and say, or the drawing, just even the drawing of the research. Their research would be terrible, but the drawing would be real nice. Or they could talk about it a little bit in a group discussion. There are avenues for the kids to show that they are at least in touch. (Teacher Interview 8/19/86)

Here Mr. Stanford talks about kids "playing around" with research, where at other times he sees it as "plodding through." Here he seems to see his curriculum as offering an array of possibilities, like a menu, from which students choose, whereas at other times, there are "basic requirements" students must meet. I saw the similar contradictions in the way students followed their checklists. At times they were very matter of fact in saying they didn't get a requirement done, like finishing their research, and that they would finish it up the following week:

> Carly finishes up her illustration from last week's research and places it in the final copy folder on the wall. I comment to her, "So you finished, huh?" She replies to me in a matter of fact tone, "Now I have to catch up on yesterday's work." This is a Tuesday, and Carly is finishing up a final copy that was due the previous Friday. She shows little outward concern for being "behind schedule" and approaches "catching up" in a relaxed manner. (Field Notes, 4/15/86)

In contrast, there were other times when finishing what was on their checklist took more dramatic forms:

> It is 11:24 a.m. on Wednesday, with the rough copy research due at noon. Mr. Stanford reminds Jordan, who holds a blank sheet of paper in his hand, that his rough copy research is due at noon. Carl overhears Mr. Stanford's remark and turns to Steve and exclaims, "I'm done with my work. We should celebrate!" (Field Notes, 4/16/86)

Are Mr. and Mrs. Stanford sending mixed messages to the students, or is there another way to explain these apparent contradictions? As it is interpreted and used, is the checklist a tool or a goal? As Mr. and Mrs. Stanford carry out their role, is their role to "make" students do their work, or to act as tour guide? One explanation is, as Mr. and Mrs. Stanford readily explain, they are struggling with different sides of their role, with meeting their own obligations (see to it that students fulfill basic requirements) while maintaining what they see as their students' rights (follow their own interests and enjoy learning), and the "balance" is sometimes not maintained. Another possible explanation will be explored in the next section, where I will examine how the underlying learning activity structure evolves and changes over the seven weeks I observed students studying American history. What may at first glance seem to be contradictions in the way intended goals are implemented might at times be attributed instead to a loosening of teacher control over the structure and content of learning activities, or a change in the way weekly cycles were implemented.

Changes in the Underlying Learning Activity Structure

Another viewpoint from which one can seek information about interconnections between the underlying learning activity structure and the enacted learning task environment is to look for changes in the underlying structure across time, and try to account for how those changes come about. In this section I will describe shifts in the way subject matter was structured and organized, and shifts in the relative status sets and roles and the social participation structure as the unit progressed. In general, I will show how the subject matter content "opened up" to include a wider variety of topics and new

ways of thinking about it. Concurrently, the social activity structure "opened up" to become more interactive, and expand the roles participants had become accustomed to. In Chapter V I will show how these shifts have important connections to how students' opportunities to understand American history evolved.

In Chapter III Table 1 (p.76) summarized the activities in the American history unit. While this table gives a chronological account of when certain kinds of activities occurred, it does not provide specific information about the nature of the subject matter or the social relations as the activities were carried out over time. Therefore, I have redesigned this table (shown as Table 3: Changes in Underlying Learning Activity Structure, p.171) to reflect the changes over time in the way activities were designed (subject matter content and organization) and to reflect changes over time in the nature of the social relations. I will argue and illustrate, in the four sections that follow, that as both the academic and social sides of the underlying activity structure changed, different opportunities for learning history emerged, and different role relationships developed.

Weeks 1 and 2: Individual Work and Structured Activities

During weeks 1 and 2 of my observations (see Table 3, p.171), when children studied the 1800's, the activities that are typically directed by the checklist were mostly done individually (e.g., read, write rough draft and final copy, draw, copy presidents and states, and checkout). The only activity carried out as a group during these two weeks were the after-lunch discussions. It was during this two-week time period that students seemed to be into a regular routine of following their checklist in the order in which activities appeared as described earlier in this chapter, and they worked individually to complete the research activities with a largely "understood" work pattern. This "understood"

Table 3: Changes in the Underlying Activity Structure

Type of Change:	Individual Work and Structured Activities		The Turning Point	Group Reading and Writing		A Two-Week Cycle	
Topic:	1800's	1800's	Inventions	1900's	1900's	1900's	1900's and Retrospective Summary
Week:	1	2	3	4	5	6	7
Weekly Tasks Directed by Checklist:							
read	individual work		none	group reading		review discussion replaces reading	
write rough copy	individual work		individual/group	group writing		large group writing	
write final copy	individual work		individual	individual work		individual work	
draw illustration	individual work		individual/group	individual work		picture timeline	
discuss (group)	prepare for field trip		extra groups	discuss 1900's		geneology discussions	
copy presidents and states	individual work		individual	individual work		individual work	
checkout	individual work		deadlines changed	checklist order/pace changed		new checklist	
Special Events or Activities Directed by Teacher:							
Similar event/feel what it's like to be part of history		less structured Civil War simulation	Invent				
Place self in history					Voluntary Geneology	Voluntary Geneology →	
Visit Artifacts	structured field trip	music/Gettysburg Address					
Retrospective Summary				Picture Timeline----------→		Story Problems Riddles	

way of operating in the classroom is reflected in the way Mr. Stanford launched the week's work during the after-lunch discussion in week 1:

> As Mr. Stanford finished up the after-lunch discussion on Monday, he reviewed the reading requirements for that week. Instead of specifically reviewing that each student was to choose a minimum number of selections to read from the 1800's reading list, he referred to the reading requirements as "like last week" as though he was simply reminding them of a requirement that was already understood. There were no questions asked about the requirements, and as the group scattered at the end of the discussion to get to work on various activities, there was an air of people going about their business as though it was a regular routine. As an observer new to this scene, I acutely felt my own lack of understanding among this room full of people who seemed to clearly understand what they were doing. (Field Notes, 4/14/86)

There was one new event coming up during week 1, a field trip to the Henry Ford Museum at Greenfield Village. At least part of each of the after-lunch discussions was devoted to previewing the different exhibits they would find at the museum that Friday. These discussions were intended to help children understand what kinds of things they would see at the museum, and they were intended to help direct their attention to certain exhibits. As they unfolded, the discussions were largely small lectures in which Mrs. Stanford previewed what they would see, and students interrupted if they had questions:

> On Monday, Mrs. Stanford explained that the museum building itself is a replica of Independence Hall in Philadelphia where the Declaration of Independence was signed. She explained further that Henry Ford had wanted to buy and rebuild the actual Independence Hall, but instead he obtained the plans and he built a replica that even included the "mistakes" or alterations that were made as the actual building was built. She also mentioned that the museum contained a replica of the Liberty Bell. Many of the students had recently read and written about the Declaration of Independence and the Liberty Bell for their weekly research activity. One function of this field trip was to give the children

> a chance to see first-hand some of the history they had been studying. As Mrs. Stanford showed some pictures of the building and discussed various parts of it she added, "You may appreciate the pictures even more after you come home and have been there." (Field Notes, 4/14/86)

The discussions during the remainder of the week were similar, with Mrs. Stanford reviewing the sections of the museum on Tuesday, a reading of a pamphlet a student brought in describing the museum on Wednesday, and on Thursday there was a focus on the day's schedule for the field trip and behavior expectations (e.g., stay with the mom or dad who will lead your group, behave as if you are in school, follow museum rules). Also on Thursday, Mr. Stanford took care to note that since they would be working on their own inventions the following week, they should try to pay particular attention to some of the inventions at the museum to get ideas for their own creations the following week (Field Notes, 4/17/86). Thus, while it was not typical of their weekly routines to take a field trip, Mr. and Mrs. Stanford used an aspect of their weekly routine (the after-lunch discussions) to help the students understand the intended purpose of this special event, and treated the field trip as they would any other instructional event by "teaching" students what to look for at the museum and structuring what they wanted children to pay attention to.

The adult guidance of what to look for and notice that was provided in the after-lunch discussions continued in the way the field trip was organized. Students were each grouped with one or two others and a mom or a dad who led the group around the museum. My field notes describing the small group I led during the field trip capture some of my impressions of how the students experienced the museum:

> I toured the museum with Steve, Anthony and Bruce. When we first entered the expansive area of exhibits, it was hard to get our bearings, so at first, we didn't. The boys merely looked around and immediately gravitated (or should I say "ran") toward the transportation section, which contained some of the largest, most

visible objects. We inspected the automobiles, old airplanes, bicycles, and trains. I began the tour by trying to get them to read the cards that accompanied the displays so they could begin to find out more about what each item was, when it was made, and how it fit with their study of American history. But they wanted no part of it. The most they stopped to read was the bold-print title or name, and beyond that, their eyes shot to each object itself to closely inspect it. I decided to relax and enjoy the trip and not push them to read the explanations. Their discussions were lively, spontaneous, and showed much enthusiasm for what they saw, so why should I put a damper on it? Besides, I was supposed to be here to watch how their learning unfolds.

I did notice that they sought out and found several displays that had been previewed during the after-lunch discussions such as the 10-man bicycle, the Spirit of St. Louis, Admiral Byrd's plane, and Lincoln's chair. Apparently, the previewing that Mrs. Stanford had done during the after-lunch discussions had achieved her purpose of getting the boys to notice certain displays. For each of these exhibits, they discussed the ideas that had been brought up in class, as though they were reviewing the discussion with their newly-found visual aid. So it seems that while they did not use my method of connecting their study of American history with this experience (e.g.,read the cards to find out more about each exhibit), they did attempt to continue their exploration of ideas and objects they had previously read, written or talked about in class.

By lunch time we had surveyed the transportation section, the power and shop machinery, and the lighting and communication section. As everyone gathered at the designated spot for lunch, there was much discussion of what people had seen, and what they planned to see after lunch. The last hour after lunch (before it was time to go home), my group had lost steam. They were tired of walking, and didn't seem particularly interested in the remaining exhibits. Our first stop was the music gallery, which did hold their interest since Anthony plays a musical instrument, and so does another of the boys' friends. After that, our tour was what I would call "uninspired." That is, as we walked past the shops, they barely glanced in the windows. As we plodded through the agriculture section, they kept asking me when we could sit down. I finally suggested we find a place to rest and wait until the group was ready to return to school, and they gladly agreed. We sat down on some benches near the shops and they played "twenty questions" until it was time to go. As we rested our weary feet, several others joined us in anticipation of the long ride back to school (Field Notes 4/22/86).

What started out as a burst of enthusiasm for exploration from these three boys, and other groups, turned into a dutiful "plodding through" by the afternoon.

Once the children were able to leave the museum (which at this point no longer sustained their interest) and return to their appropriate car for the ride home, they again bubbled with discussion about what they saw. While at the museum, I found that the more I tried to direct their attention to displays they did not care to inspect, the more they seemed to lose interest altogether. I seemed to be experiencing the challenge of keeping the "delicate balance" Mr. and Mrs. Stanford so carefully try to maintain in their role of guiding children's learning.

The after-lunch discussions in the second week were devoted to organizing and providing information for the Civil War simulation which was a special event that took place during that same week. Since I will detail these discussions in Chapter V, I will not do so here, but will say that they were structured in a similar fashion to the week 1 discussions: previewing what was to come and providing background information so that the event would make sense to the children. They were closer to a lecture format in that Mr. Stanford did most of the talking, and students interrupted or volunteered details occasionally as he outlined events in history that were connected with the war, or as he explained the rules for the game.

While the preparation for the Civil War game that occurred in week 2 (see Table 3, p.171) was structured in a similar manner as for the field trip, the way the activity itself was carried out was less structured than the way the field trip was carried out. The Civil War simulation was an enactment of two famous battles during the Civil War (the attack on Fort Sumter and the Battle of Gettysburg) with students either playing on the side of the north or the south in roles such as soldiers, officers, slaves, and members of the underground railroad. I would call this activity more loosely framed than the field trip because although the content (the Civil War and the battles to be enacted) and the overall rules were chosen by Mr. Stanford, the students were responsible for

operating within the rules however they felt was best. That is, they were left to their own devices to satisfy the members of their side and contribute to their side's cause. They were not monitored by an adult as they played the game like they were on their tour of the museum, but rather were monitored by their peers as to whether they were contributing appropriately. Moreover, the students (unless they did not attend school that day) were required to go on the field trip and tour the museum with an adult, whereas the students who did not want to participate in the games (very few in number) were permitted to remain inside and do other work if they chose. This was not an activity that they would "check off" on their checklist; instead, their participation was voluntary and measured by their contribution to their group of peers. In this way, students were much more in control of their own goals than they were on the field trip (to what extent would they participate, and how), and over their own rewards (to what extent would they cooperate and help the group). Thus, Mr. Stanford supplied a framework for the game (rules and overall concept of game), and in this sense it was structured, but he tried as much as possible to let the game progress as the students saw fit.

Finally, the music activities for week 2 (see Table 3, p.171) included students learning to sing "Dixie" and "When Johnny Comes Marching Home" so that the two sides could sing the songs as part of the simulation. On the last day of the game, a student recited the Gettysburg Address before the game was played. Both of these activities were teacher-directed (in choice of content, and what was to be done with content) as part of the overall plan for the game.

In summary, these two weeks were "routine" in the sense that they reflected the underlying learning activity structure I described earlier in this chapter. The weekly research cycles seemed to progress as an understood routine, and the special events and activities were closely tied to the daily after-

lunch discussions. With the exception of the Civil War simulation, where the framing was looser and allowed for greater student control over goals, the "freedom within limitations" that Mr. Stanford envisions was closely guided. These two weeks of routines contrast in many ways to the third week, when the research cycle took a different direction.

Week 3: The Turning Point

During week 3 (see Table 3, p.171) the structure and content of the research assignment changed a great deal compared to the previous two weeks. For the research requirement, instead of writing about a historical figure or event as they had been for several weeks, students were to create their own invention, describe it in writing, and draw a picture of it from three views (top, two sides). The after-lunch discussion on that Monday was longer, and Mr. Stanford explicitly stated what needed to be included in the rough copy of the research (instead of assuming students knew as in Weeks 1 and 2). I have underlined statements that show Mr. Stanford's awareness that he is changing this assignment relative to the way it has been structured in the past:

> Ok, we're gonna start on inventions today. I want to make sure everybody understands what the rules are. And I don't want anybody to be concerned about the fact that they don't have their invention figured out yet, if you don't even know what it's gonna be, 'cause we're gonna do some activities today based on that...I just want to put this thing [piece of paper with requirements] up. This is what you do this week. This is what you get credit for research: the name of the invention, how it works and its use. You have to be quite thorough. You're applying for a patent. If you have three sentences down, that's not gonna work. If you've got something, you've got to explain how a thing works...how it works is important. I'm gonna go through an example here...
>
> Measurement and geometry, you need a rough copy for measurement and geometry this week, because it is a drawing. I don't want a hand-scribbled drawing of "this is what my thing looks like." You're gonna use a ruler, use the circle-maker if you need to make circles... Some of you, since you're not going to make it, the drawing is the real important thing...You can refer in your research to the drawing...

> The final copy, your final copy will be a patent application. You're applying to see if I, not I accept it, but if it will be accepted, "Here's the name of my invention, here's how it works, here's what it's good for, and here's a picture of it"...So the accurate drawing of the invention means you use a ruler...
>
> You've got five days to get this together...this is gonna be important...
>
> I'm gonna put these ideas up for suggestions of how to invent things, a book about how inventors really work, a book about how inventors think about things... (Audiotape 4/28/86; emphasis added)

These directions were followed by a discussion on inventive thinking. Unlike the two previous week's discussions, this discussion was full of give and take, and lots of student participation. The inventions that students saw on their field trip were highlighted and used as illustrations of how people change, adapt, or develop new ideas from previous ideas (Field Notes 4/28/86). The large group discussion was also followed by a small group discussion (that anyone in the class could join) which was designed to help students think up ideas for their inventions. Again, during this discussion, students were encouraged to offer ideas and get involved in the discussion.

The expectations for the written assignment changed also. Students were required to produce products (written and drawn) that were more detailed than in the past, and the products were no longer a summary of what they read. Mr. Stanford insisted that he was not the one who would accept the idea, but implied that outsiders would accept it. (In reality, the students still handed it in to the teacher for acceptance as usual.) Students were also allowed to work together on an invention idea if they wanted to. Inventive thinking was required, and additional resources (group discussion as resource, lists of ideas as resource, self as resource) were required. More time was allowed to complete the assignments (extended deadlines for those who already did not have ideas

by Monday), and the drawing that was to accompany the research also counted for geometry and measurement requirements for that week. Many students wrote more than one rough draft, at Mr. Stanford's request, to include more details that would more fully explain their drawing. Since many students began with their drawing (as a way of envisioning their idea), they completed the work cycle in a different order than was typical. Moreover, there was a very close relationship between the content of the writing and drawing since the assignment was to explain the drawing and have the drawing show ideas included in the written text. I will show in Chapter V that this close relationship in terms of level of detail is not always present in the writing and drawings that students completed in the earlier weeks.

Thus, the change in the structure and expectations for the research cycle spilled over into changes in the overall routines for that week. In fact, inventions work continued to spill over into the following week as well when students brought in inventions they had made and showed them during the Monday after-lunch discussion (Field Notes 5/5/86). One could not predict when students would be working on their research (as had been possible the previous weeks) because the checklist did not determine the order and pace of events as dramatically as it had in the past. Instead, it was more of a guideline that helped students keep track of overall requirements for research, but exceptions to the guideline were readily accepted by Mr. and Mrs. Stanford. Mr. and Mrs. Stanford continued in their role as "tour guide" by facilitating the inventive process for students. Yet there was a shift in the role relationship in that neither students nor teachers could predict at the outset what was to be created. This contrasts greatly with the overview Mr. and Mrs. Stanford had of the possible topics (based on reading lists) students could have written about during weeks 1 and 2.

I have included inventions as a "special event" on week 3 (see Table 3, p.171), even though it was not a single event like the field trip or a series of events like the Civil War simulation. I include it because the research work was treated and enacted like a special event in itself. That is, there was increased discussion about their drawing and writing, there were additional groups held for those who needed further direction, and some students even chose to make their inventions at home and bring them in to show the group (Field Notes, 5/2/86). The level of enthusiasm, the level of participation and awareness seemed to be similar to what occurred in relation to the field trip and the simulation.

I call this week "the turning point" because as it brought the study of the 1800's time period to a close, it also launched a new time period (the 1900's) and as they studied this time period there was greater social interaction surrounding the research cycle that was to continue for the remainder of the American history unit. Therefore, this week's work provided a substantive transition (inventions from past and present), and a transition from the largely independent research work to a more social endeavor.

Weeks 4 and 5: Group Reading and Writing

On the Monday that was to launch the students' study of the 1900's (see weeks 4 and 5, Table 3, p.171), Mr. Stanford explained to the students that they had an unusual situation compared to their study in other time periods. They had a new checklist for reading about the 1900's (see Appendix F), but they had not had the opportunity to begin any readings on the checklist. That is, they were used to beginning to read about a time period in advance of the weeks that they were to write about it, but they had worked on their inventions the

previous week instead, and had not spent time reading. For example, when students were to write about the 1800's, they had already been reading about them during weeks previous to week 1 and 2 (what I have labeled weeks D and E in Figure 1, p.44) before I began my observations. To solve this "problem" of needing to "read as many of these [selections on the 1900's checklist] as possible," Mr. Stanford structured the reading and writing activities for weeks 4 and 5 differently (Field Notes 5/5/86). Students could check off as "reading" a selection on their checklist if they either read it or heard someone else read it:

> Mr. Stanford: You can check it off if you hear a story, check if off if you listen to a story by somebody...What we're gonna do today is somebody is going to read out of those books, there are 16 books there, and you're gonna listen to their story, and you can write your rough copy research out of that. Or you can wait for the next day and have somebody read with you tomorrow right after lunch. (Audiotape 5/5/86).

These directions were followed by 10 minutes of brief discussion of some of the selections on the checklist, and then Mr. Stanford individually named each selection, found a volunteer reader, and matched listeners with readers. As readers and listeners were matched, they left the large group to begin their work. I noticed children getting more and more intense as they anxiously raised their hands to get into a certain group and they even physically moved closer and closer to Mr. Stanford as the group size dwindled (Field Notes, 5/5/86).

At the end of the day, during a time period that is set aside as "silent reading time" before students go home, Mr. Stanford encouraged students to use that time to either read from the checklist choices to themselves or to read with a group. So not only was the reading activity expanded to a group activity, the amount of time in the work day that was devoted to reading was increased.

In addition to managing their history reading in a group, students were also permitted to compose their rough copy research with the group. I had

planned to conduct a second set of student interviews during week 4 to try to capture the stages of the research process (choose topic, read, write rough copy, write final copy). When I began talking to students on Tuesday, expecting them to write their rough copy sometime Tuesday or Wednesday, I discovered that they had already read their selection (either Monday afternoon during work time or during silent reading) and many had also written their rough copy Monday afternoon (Field Notes 5/6/86). Thus, the pace of the work changed a great deal relative to weeks 1 and 2 when they completed the activities in the order in which they appeared on the checklist, and also relative to week 3 when the pace went much slower. Again, as in week 3, the checklist served as a guide for overall requirements, but other aspects of the work (the way the activity itself was structured to allow for more social interaction) drove the pace more than the checklist.

The level of involvement in reading also seemed to change. For example, Steve has a set of Young Children's Encyclopedias at home, and read each day after school and in the evening to try to reach the goal Mr. Stanford set of trying to read every selection on the 1900's list (Field Notes 5/6/86). Mr. Stanford commented on the reading involvement of the entire class during weeks 4 and 5. I have underlined how Mr. Stanford sees the changes:

> I never anticipated that. I set, for some of the older kids, I set the goal that I'd like them to read one out of every... but it got to the point where they kept increasing the ante. You know, they kept saying, "I can do more of this," or "I can read it," and it wasn't just to check it off. They'd come in and say, "Look at this article on x-rays," or "Look at this on buffalos," and stuff...it got so interesting for them. (Teacher Interview, 8/19/86; emphasis added)

During these weeks with this level of participation and enthusiasm, even though completing the reading list was seen by many students, such as Steve,

as a goal in itself, Mr. Stanford appreciated it as a tool for helping students determine and follow their interests.

The nature of the available reading choices for the 1900's also shifted a bit compared to the readings for the 1800's (see Appendix F). The 1800's reading lists contain selections that generally describe historical figures (e.g., Abraham Lincoln, Alexander Graham Bell, Andrew Jackson), or what are typically considered to be historical sites or events (e.g., The Liberty Bell, The Alamo, The Little Bighorn). While the 1900's lists contain their share of the same kinds of selections (e.g., Ellis Island, the Nineteenth Amendment, the San Francisco Earthquake), there are also selections that may more directly relate to students' lives in some way (e.g., airplanes, astronauts, robots, pencils, helicopters, iron and steel). During week 5, I was available as a helper as students wrote their research. Of the 13 students I helped in some way (e.g., reading selection with them, composing with them, reading rough copy), 10 chose one of the more general topics to write about (see Table 4, p.184), while 3 students selected topics that are more typical of the kinds of choices students had available during weeks 1 and 2. Making this additional type of selection available (a type that moves from focusing on events in the past to providing information about some of the objects in their own lives) may explain some of the students' enthusiasm for reading as well.

In addition to the changes in structure for the weekly research activities, the Friday afternoon of week 5 was devoted to introducing two special activities. The genealogy activity carried into week 6, and the picture timeline activity carried into weeks 6 and 7 (see Table 3, p.171).

The genealogy activity was introduced immediately after lunch as a study of "personal history," something the students could take home with them and work on with their parents over the weekend. It was a worksheet (see Figure 9,

Table 4: Topic Choice for Week 5 Research

Student	Historical Events/Figures/Sites	General Topic
Julie		Peanuts
Abe		Volcanoes*
Jeff	Paul Bunyan	
Jack		Aquanauts
Ron	Lincoln Memorial	
Ann		Parents*
Nancy		Dynamite
Carly		Television
Laura		Pencils
Sue		Pencils
Mary		Factories
Meghan	History	
Charles		Iron & Steel

* These two topics were not on the reading list, but were selections in The Young Children's Encyclopedia

p.185) that contained categories of questions (e.g., surnames, first/middle names, countries, city/state, events or famous people) that was designed to help students investigate the origins and contributions to history of their ancestors. The discussion introducing this activity was lengthy (25 minutes) and followed the format of Mr. Stanford giving examples from his family history for each category, with a subsequent burst of contributions from students as further examples. In contrast to many after-lunch discussions that were held during weeks 1 and 2, this discussion contained more interaction, more student participation (Videotape, 5/16/86). Mr. Stanford explained that the students who brought their completed worksheets back would have the opportunity to work in groups and compare their family histories with their classmates' family history. This activity was totally voluntary in that students could complete the worksheet

GENEALOGY

Student Name_____

The study of history that we are completing includes a study of personal history. Please help your child with any knowledge of your family history that you might have. All of the collected bits of information will be combined on large charts for the other students to observe and match. PLEASE PRINT ALL INFORMATION FOR YOUR CHILD'S CONVENIENCE. I've included some personal examples. *

SURNAMES-- list any last names associated with your family (besides your family name). Any and all long lost relatives names can be included.

FIRST, MIDDLE NAMES-- first names have changed with each generation. Include any you know.

COUNTRIES— any country of origin of any family member.

CITY, STATE— (besides your current home) where did your family move from, within the U.S.

EVENTS, OR FAMOUS PEOPLE-- any events of history that is associated with your family, including WWI and WW II, Korea or Vietname, politics, etc. (stories may accompany these.

*Note: the examples referred to in the directions of the worksheet have been removed to preserve the privacy of the teacher.

Figure 9: Genealogy Worksheet

if they wanted to, were not accountable to the teachers as to whether it was completed or not, and the only deadline that governed when it had to be completed was the fact that small group discussions would be held the following week. If students did not plan to attend the voluntary sessions, this deadline really did not affect them. I will describe in detail in Chapter V how this activity evolved, and discuss the opportunities for knowledge development that emerged.

After the introduction to the genealogy activity, the remainder of that Friday afternoon was devoted to introducing and beginning a two-week project, the picture timeline. This activity served to launch a two-week review (during weeks 6 and 7) of the four time periods in history that the students had studied over the course of the previous 10 weeks: pre-1600's; 1600's and 1700's; 1800's; and 1900's. The assignment was to create a picture timeline that showed a series of scenes, people, events that depicted each of the four time periods students had studied. Students were provided with long sheets of paper (11 inches by 50 inches) that they folded into four sections. On each section they were to communicate their knowledge of events across time periods (with a series of pictures) without words. Shown in Figure 10 (p.187) is Steve's picture timeline for the four time periods. He has included events such as the Vikings coming to America in the pre-1600's, the Revolutionary War in the 1700's, the Civil War and the Statue of Liberty in the 1800's, and a jet and a helicopter in the 1900's. He seems generally to center his understanding of the time periods around wars, which he considers to be "more exciting things that I want to do" (Student Interview 4/30/86). He has followed the directions that were given, which is to depict each time period without words, unless the words are part of the dialogue in the scene itself (e.g., "Ouch!").

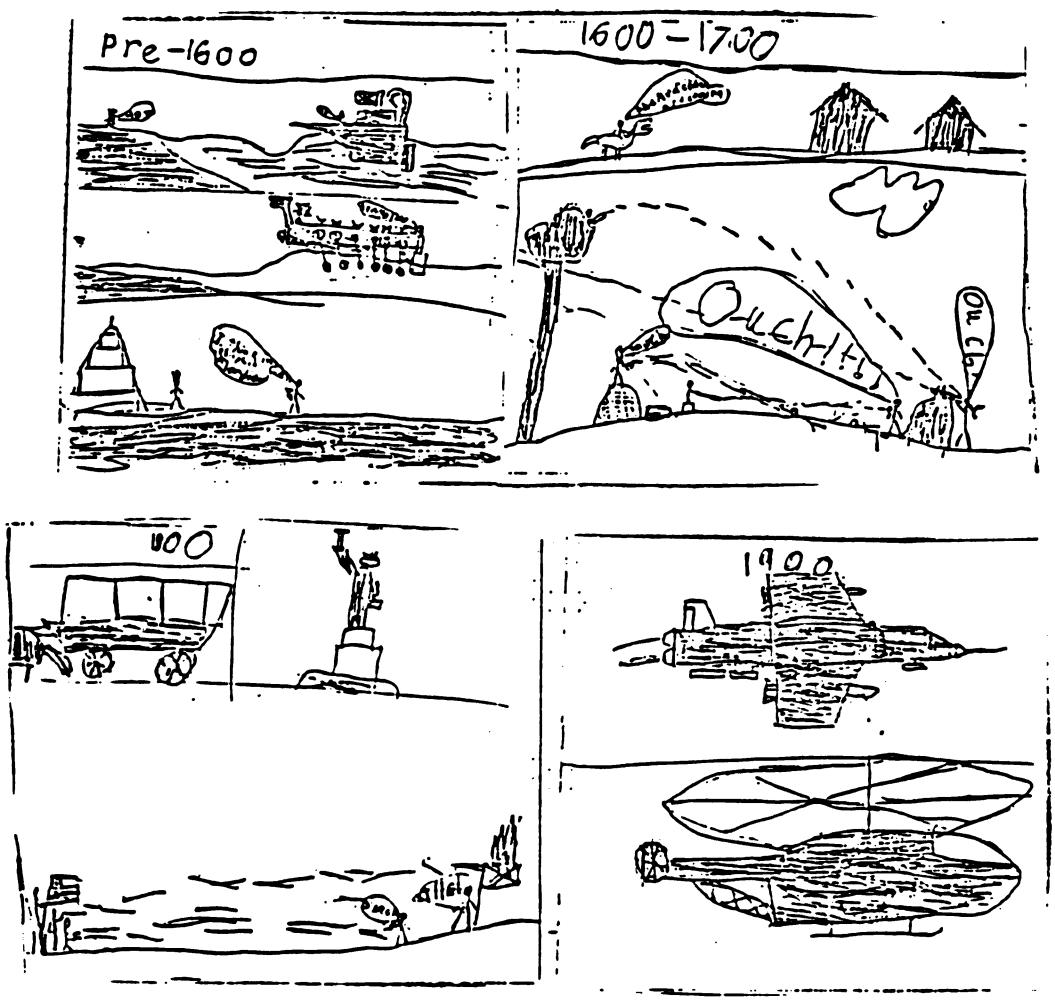


Figure 10: Steve's Picture Timeline

The discussion that preceded students' work on these picture timelines consisted of students volunteering events that fit with each timeline. While Mr. Stanford solicited student suggestions, Mrs. Stanford filled in three charts on the wall for three time periods with events, and people that fit in the appropriate time period: pre-1600's, 1600's and 1700's, and 1800's. (The 1900's were not get included in the review since the students were still studying them.) Students were encouraged to use these lists to decide what to include in their timelines once they began their drawing. While the focus of the discussion was on correctly fitting events in their proper time frame, it was more than a session of factual recall. Much of the language that was used reflected reasoning strategies such as "That event would have to be in that time period because..." or, "That happened about the same time as..." (Videotape, 5/16/86). Further, instead of asking for specific dates for most events, Mr. Stanford asked "about when" an event occurred, showing he was more interested in their general sense of the time period than specific factual recall. The flavor of this discussion was one of teachers and students working together to figure out the chronology of the information they had been studying for the previous 10 weeks.

This picture timeline activity contrasts with other drawing activities for research in several ways. The usual pattern for students in their weekly research cycle was to choose a topic, read about it, write about it, and then draw a picture. In this case, the drawing preceded the writing that was to occur during the following two weeks. Aside from the directions of including "scenes" or "little pictures" for each time period, the assignment was extremely open-ended. Some students, like Steve, drew several pictures for some time periods, and only a few for others. The number of scenes was up to them (although it was implied that they should have more than one in the use of the word "scenes"). Moreover, this activity, as it began that Friday afternoon, was filled

with social interaction among students about their drawings. In this classroom, Friday afternoon is typically used for some kind of group activity, and by using this time block (one that is usually devoted to a group activity), and by having everyone start theirs at the same time, students tended to work in parallel with at least one other person as they drew, and carried on conversations about what they would include while they shared markers, crayons, and books from which some of them got ideas for pictures (Videotape 5/16/86). This scene is very different from the way pictures that usually accompany the weekly research are created, where students draw on their own at different times, and therefore are less likely to even notice what another student is working on. At the end of the afternoon, students were instructed to save their picture timelines, and work on completing them over the course of the next few weeks. Unlike the weekly research pictures, this one would not be due within five days for the Friday checkout time at noon, but would be something they could work on over a two-week period.

During these two weeks, Mr. and Mrs. Stanford maintained their role as "tour guide" by providing an array of choices from which students could choose for study. However, they entered into this relationship differently in that they not only orchestrated the possibility that individuals would take the tour, but orchestrated how the individuals would interact with one another. This additional arrangement placed several students in the role of teacher as well as in the role as learner. In addition, Mr. and Mrs. Stanford became "consultants" to the students who took on the role as teacher. Many of the students volunteered to read to a group, and subsequently also wrote the rough draft with the group as the group composed. This is the role the teachers had taken on with the first-year students during weeks 1 and 2.

The two special events or activities, the genealogy activity and the picture timeline, spilled over into the final two weeks of the American history unit, and were the beginnings of altering routines that were well in place. In the final section below, I will detail the restructuring of the pace of the final two weeks.

Weeks 6 and 7: A Two-Week Cycle

The final two weeks of the American history unit were to serve as a time to finish up talking about the 1900's while the students' research work focused on developing a retrospective summary of the four time periods. The writing activity for these two weeks was quite different from anything the children had been asked to do previously, and turned out to be quite overwhelming for most. First, the routines were modified, so that instead of following their usual pattern of writing a rough copy followed by a final copy, the students were to write four rough copies (a summary of important events and people for each time period), and then make their final copies. This change in routine, so drastic that a new checklist for the final week was created (see Figure 11, p.191), turned out to be confusing to many students. The checklist was more general, and did not specify what to do during each of the three days of the final week of the unit (Monday was a holiday, and Friday was a planned field trip). It includes the four parts of the research, but leaves it to the students to manage the timing of when they would do their rough and final drafts. Mr. and Mrs. Stanford verbally told students to write all four rough drafts first, and worry about their final copies later. However, several students continued to follow their old patterns of finishing a final draft immediately after their rough draft anyway (Field Notes, 5/20/86).

A second major change was that the writing was to be a retrospective summary of four time periods from students' own knowledge, instead of a piece about a single event in history they had recently read about. Because Mr.

Memorial Week _____
name

1. Final research

part 1 _____ part 2 ____
part 3 _____ part 4 ____

2. Timeline drawings _____

3. Presidents and states _____

4 Timeline riddles _____

5. History readings _____

6. Math review _____

7. History _____
story problems

8. History folder _____

Figure 11: Memorial Week Checklist

Stanford knew this would be a difficult assignment, he offered the option that anyone who cared to could join his group to compose the research together. Normally, this option was only open to the first year students. (This meant that for the majority of students, they were not turning in a rough draft for Mr. Stanford's approval, since their rough draft came from the group. The draft would be placed on the bulletin board for students to use to make their final copy.) For part one on Monday, 19 students joined the group to compose the rough copy together (Field Notes, 5/19/86). By the time they got to part three, almost everyone in the class joined the group. They never did get to composing part four as a group, due to lack of time, so Mr. Stanford wrote his own summary for part four and duplicated it for the class and they read it together (Field Notes, 5/29/86). While Mr. Stanford had intended that the students could draw on their previous writing experiences as a resource to approach this writing activity, it turned out that this activity required a completely different approach to writing than the students had ever experienced. He ended up modeling for students how to approach writing a retrospective summary as a brand new skill, instead of the students being able to build on their previous research writing to know how to approach this summary. He comments about the difference in what he later realized what he was asking them to do:

> It really overwhelmed the kids that tried to do it...You know, usually research is, "What can I write?" It was just, "I know more than I can write down...I don't know how to reduce it." (Teacher Interview 8/19/86)

The writing task had changed from answering quite specific questions about one topic that helped students decide what to write, to a task of selecting, ordering, and explaining several events within one time period.

Students managed these several changes in various ways. Sometimes they relied on their old patterns to complete the work (e.g., following the older

order of events even though they were directed to work in a different order). Most of them, by the third part of the summary, attended a group to manage the writing activity when it became too much for them to complete independently. Several children broke their large sheets of paper for the mural down into smaller squares within each of the four segments of paper as Steve did (see Figure 12, p.199) because they were having trouble managing the large space that was supposed to contain several scenes:

> Mrs. Stanford: It's also hard for the younger kids, they want everything ordered in their pictures, so the land has to be down at the bottom, and the sky at the top...and that's why a lot of them I think actually drew the lines... (Teacher Interview, 8/19/86)

In addition to these coping mechanisms students used to manage the changes, Mr. and Mrs. Stanford organized groups of children for the purpose of helping each other get their history folders in order, and making sure everything was in the folder that was supposed to be (Field Notes 5/29/86).

In addition to the voluntary group sessions for the genealogy activity that were held during week 6, students were assigned history riddles and story problems to do during week 7 (See Table 3, p.171). The story problems (shown in Appendix D) required students to use mathematical operations to figure out questions about history that required some factual recall (e.g., how long ago did...) and asked directly for some factual recall (e.g., "How many ships did Columbus have?"). These story problems counted as part of their math work for the week, and students were encouraged to help one another solve them instead of just working on them independently.

For the riddles assignment, students were to create one riddle per time period by selecting an event or person or place, and writing clues about it. Unlike much of their written work in the history unit, this work would be shared with the class by Mrs. Stanford reading some riddles to the group each day and

asking students to solve them. They were writing for an audience that would respond to their work. In many ways, this task is similar to the usual history writing they were used to, in that their clues were about the first question, and would focus on aspects of the second and third of the three questions they were directed to write about: (a) Who or what is your research about? (b) when did it happen? (c) why is it important?

These final two weeks were a cycle in themselves, in that they included eight school days (five days in week 6 and three days in week 7) worth of work that contributed to one final checklist (see Figure 11, p.191). In addition to being a review cycle for the entire 10 weeks they had spent studying American history, they were a time for students to finish up work they had accumulated over the 10 weeks (such as finishing up their lists of presidents and states). There were several changes in the underlying learning activity structure that included new kinds of work (e.g., a new type of writing assignment, writing riddles, doing history story problems, voluntary genealogy activities, extended work over a two-week time period), and accompanying changes in the social activity structure (e.g., write as a group, write riddles for classmates as an audience, help one another keep track of whether work is completed, attend voluntary genealogy sessions if you care to share). Thus, the changes in the academic and social worlds were closely linked. While this two-week cycle was, in some ways, patterned after the original one-week cycle as printed on the checklist, it looked very different in the way the curriculum was actually carried out. In Chapter V I will explore the implications of these changes in the underlying learning activity structure for how students' opportunities to understand subject matter developed.

Summary

In this chapter I have provided a definition and an overview of the underlying learning activity structure as it is revealed in the way curriculum is enacted: the overall routines; the sequencing and timing of events; the social interaction patterns; and the space and materials through which the activities are made available and completed. With that background information as context, I explored two tensions the teachers experience as they implement their curriculum, exercise their role as they interpret it, and as students interpret the curriculum: the use of the checklist as a tool versus a goal; and guiding students to fulfill requirements versus allowing them to choose work to complete. Finally, I described how the academic and social aspects of the underlying learning activity structure "opened up" over time, and provided examples of how changes in social aspects of the environment interconnect with changes in academic aspects of the underlying learning activity structure.

In the chapter that follows, I detail examples of how students' interpretations of activities and their opportunities to understand history evolves within the changing context I have described in this chapter. I will show how the meaning that participants construct is closely connected with the changes that occur in the learning environment.

CHAPTER FIVE

THE EVOLUTION OF STUDENTS' OPPORTUNITIES TO UNDERSTAND AMERICAN HISTORY

Overview

I began this study with questions about how students assign meaning to school work, what kind of meaning they construct, and how their interpretations of activities contribute to their learning of subject matter. In the previous chapter I argued that as the curriculum was implemented in Mr. and Mrs. Stanford's classroom, there were changes in the underlying learning activity structure, and that changes in the academic and social aspects of the underlying structure were closely connected. In this chapter, I will describe students' interpretations of activities in the American history unit, and account for how those interpretations connect with the changing underlying learning activity structure. I will also illustrate how students' interpretations shaped opportunities for different kinds of knowledge development. I will argue that as the role relationships, participation structures, and curricular organization shifted or "opened up" over time, there was a qualitative shift in students' involvement in and ownership of their own learning, and there was a qualitative shift in the nature of opportunities to understand subject matter.

Development of a Chronological Understanding of American History

Mr. Stanford's approach to teaching students about American history developed out of his beliefs about the learner (e.g., the learner's "readiness" for learning, prior knowledge and skills, interests, motivation), his role as teacher in the learning process, and beliefs about the subject matter to be taught. These

underlying assumptions about the learner, the teacher's role, and subject matter shaped the way the weekly research routines were implemented. In this section, I will explain Mr. Stanford's approach to teaching American history to this group of students, and his reasoning behind his approach. I will offer detailed examples of how students interpret aspects of the weekly research process (e.g., topic selection, students' understanding of the purpose for the research process, students' role in the writing process, and how students decide what to include in their research), and illustrate how their interpretations shaped the way they focused on American history as subject matter. Finally, I will examine the nature of the opportunities for knowledge development that arise out of using writing and drawing, in the way they are structured and interpreted, as a means to learn history.

A Guiding Metaphor for Learning

Mr. Stanford's assumptions about the learner had a strong influence on the way he conceived of the subject matter, American history. As he began his first week of teaching history in February, he noticed that the students had difficulty with the concept of time, of when historical events occurred, and how to associate various events or historical figures chronologically (Teacher Interview 4/28/86, 8/19/86). Therefore, his overall goal was to "...give some kind of information and reference to historical happenings in the United States" (Teacher Interview 4/28/86; emphasis added). This involved several subgoals: helping children "piece together" information; helping them "associate" one event with another; helping them "delineate different characters"; helping them to be "aware that they know something" about a historical period; and providing ways to learn history that will be a "jog to the memory" in the future so that they will have a more lasting impression of where an event is placed in the

chronology of history. He relates this approach to teaching history to his overall view of the curriculum: "The Montessori idea is to teach them, show them everything, and then let them fill the pieces in" (Teacher Interview, 8/19/86).

To help students learn information and chronological reference to historical happenings, Mr. Stanford conceived of history as though it were a giant picture puzzle that the class was individually and collectively to try to put together. My image of the giant picture in this puzzle is similar to one of the final assignments the students were given at the end of week 5, the picture timeline. Students were to draw a "picture timeline" of American history that depicts a series of important events within four time periods (pre-1600's; 1600's and 1700's; 1800's; and 1900's), and characterize the time period in a drawing without using words. Shown in Figure 12 (p.199) is Julie's section of her picture timeline for the 1600's and 1700's time period (another example is Steve's picture timeline, shown in Figure 10, p. 187). She provides "information and reference to historical happenings" by grouping drawings of different events in their proper time frame. For example, she has "pieced together" and "associated" several events and "delineated different characters" (people) that belong in the 1800's time period, most of which reflect some aspect of America's break from England around the time of the Revolutionary War: The Declaration of Independence signed by John Hancock (square c); "the shot heard 'round the world" (square f); the Boston Tea Party (square g); John Paul Jones, "I have not begun to fight" (square i); Paul Revere, "The Red Coats are coming" (square j); the Liberty Bell (square l). Being able to group so many events together around the theme of America's move for independence would perhaps make Julie "aware that she knows something" about that era in America's history, and perhaps this information, as it is grouped together for her in her mind, would have a lasting impression. In addition to those events,

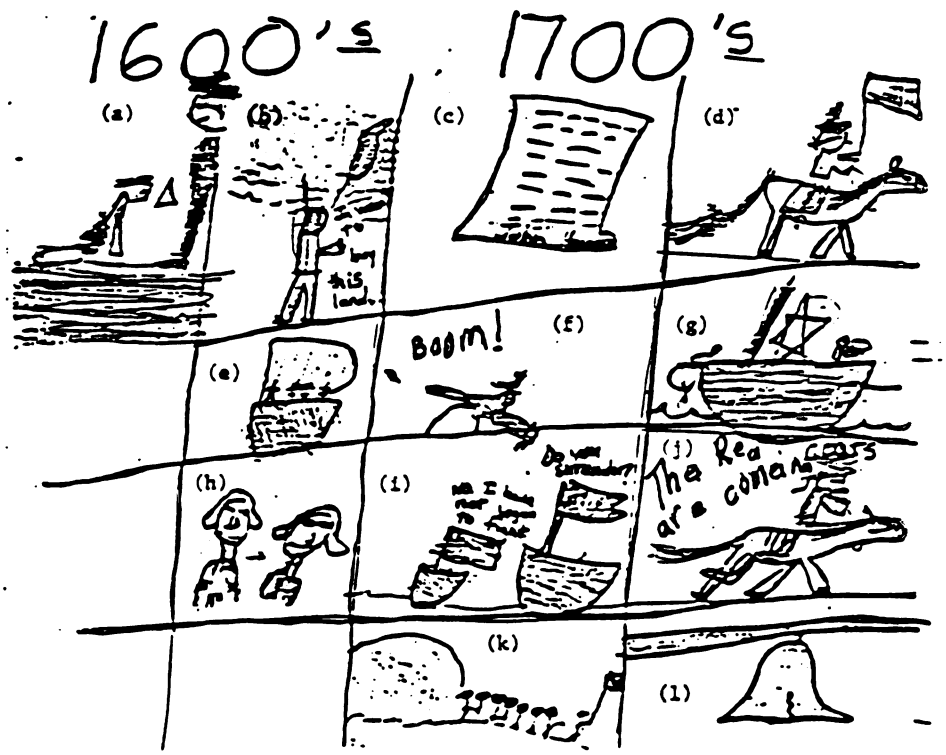


Figure 12: Julie's Picture Timeline

others she included are: Thomas Jefferson's Louisiana Purchase (square b); the pilgrims coming over on the Mayflower (square e); the pilgrims landing at Plymouth Rock (square k). I am unable to interpret what her pictures for square a and square d are.

Mr. and Mrs. Stanford's role in solving the puzzle was to help students work on one small section or "scene" of the puzzle at a time, and then figure out where and why that small section or "scene" fits in the larger picture. For example, in relation to the Civil War, various students read selections from the 1800's reading list (see Figure 13, p.201) such as readings on Harriet Tubman and the Underground Railroad, Abraham Lincoln, Robert E. Lee, Naval Actions in the Civil War, and the Gettysburg Address. The message Mr. Stanford wanted to communicate was that if one wants to understand history, one must actively participate in an investigative process that helps one "sort out" or make sense of events in relation to others, not just understand them as isolated events by themselves. He provides the basic categories (e.g., the four large time periods), and singles out "scenes" to investigate (e.g., the Civil War), and students need actively to work at placing the details they learn about in relation to one another within these two contexts (e.g., over what issues was the Civil War fought, and who were the participants).

The reading, writing and drawing and after-lunch discussion activities were intended as means for students to gain knowledge about history, and to help students solve the puzzle of placing historical figures and events in their correct chronological context. Basically, these were opportunities for students to create "hierarchical structures" of the subject matter, where they can create

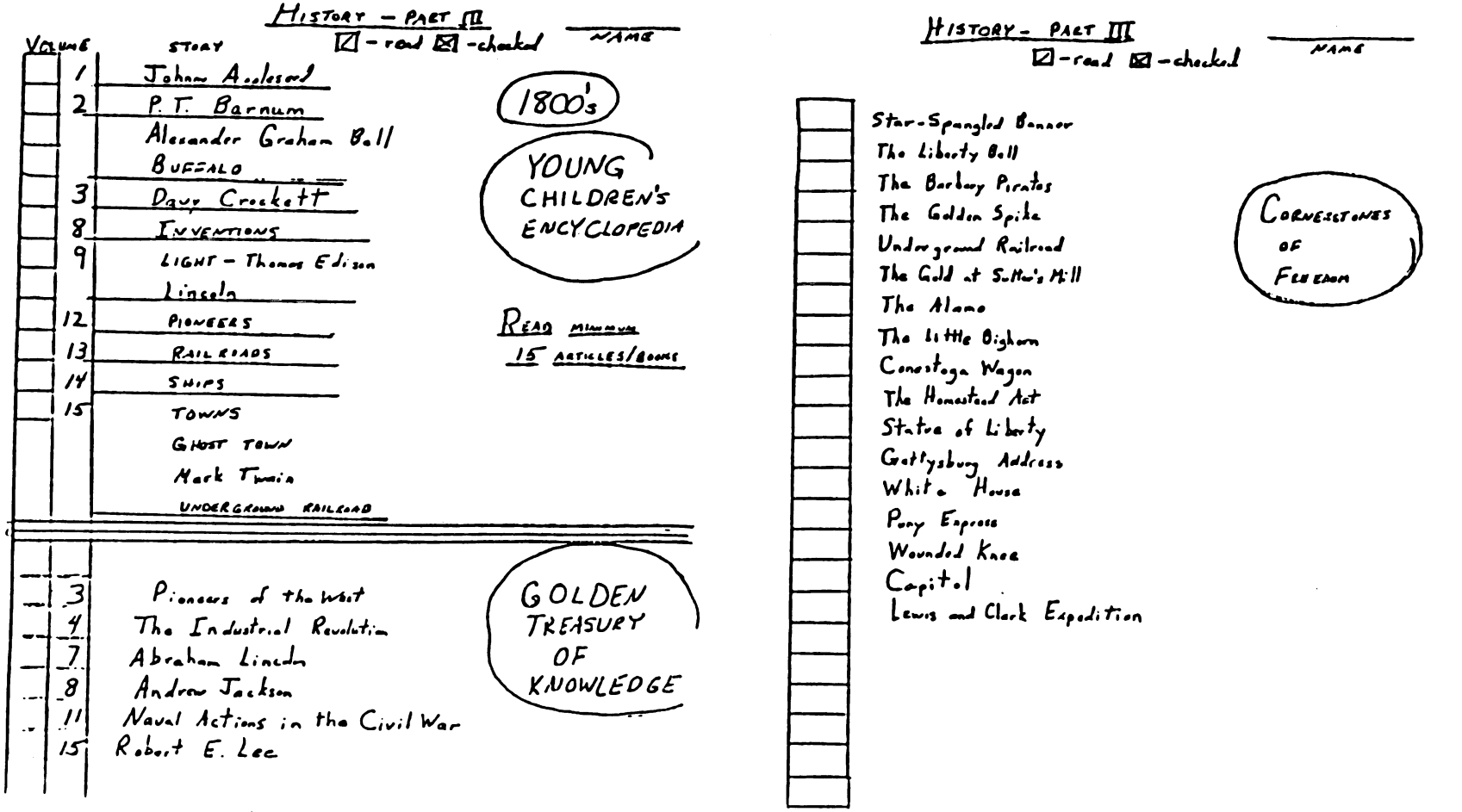


Figure 13: Reading Lists for 1800's Time Period

broad inclusive categories that require understanding of hierarchies of relationships (Novak & Gowin, 1986). In this case, creating the hierarchical structure has to do with learning basic information, and then understanding what characteristics of an event make it fall within or "fit with" a certain time period, and understanding its significance in terms of what else was going on at the time (e.g., how did the event influence subsequent happenings in history; how did this person's actions change or shape the course of events). This is what Mr. Stanford thought of as giving students "information and reference." Given this overall framework from which students were to work, students were to "fill the pieces in." One way Mr. Stanford intended for students to do this was to complete the weekly research routines. In the section below I will examine how students interpret various aspects of the weekly research cycle to show the relationship between the structure of the activities, how students interpreted them, and how the students' interpretations of the activities shaped their opportunities for knowledge development. I will argue that the students' interpretations of the activities (topic selection and the writing process) shaped the way they focused on new information as they encountered it so that as they used the chronological framework and guidelines for completing activities Mr. Stanford provided to make sense of the information they read and wrote about, they filtered out other possible ways to make sense of or deepen their understanding of American history. I will show that while the activities were intended to serve as a guide for expanding and developing students' knowledge, they tended to function to expand and develop it in very limited form.

How Students Interpret the Research Cycle

The research cycle itself has several steps students are to follow. The daily checklist (see Figure 14, p.204) indicates two categories of the research cycle. On Day 2 (usually Tuesday), students are to do "research (rough copy)," and on Day 4 (usually Thursday) they are to work on "research (final copy)" so that they can hand in the completed copy by Friday at noon. Within these two categories on the checklist, there are steps that are "understood" as part of the routines that students follow. In this section, I will elaborate on how the two categories on the checklist are implemented, by examining two areas: how students choose topics to read and write about (factors shaping their choices and their role in the selection process); and how they interpret the writing process (purpose for writing, their role in the process, and their interpretations of guidelines for topic development). Throughout this description I will explore the relationship between Mr. Stanford's rationale and intentions for structuring activities in certain ways, and how students interpret the structure as it is implemented, as a way of contrasting intended opportunities for learning with actual opportunities for understanding subject matter knowledge.

Topic Selection

If students were to learn about "pieces" so they could "fill in" the puzzle, they needed to read about history. As part of their study of the 1800's, students were given reading lists (shown in Figure 13, p.201) from which to choose (Field Notes 4/10/86). They were to choose and read at least 15 selections from the lists over the next three weeks, and each week they would choose one selection to write and draw about. They started reading about the 1800's a

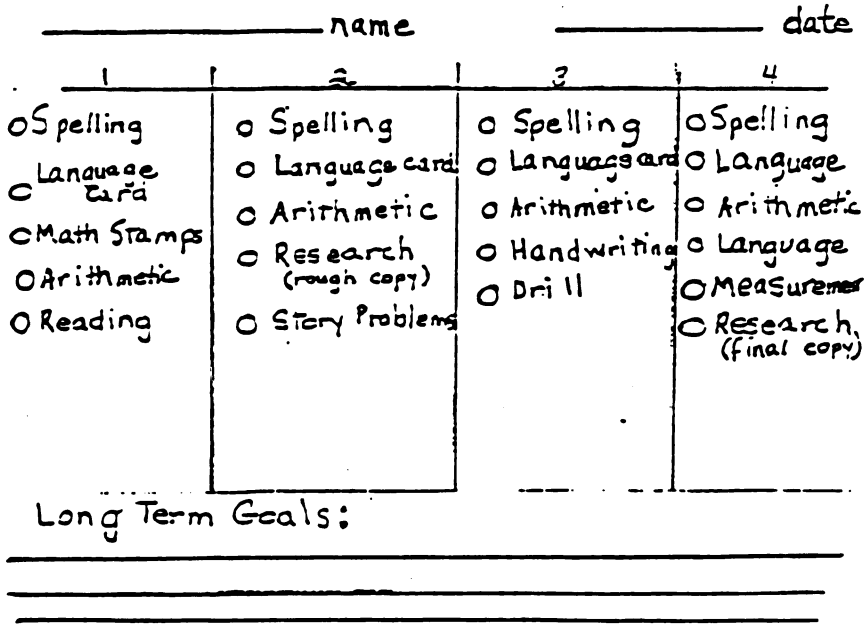


Figure 14: Daily Checklist for Second and Third-Year Students

week before they were asked to write about it so that they would have some of the reading already completed. Of the 38 selections, seven are written about topics that relate to the Civil War: two selections on Lincoln, two selections on the underground railroad, Naval Actions in the Civil War, Robert E. Lee, the Gettysburg Address. Some selections are repeated because they contain different information, and because they are at different reading levels to accommodate the wide variety of reading levels in the multi-age classroom. If a selection was too difficult for students to read, they could have someone read it to them. Each week one of the teachers read three selections to the youngest (first-year) children (Field Notes 4/15/86)

As I observed on my first day, I noticed that none of the children was reading or writing for their research (Field Notes 4/14/86). By Tuesday morning, quite a few students were either reading or writing (Field Notes 4/15/85). What accounted for the difference in research activity from Monday to Tuesday? Most students use the daily checklist (shown in Figure 14, p.204), and "research (rough copy)" is written on the checklist for Tuesday. Since most students do the work in the order in which it appears on the checklist (Students Interviews 4/28, 4/28, 4/30/86), by Tuesday morning, most were at the point on the checklist where it was time to do research. To them, this meant they should choose a selection on which to write, and most seemed to write on a selection they had recently read about. I often saw an open book next to a student's rough copy, as though the reading and writing went hand in hand. In fact, one student, Andrew, commented to Bruce, "I read and write at the same time because it doesn't take as long" (Field Notes 4/15/86).

While the checklist signals to the students that it is time to choose a topic either to read about, or if they already have read a selection, to choose a topic to write about, there are several factors that influence how students make the

choice. Mr. Stanford indicated that he makes reading topics available based on two main criteria: what he thinks students will be interested in, and what resources are available for children at the appropriate reading level:

> ...the older the kid is the more choice they have...while the younger kids don't have that choice because they just can't. The reading level is too difficult...and also what's interesting to kids. (Teacher Interview 4/28/86)

As I observed students begin the research cycle during week 1 (for most, this was sometime Tuesday morning), I noticed other influences besides interest or reading level that shaped their choices (Field Notes 4/15/86):

> Availability of resources seems to play a part in what students choose to read or write about. For example, when I asked Steve how he chose to write about the Liberty Bell, he responded, "Because it looked interesting." When I questioned him further about why he had switched from reading about the Statue of Liberty to the Liberty Bell, he replied, "Because Ken and Peter are using it and I wanted to do my research now". I had been watching Steve follow Carl around like he was his shadow for ten or fifteen minutes that morning, and they finally settled in to work on reading and writing their rough copy research. Apparently, Steve not only was doing his research now because it was on his checklist, but because he wanted to do the same kind of work Carl was doing. This enabled them to chat informally about their reading, and look at the pictures from each other's books together, inbetween reading and writing their own work. I also noted to myself that the previous day's after-lunch discussion had included quite a bit of detail about the Liberty Bell, the crack, the remaking of it, and wondered if that discussion had promoted his interest in the topic.

From this short example, Steve indicates two possible reasons for choosing to read and write about the Liberty Bell. First, it was available, and second, he wanted to do his research at this time (which I interpret from his actions to mean he wants to work with his friend). I also inferred that perhaps surrounding events like the previous day's discussion may have sparked an interest in the topic.

When I asked the nine students I interviewed why they chose various selections, I got responses (summarized in Table 5, p.208) that reflect a variety of reasons, some of which overlap with the types of reasons Steve indicated (e.g., interest and availability) (Student Interviews 4/24, 4/28, 4/30/86). As with his choice to write about the Liberty Bell, Steve's choice to write about John Paul Jones was greatly influenced by availability of resources and a deadline to complete his writing by a specified time. It was interesting and "available" at the time he "had" to write his research. Similarly, the press of the obligation to tell Mr. Stanford what his topic choice would be pushed Anthony to choose to write about Abraham Lincoln, the only name he could think of at the time.

While general interest influenced several of the students' choices (Steve's choice of John Paul Jones, Carly's choices of Ghost Towns and the Liberty Bell, Ken's choice of Ben Franklin, Joan's choice of Ghost Towns, Ellen's choice of the Golden Spike, Laura's choice of Johnny Appleseed), a more specific interest that was triggered by previous experience or prior knowledge seemed to influence other choices. For example, Ken's family often travels to Texas, so he chose the Alamo because of its location. Likewise, Carl's mother flew over the Statue of Liberty on her way to New York, and told Carl about it; this personal tie to it influenced him to want to know more about it. Ellen already knew the story of Johnny Appleseed, and chose to read more about him. Laura took Mr. Stanford's advice that he gave after lunch one day to read more about the Homestead Act:

> I was just reading a couple of these at lunch. If you want to read one of the best ones of these that's got one of the best stories in it, called the Homestead Act. Did anybody read the Homestead Act yet? That's got some wild stories in it about the grasshoppers attacking them, and the cow falling through the roof!... (Videotape, 4/21/86)

Table 5: Summary of Topic Choices

STUDENT	TOPIC	REASON FOR CHOICE	FACTORS INFLUENCING CHOICE
Steve	John Paul Jones	"It was the most interesting that was available...It was the only one that nobody was reading at the time and I had to do my research."	Resources/ Meet Deadline/Interest
Anthony	Abraham Lincoln	"He (Mr. Stanford) said, 'What's your research?' and Abraham Lincoln was the only person I could think of."	Meet Deadline
Carly	Ghost Towns	"I just wanted to. I thought it would be interesting... From a paper. It's a paper that we choose from."	Interest
	Liberty Bell	"I thought it would be interesting."	Interest
Ken	The Alamo	"Well, because I always go to Texas and...I haven't seen it, but I might."	Prior Knowledge/ Experience
	Ben Franklin	"Well, I thought it was good, so I did it."	Interest
Joan	Ghost Towns	"Well, we read three stories out of Children's Encyclopedias but there were three stories and I really liked the ghost towns because I thought the ghost towns were really neat to write about."	Interest
Carl	Black Hawk	"I can't remember."	Can't remember
	Statue of Liberty	"I looked on the sheet and it said...I sounded pretty interesting...My mom...flew right over it."	Prior Knowledge/ Experience
Ellen	Golden Spike	"'Cause I thought it'd be interesting."	Interest
	Johnny Appleseed	"Well, I knew pretty much about it before I did it and it is a very interesting story."	Prior Knowledge/ Experience/Interest
Laura	Homestead Act	"'Cause it was a funny story...'Cause Mr. Stanford told us (about it)."	Recommended Interest
	Johnny Appleseed	"It sounded interesting when I was reading about it, the things I could pick from, so I picked this one."	
Nancy	Abraham Lincoln	"Because it was on my history list and it was a very short story, only two and one half pages long... and (pause) I knew a lot about it 'cause we had just went to the Henry Fort Museum."	Meet Deadline Prior Knowledge/ Experience

Finally, Nancy blended a practical reason to write about Abraham Lincoln (the brevity of the selection which would help her meet her deadline) with one that tied to her experience of seeing Lincoln's chair at the Henry Ford Museum: "Yes, I did [see Lincoln's chair]. It had a shell on it and his hat sitting next to it" (Student Interview 4/30/86).

Thus, there were more than the two factors Mr. Stanford outlined (students' interest and availability of resources) that influenced the topic choices students made. The underlying learning activity structure influenced students choices as well. For example, Steve's, Anthony's, and Nancy's explanations for their choices indicate an awareness that there are obligations they must meet, so their choices are made as part of the obligation to complete the assignment. Moreover, some students who were influenced by their interests seemed to indicate that they knew they had to make some choice, so they chose the most interesting from what was available. For example, Carly's choice of Ghost Towns was out of interest among the topics that were on the list: "It's a paper that we choose from." Similarly, Joan chose the most interesting of the three stories her group had read (Ghost Towns). Likewise, Carl chose to write about the Statue of Liberty because he "...looked on the sheet and it said." Finally, Laura chose to read about Johnny Appleseed from "...the things I could pick from," and chose to read about The Homestead Act because Mr. Stanford had recommended it.

These students followed through on the unspoken agreement to participate in the tour Mr. and Mrs. Stanford have set up for them, and choosing a topic is one aspect of the agreement they had to fulfill if the tour was to progress, and if they were to succeed within the reward structure that was set up in this classroom (e.g., follow the checklist and meet deadlines in a timely manner). The role relationship that was manifested in the topic selection

process is that Mr. Stanford maintained a tight frame over the topic selection, and therefore over the range of knowledge transmitted, while the students followed through on their obligations as learners and exercised the "freedom within limits" that Mr. Stanford intended to provide. They seemed to be conscious of the "limits" as they discussed their topic choices. They seemed to fulfill their obligation by finding interest in reading and writing about a topic within the confines of the possible selections. For example, their descriptions of their topic choices (summarized in Table 5, p.208) showed they chose a topic of interest from what was available, or showed an interest by association (e.g., I already know something about that topic so I think I'll find out more). I did not get the sense that they were starting with an interest that they were finding resources (from the reading list) to satisfy. Once students choose a topic and read about it, the next step in the research process is to write about it, which will be described in the next section. I will describe students' interpretations of the guidelines provided by Mr. Stanford for writing about their topics and show that they interpret them as the only content they should write about, instead of as a generalized approach they could use to narrow their discussion of their topic. I will also show that students interpret some steps of the writing process (particularly the correcting process and judgement of quality of the written piece) as being the responsibility of the teachers and not their own responsibility. There may be some connection between the idea that students are investigating topics in which they found interest versus topics in which they started with an interest and their commitment to their responsibilities in the writing process. This issue will be taken up in the next section.

The Writing Process

Very much on Mr. and Mrs. Stanfords' minds is the notion of how much direction, help, or what I will call scaffolding (Bruner, 1975)[1] the students need to carry out a particular activity, and to reach overall goals for understanding history. In this section, I will explore the relationship between the way activities are structured and the meaning students assign to the activities (e.g., how they interpret the purpose for writing, their role in the writing process, and how they decide what to include in their writing). I will illustrate how their interpretations function as a filter for the kind of knowledge they take in, and the way they structure their knowledge.

How Scaffolding Shapes Students' Purpose for Writing.

Mr. and Mrs. Stanford most often use their knowledge of what they call students' own "limits" to decide what kind of help students will need (Teacher Interview, 8/19/86). For example, the overall framework that they provided for the content that students were to include in their writing came out of what Mr. and Mrs. Stanford took to be a "limit" students have, or what they interpreted to be the students' inability to decide on their own what to include in their writing after they have read a selection. They saw their scaffolding or support they provided occurring in a "progression" from the fall "...where we really structured it" to the spring, where less structuring occurred as the months progressed (Teacher Interview, 4/28/86). For example, the first-year students progressed

[1]The notion of "scaffolding" as it is used here is the amount and type of support provided for the learner. It should be inversely related to the student's level of competence or ability to complete a task. For example, the more difficult it is for the student to complete the task or achieve a goal, the more directive the teacher should be in guiding the process (Bruner, 1975; Wood, 1980).

from answering simple questions about their reading to composing research as a group with the following kinds of guidelines:

> Mrs. Stanford: We developed questions because it helped them organize their thoughts. We always started with an animal because it's the easiest thing, you know, four questions were typically, "where it lives, what it looks like, what it eats, and the things it likes to do" or something. Then we discussed, what is the proper length for a paragraph? Three to four sentences is a good length of a paragraph. You can extend it as much as you want, but shorter than that, you're not developing a paragraph...and so it ends up that they have a nice research that is fairly organized because of that...it's the outline...(Teacher Interview 8/19/86).

Mrs. Stanford saw the questions, and her guidelines about paragraphing serving as a guide or outline for students to begin to internalize when they faced the issue of needing to write about something they read. By the last few months of school, Joan, one of the first-year students decided she wanted to compose her research on her own (by dictating to a teacher), instead of composing with the group. Mr. Stanford was very excited about this, and took this as a sign that Joan was ready to shed some of the scaffolding provided (no longer needed the support of a group situation to compose), and predicted she would soon be ready to compose completely on her own (Field Notes, 4/15/86).

The rest of the students, beginning with the second-year students, were to use as an organizer the following questions:

(a) who or what is your subject about?

(b) when did it happen?

(c) why is it important?

Mr. and Mrs. Stanford felt students needed these questions as a scaffold to help them select a focus and help them with what they saw as the usual problem facing the beginning writer: "Usually research is, 'What can I write?'" (Teacher Interview, 8/19/86). The answers to questions (a) and (b) generally require recall of content found in the selection. The answer to question (c) may or may

not be found directly in the reading, and would require the student to interpret, in light of other knowledge of the time period, the significance of the event. Requiring students to focus on this type of content in their writing provides the function of helping them recall what they read and helping them place the factual knowledge in the puzzle framework (the four time periods for solving the puzzle) Mr. Stanford provided. In essence, answering the guide questions serves a "note-taking" function (Scardamelia & Bereiter, 1986) that can provide a basis for recall of information and comprehension of reading material.

For example, among other purposes he sees for reading and writing (e.g., improve handwriting, enjoying reading and drawing), Steve interprets the purpose of the reading and writing process as helping him "know" about history and "remember" what he has read:

> I: Why do you think your teachers have you write research? What's it for?
>
> Steve: Oh, so you can know about what your research topic is.
>
> I: To learn things?
>
> Steve: Yeah, to learn things about them.
>
> I: Why do they have you write it down, instead of just reading? You could learn from reading too. How come you write also?
>
> Steve: So um, if you forget about it and you want to know about it again, you can just go back and look at your research and...
>
> I: So it's a way of keeping a written record of what you've learned?
>
> Steve: Uh huh.
>
> I: Do you think you're supposed to learn anything about writing from doing research?
>
> Steve: Well, yeah, and improve your printing or cursive 'cause you write it down.
>
> I: ...What do you want to get out of it?

Steve: Oh, I like reading it, like I've told you.

I: Alright...

Steve: And I like drawing pictures.

(later in the interview)

I: Sometimes you write more? How come? 'Cause you have more you want to say?

Steve: No, I remember more!

I: Ok, so part of how you decide if you're done is if you don't have any more to say?

Steve: And if I don't remember anything more. 'Cause somebody usually has the book when I'm done. (Student Interview 4/30/86)

Steve seems to read and draw to "know" about history (the things he likes, and the things he says he gets out of doing research), and sees the writing as a way to remember what he has read.The other students I interviewed gave responses (summarized in Table 6, p.215) that indicate a similar understanding of the function of the research activities (Student Interviews 4/28, 4/29, 4/30/86). For these students, reading and writing down answers to the focus questions serves as a means to gain more information, and for many, to help them remember what they read about. In addition, Laura sees it as a way to see "how she did" and Anthony sees it as a way to show others what he knows. Carl had a hard time answering the question, and arrived at purposes such as "seeing what your interests are" and remembering only after starting from the issue of just needing to get it done, without much notion as to why it is to be done. The scaffolding the teachers provided, the guide questions for reading and writing the rough copy that focused on recalling factual content, seemed to shape the students' interpretation of their purpose for writing as one of serving to gather information and remember the content, rather than to function as an "outline"

Table 6:

Summary of Students' Interpretations of Purpose of History Research

Student	Why do your teachers have you do research?	Student's Purpose
Carl	Um, um (pause) it's a hard question. Let's see (pause)...Um,well, I know one thing, they don't want you to fool around and that kind of stuff so you can get it done. So you can get something done... (pause) Um, other things...See what your interest is, maybe?...So you could have a thing to read off of when you get older and that kind of stuff.	Get it done Interest Remember
Ellen	I don't know...I want to learn...like history.	Learn
Laura	To learn about special people and how they lived...So you can look them over and stuff and see how you did. So you can remember.	Learn Evaluation Remember
Nancy	Well, I think that, um, well, I think they have us do it so we can learn more; it helps us learn probably...Learn about people and things and how things work...Well, probably so we remember it. And it would be review on how much we know from the book.	Learn Remember Evaluation
Anthony	Research is science, research is finding out about stuff you don't know...You write it on a piece of paper and turn it in...So you can show your mom and it's for you to learn.	Learn, Display Knowledge
Carly	They want us to learn about it...Things like history and animals...To get better handwriting...And to learn more stuff, like to learn more about things about that person or what their...	Learn, Improve handwriting
Ken	It'll get you education on animals, people, war and stuff like that.	Learn
Joan	Well, I think they have us write research to learn about history and stuff...I think we have to write it down before we can remember it.	Learn Remember

from which they could elaborate or explore knowledge more fully. In their interviews, the students did not elaborate on what they think they are to learn or remember about the content. Later in this section when I describe how students decide what to include in their research, I will discuss more explicitly the type of information they seem to focus on, and illustrate how the guide questions influence students to focus on factual recall from their reading selections as they write.

How Scaffolding Shapes Students' Interpretation of Their Role.

Another form of scaffolding the teachers intend to provide occurs during the "correcting" process after the rough copy is written. The teacher's involvement at this point in the writing process has some important consequences for how the students interpret their own role as writers, as I will illustrate by looking closely at how Steve interprets the correction process. After students compose their "rough copy," they place it in the rough copy pocket, and Mr. Stanford or Mrs. Stanford "correct" it. Mrs. Stanford describes her approach to correcting:

> ...And then we check them and make corrections, either independently without them there, or have them come over and talk to them. The way I correct it, I always correct their spelling, and then if there's something I don't understand, I put a little question mark so that when I hand it back to them I can ask them what they meant to say. And then I have them either rewrite it or reword it onto a final copy sheet. Then it's their responsibility to rewrite it onto a final copy sheet. And most of them draw pictures after they write it. Some of them got out of the habit. They decided they didn't want to draw pictures anymore... (Teacher Interview, 8/19/86)

The "correcting" process involves two kinds of changes. One type of correction is in surface features such as spelling (which Mrs. Stanford mentioned above); other kinds of surface features that are usually corrected in

addition to spelling include punctuation and capitalization. These are typically written above the student's words or added right onto the student's words or sentences. The second type of correction involves meaning. This might involve changing the wording of something that does not make sense to the teacher as the reader, or suggesting a reordering of words or sentences for a more logical flow of ideas (Teacher Interview 8/19/86; Videotape 4/24/86; Audiotape 5/1/86 and 5/8/86). The correcting process typically involves some kind of interaction between teacher and student. Mr. Stanford explains, "...You always want to talk it over with them, and what they were doing, and show them their mistakes" (Teacher Interview, 8/19/86). Talking with the student occurs either after the corrections have been made and the teacher wants to explain the corrections to the student, or sometimes involves working with the student as corrections are made, so that the teacher can ask the student what he or she meant to communicate and help the student make the necessary changes.

Steve's interpretation of Mr. or Mrs. Stanford's participation in the correcting process reveals important information about the way he sees his own role as writer. In the following excerpt from my interview with Steve, I have emphasized in italics his word choice that indicates he thinks his teachers have some responsibility for part of the composing process, and that responsibility for the quality of his writing is clearly not his alone:

> I:...So let's get the steps for research here. First you read, then what do you do?
>
> Steve: Um, first we read, then we write down what we read from those questions, and then we turn that into the rough copy thing. And then usually on Wednesday in the afternoon, the teachers check them and *they correct them.* And then they give them back to you. And the you final copy the right way *how they put it on your sheet...*
>
> I: Alright, let's talk about the rough and the final copy. What's the difference between the rough and final copy?

Steve: The rough copy you just spell the words how you feel that you should spell them. Then *the teachers cross out words and write the correct spelling above it* or if you don't have too much room *they just squeeze in the letters.* So then, on the final copy *you just write down the right way how the teachers had it on the final copy.*

I: Who reads your rough copy?

Steve: *The teachers.*

I: And who reads your final copy?

Steve: *They do.* Who reads it? They don't read the final copies, well, yeah, you take it to them *if they want to see it* and then *they say either good or what you have to do to make it better.* Like color in our pictures, or um, then they give it back to us and then we put it in our final copy folder.

I: Does anyone else ever read it?

Steve: [Your parents] when *it gets into your notebook.*

I: Do you ever show your research to your friends and have them read it?

Steve: Um, yeah, when I think I've done a very good job.

I: When you're proud of it?

Steve: Uh huh.

I: Do you remember a research you showed to anyone else?

Steve: No...

Overall, Steve interprets the "correcting" process as the teacher's responsibility to initiate, and his to follow through on. He seems to feel that the changes that the teachers indicate need to be made are generally not to be questioned, perhaps because he does not see them as his responsibility anyway. This kind of "going on the tour" without a high commitment level to his responsibility in the process is similar to the way students "found an interest" as I discussed in the section on topic selection. Students seemed to be willing to go along with the tour, to follow the steps outlined, but I got the sense that there

was not a great commitment to the topics they chose or to the revisions they were to make in their writing. Later in this chapter, in the section entitled "The Relationship Between Writing and Drawing," I will contrast this commitment level to the writing process with the students' commitment level as they participated in drawing activities in the weekly routine. The drawing activities are more loosely structured with less steps to follow. I will argue that the structure of the activity (the extent to which the teachers provide the type of "steps to follow" as in the writing process) has important influences on the way students interpret it (how they interpret their role in the process), and on the kind of opportunities for knowledge development that occurs as a result of their interpretations (the kind of interaction with knowledge they experience).

As Steve and I looked over his rough and final copy of his research on the Star Spangled Banner (shown in Figure 15, p.220), he elaborates this viewpoint:

> I:...Do they ever have you change actual words or rephrase things or write a whole sentence over again, or anything like that?
>
> Steve: Well, sometimes *they cross out a sentence and put a different sentence above it.*
>
> I: Do you agree with the changes they make?
>
> Steve: Most of the time.
>
> I: Why do they make changes like that?
>
> Steve: Um, so it sounds better.
>
> I: Ok, do you ever read over your rough copy and make changes on it before they do?
>
> Steve: No... *I just leave the changes for them.* (Student Interview, 4/29/86).

The conversation Mr. Stanford and Steve had about the Star Spangled Banner research (shown in Figure 15, p.217) bears out Steve's description of

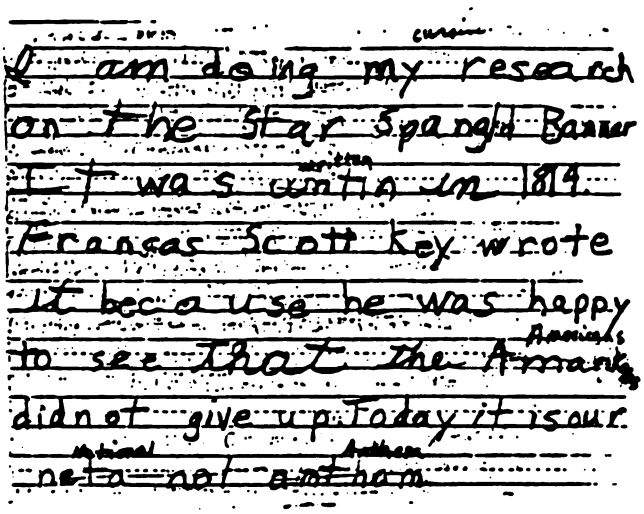

I am doing my research
on the Star Spangld Banner
It was writin in 1814.
Fransas Scott Key wrote
it because he was happy
to see that the Amarks
did not give up. Today it is our
national anthem
ne to nal anthem

Figure 15a: Steve's Rough Copy of Research on the Star Spangled Banner

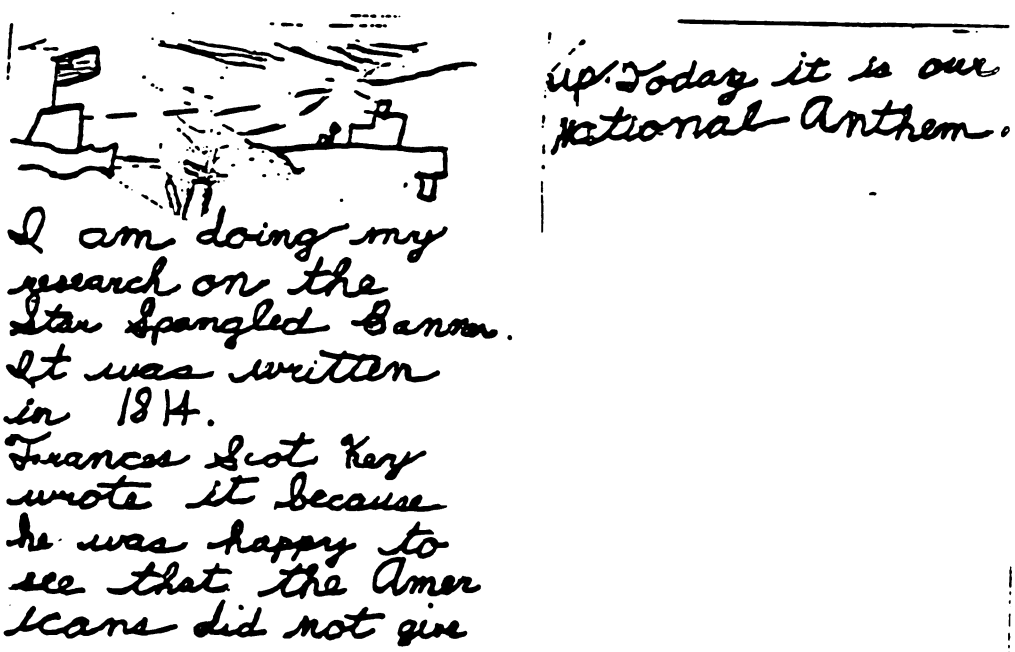


Figure 15b: Final Copy

Figure 15: Steve's Research on the Star Spangled Banner

the process. True to Mr. Stanford's description, he wanted to point out Steve's mistakes to him: he was to write his final copy in cursive, he should capitalize Star Spangled Banner, and correct the spelling of "written," "Americans," and "National Anthem." Mr. Stanford had written these corrections directly on Steve's rough copy (see Figure 15). True to Steve's description of how he approaches writing his rough copy, he had left the corrections to Mr. Stanford, and he did not intend to revise his draft (or even think about it) unless Mr. Stanford had some suggestions. Mr. Stanford's judgement of the writing after he read the text aloud and pointed out the errors to be corrected was, "Excellent" (Videotape, 4/24/86). Mr. Stanford, not Steve, took on the role of judging quality.

Steve's comments about the correcting process indicate to me that he interprets his responsibility in the writing process as completing the steps toward writing the rough copy, and fulfilling his purpose of "knowing" and "remembering" history. The actual ownership for judging the quality of the communication in the written document belongs to the teachers. The teachers are responsible for setting up the steps, making corrections, judging the quality of the written piece, and deciding when the piece is ready to travel into the notebook that will be sent home at the end of the month. Other students whom I interviewed indicated similar interpretations of their role in the writing process (Student Interviews 4/28, 4/29, 4/30/86), and the conversations they had with Mr. or Mrs. Stanford about their writing were ones where they listened to, accept ed, and acted on explanations of corrections with no apparent dispute (Videotape 4/24/86; Audiotapes 5/1/86 and 5/8/86).

How the Focus Questions Influenced Topic Development.

The focus questions shaped the students' interpretations of their purpose for writing, and shaped the their interpretations of their role in the writing process (get ideas down on paper and leave it to someone else to judge the quality of the communication). In addition, they shaped how students interpreted what to include in their rough copies. Looking at the content of Steve's piece on the Star Spangled Banner (see Figure 15, p.220), it is evident that he heavily relies on answering the three focus questions that Mr. and Mrs. Stanford provide:

(a) Who or what is your subject for research?

"I am doing my research on the Star Spangled Banner."

(b) When did the event occur?

"It was written in 1814."

(c) Why is it important?

"Frances Scot Key wrote it because he was happy to see that the Americans did not give up."

During our interview, Steve summarized for me the three questions that were to be included in his research, and added a fourth possibility, "And interesting facts" (Student Interview 4/30/86). His final sentence, "Today it is our National Anthem," seems to fulfill that function, as well as fulfilling the function of ending his piece.

The other students whom I interviewed reviewed for me, as Steve did, the set of questions they answer for their research. When I asked them how they decided what to include in their research and what to leave out, in addition to using the guide questions, most of them replied, as Steve did, that they also

focus on what is interesting or exciting (see Table 7, p.224 for summary of responses). While students claim to use criteria such as interest, excitement, the best part, and important things as a standard for what to include, the students' research is remarkably uniform in format and content. Just like Steve's research, two of Anthony's pieces serve as further examples of following the guide questions closely despite the claim that they use a standard that goes beyond answering the three questions. Two pieces (shown in Figure 16, p.225) were written by Anthony at different times, and reflect different information based on the reading source Anthony used to write his research, yet they both are uniform in format and content. Below are the three guide questions with the sentences from Anthony's two selections that address them:

(a) Who or what is your research about?

Selection a (first sentence): Abraham Lincoln as President

Selection b (first sentence): Abraham Lincoln in his youth

(b) When did it happen?

Selection a (first sentence): during the time of the 16th presidency (no specific dates given in reading)

Selection b (first and second sentence): the years before his presidency (no specific dates given in reading)

(c) Why is it important?

Selection 1 (details given in the entire selection): This is background information about a President

Selection 2 (details given in the entire selection): Tells about what led him to become President

Selection a (Figure 16, p.225) is one Anthony had written several weeks before when students were asked to read biographies and write about them. This one

Table 7:

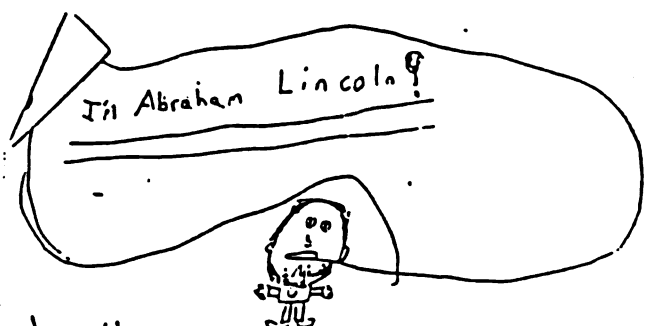
Summary of Student Interpretations of What to Include in Research

Student	How do you decide what to include and what to leave out?	Student Focus in Addition to Focus Questions
Carly:	[I include] the exciting things and [leave out] not the exciting things.	Exciting things
Anthony:	Because it tells in a book. There is this like, uh, it's called a Young Children's Encyclopedia, tells about all these things. It didn't tell about his [Abraham Lincoln's] assassination or anything, and it's a real good book.	Information from a real good book
Joan:	Well, we read three stories out of the Children's Encyclopedia, but um, there were three and I really liked the Ghost Towns because I thought Ghost Towns were really neat to write about. So I read the story over and I just thought about it and I thought about this.	Neat to write about
Ken:	Well, it was, the boring stuff was left out.	Interest
Carl:	I just leave some things out that don't sound very interesting or that kind of stuff... Well, sometimes I, the story's not that interesting so I just make some more things in there that are interesting.	Interest
Ellen:	I just put in the special things, the things I was supposed to, and the special ones instead of the other ones.	Special things
Laura:	I did the best part.	Best part
Nancy:	There was a little section on him and I just tried to put the important things down and then the things that aren't so important I just leave them out.	Important things



Abarham Lincon was ruler and the sixteenth president of the United States. Aberham Lincon had a beard but no mustache. Aberham Lincon was killed he did not die from ollage he was Assassinated.

Selection a



When Abraham Linccln was about the age of a teenager he worked in a store. When he was about 25 he studied law. He loved books. Often he would walk many miles for books. Abraham Lincoln became President.

Selection b

Figure 16: Anthony's Research on Abraham Lincoln

includes information about Lincoln's presidency. The second piece (selection b) is based on what Anthony read in the Young Children's Encyclopedia. Instead of integrating what he knew previously about Lincoln, he says he stuck closely to summarizing the facts that the *current selection* contained:

> I: How did you decide to put things like that when he was a teenager he worked in a store, or when he studied law, he loved books? How come you put those things in there?
>
> Anthony: Because it tells in a book. There's a like, uh, it's called a Young Children's Encyclopedia tells about all these things. It didn't tell about his assassination or anything and it's a real good book.
>
> I: Ok, so you included the things in your research that you read about in the book?
>
> Anthony: Uh huh.
>
> I: Did you know any of those things before you read about him?
>
> Anthony: No. Yes. Because I had done another research on him a long time ago.
>
> I: Oh, so you remember some things about him?
>
> Anthony: Yeah...But he didn't study law [it didn't tell about him studying law in the previous selection]...But I never knew he worked in a store.

For Anthony, writing these two pieces were separate "note-taking" tasks, for which he summarized the content of the selection he read, using the three guide questions to decide what to write.

Steve, Anthony, and the others seem to interpret these guide questions as not a mere possibility of what to write about, but instead as the content that one should or must write about. When I had asked Steve at the end of the day on Tuesday (after he read his selection on the Star Spangled Banner) what he had learned from reading it, he summarized his "who, what, when" list of facts that he remembered from the text. When I asked him what else he had learned,

he replied, "That's all I can remember" (Field Notes, 4/23/86). This is further evidence that the writing serves a "note-taking" function in learning about history, since these guide questions seem to help him focus his attention in reading the selection on gathering the answers to those questions, as though they were comprehension questions, and he is taking mental notes.

In summary, Mr. and Mrs. Stanford intended to provide help, direction, a way of scaffolding the students' writing process so that they can work at the level for which they are capable, and gradually shed the direction and guidance as they became more proficient at completing the writing activity. They intended to set up "guidelines" that they were not "rigid" about enforcing (Teacher Interview 8/19/86) so that they would provide appropriate support for the students in acquiring basic historical knowledge. The students, on the other hand, interpreted the overall routines and writing guidelines rather rigidly so that the topic choices were made for practical reasons as well as for reasons of interest. In addition, the questions were interpreted, not as a guide to be internalized as an overall approach to narrowing one's discussion of a topic, but as the only focus for the content that was to be included. In essence, the questions limited what the students paid attention to instead of expanding their opportunities for broadening their knowledge base. The tight framing of subject matter content and selection (through available resources), organization (through the guide questions), and pacing and timing (through the direction of the weekly checklist with its deadlines) worked toward limiting students' focus on the subject matter knowledge that was available to them. Mr. and Mrs. Stanford had the "big picture" and their overall goals with which to interpret the purpose of the topic choices (provide guidelines and direction for students), the guide questions (gradually show them how to focus on reading and narrow information for writing), the use of the checklist (teach them to take responsibility

for their own work). Unlike their teachers, the students experienced the activities without this "big picture" or knowledge of the teachers' overall goals, and interpreted the scaffolding quite literally not as what they could do within the limits, but what they should do. It seems that the teachers' intended scaffolding (guidelines that would gradually shift and change as the learners progressed) functioned more as a set of procedures that remained fixed over time in the way they were implemented, and in the way they were interpreted.

In the section that follows, I will explore the function that Mr. and Mrs. Stanford intended that writing would serve in the students' developing knowledge of American history. Then I will contrast the structures of the writing and drawing activities and examine each activity's connection with students' knowledge development opportunities. I will point out important differences in the nature of the scaffolding for the writing and drawing activities and show how the quality of knowledge development opportunities changed as the nature of the scaffolding changed.

Knowledge Development Opportunities

Mr. and Mrs. Stanford, as part of their role as teacher, guide, and facilitator of students' learning, have an overall picture of where they want to go with the American history unit (see Chapter III, The School's Stated Curriculum, pp.131-135). In contrast, the students, in their role as learners, seem to experience the unit as a series of activities, some of which are tied to their checklist, and some of which are not. In this section, I explore the contrasts between the students' and teachers' roles, and how these roles shape their perception of the nature and purpose of the American history unit. Then I demonstrate how even slight changes in the structure of activities can bring about subtle shifts in role relationships. Accordingly, these shifts in role relationships bring about a different level of student response to the process of

learning about American history, as well as different kinds of opportunities for knowledge development.

Writing as a Means to Learn History

Several researchers have drawn a distinction between teachers using writing as a knowledge telling experience versus using writing as a knowledge transforming experience (e.g., Scardamalia, 1984; Applebee, 1982; Scardamalia & Bereiter, 1986; Flower and Hayes, 1980). That is, is writing a means of telling what one knows about a subject, or is it a means for expanding one's understanding of a subject? These researchers argue that this distinction is important to whether or not writing is offered to students as a means to report their existing knowledge (knowledge telling) or whether writing is a learning experience for students (knowledge transforming). Based on the information provided in the previous section about how students interpret the writing process, it would appear that writing is viewed in this classroom as knowledge telling. However, Mr. and Mrs. Stanford's goals have more to do with participating in the investigative process of finding out how historical events relate to one another than worrying about the finished product. Writing, in their minds, is a means to understanding history. That is, they intend to use writing as a way to direct students' reading and help them focus on finding out about key historical events. Likewise, the subject of "history" as a state of knowledge is subordinate to the puzzle-solving process. That is, Mr. and Mrs. Stanford think participating in the process of putting the pieces together counts as much as the finished scene or large puzzle, and the degree to which students participate in the process as a whole is an important indicator of success, as Mr. Stanford explains:

> ...Maybe they didn't want to play around with the writing. Writing just got to be a drudgery. Then they would get into the mural, and say, or the drawing, just even the drawing of the research. Their research would be terrible, but the drawing would be real nice. Or they could talk about it a little bit in a group discussion. <u>There are avenues for the kids to show they are at least in touch</u> (Teacher Interview 8/19/86; emphasis added).

Mr. Stanford has listed several ways students can show that they are "in touch," that they are participating in the puzzle-solving process, and he indicates that even "terrible" research may be acceptable for a particular week as long as interest and participation is shown through at least one of the available "avenues."

For example, when Mr. Stanford discussed Steve's rough copy of his Star Spangled Banner Research (see Figure 15, p.220), he limited the changes that he expected Steve to make to correcting surface features such as spelling and capitalization, and writing his final copy in cursive handwriting. As soon as he was done commenting on the draft, he shifted the conversation to what Steve would draw for this week's research:

> Mr. Stanford: What kind of picture? This should be a real great picture. What kind of picture are you gonna do?
>
> Steve: A battle (nods).
>
> Mr. Stanford: So you...the whole words of the Star Spangled Banner, you know, "The rockets read glare, the bombs bursting in air," and all that kind of stuff, and you could still see the flag, and stuff like that... (inaudible) in the story...
>
> Steve: (inaudible)...writing the Star Spangled Banner, and then looking up.
>
> Mr. Stanford: That'd be great! It'd be a good picture then. Okey dokey, buddy, you're all set.
>
> Steve: I have to draw a stick man.

> Mr. Stanford: (smiles) Thank's ok, that's all I draw.
> (Videotape 4/24/86)

The scene that they talked about is the scene that Steve drew on his final copy (see Figure 15, p.220). Francis Scot Key is looking up at the activity in the sky, through the haze, to the flag, and writing the Star Spangled Banner. Thus, Mr. Stanford has created and encouraged Steve to use drawing as a way to add more details about the context in which the piece was written (by illustrating the lyrics to the anthem), and for him to make more connections in his mind about how this event fits into the larger puzzle (by thinking about the meaning of the lyrics).

They did not explicitly discuss the idea that the drawing elaborates the text and vice versa, but they both seemed to understand that it would. Mr. Stanford seemed to view the finished product (writing accompanied by drawing that serves to elaborate the text) as evidence of being "in touch" with the whole investigative process of learning about history. The interconnection of the activities, the writing, their discussion, and the drawing all contributed to his interpretation that the research is "excellent." Thus, in Mr. Stanford's mind, the series of activities, not the written product by itself, were what he intended would contribute to Steve's knowledge development. I will turn now to a discussion of one of Mr. and Mrs. Stanford's views of the purposes for writing in their classroom, "to gain knowledge through books and resources used for writing," to illustrate how they place the actual writing task in the context of a larger investigative process.

Mrs. Stanford outlined four main purposes for research and creative writing in the classroom (Field Notes 4/7/86):

> --to stimulate imagination, thought processes
> --to gain knowledge through books and resources used for writing

--to practice language and grammar skills
--to learn to form complete, organized and interesting paragraphs and stories

For Mr. and Mrs. Stanford, "to gain knowledge" is different from demonstrating knowledge through writing. That is, they understand that what they see as a written product may not be the entire representation of how the student understands the topic. Apparently the students agree with their teacher's purpose for writing. Only two of the nine students I interviewed (Laura and Anthony) claimed to write their research to demonstrate knowledge, while the others concurred that they wrote to learn or remember things about history (see Table 6, p.215). What may at first appear to be a contradiction between the purpose for which teachers and students say students write and the actual written products (which on the surface appear to summarize knowledge) may appear so as a result of looking at the writing process and written product in isolation, rather than as they connect to the overall investigative process. For example, Mr. Stanford's explanation about the "avenues" available in the investigative process shows they try to keep a more even emphasis in their reward structure on several aspects of the research process instead of just rewarding students for the finished product. The reading activities are intended to be a <u>means</u> to provide a broad exposure to historical events and figures. Then students are to select from that broad exposure one event or figure to write about as a further means to understand history.

This <u>combined, overall process</u> of reading, thinking about, discussing and writing and drawing about that topic is what these teachers think will contribute to the student's developing historical knowledge (not just having produced a written product). They also expect that different students' "historical knowledge" will vary in terms of the age and ability of the student. The simplest

form will be creating hierarchical structures so that individual pieces of knowledge can be placed in broad inclusive categories or time periods in history. Therefore, some will merely be able to comprehend the event itself and see that it fits in a particular time period (e.g., the Civil War occurred in the 1800's, after the American Revolution and before World War I). Others will comprehend the event itself more deeply in terms of the chronological historical context (e.g., the Civil War was fought over the issue of slavery and was an internal struggle among our own people). Still others will advance to interpreting the event according to broader themes relating to our cultural heritage (e.g., the Civil War contrasts with other wars we participated in, in that it is the only war we have fought on our own soil; yet it is similar to other struggles we have known such as the Revolutionary War, in that it was fought over basic issues of individual freedom). Mr. and Mrs. Stanford think this deepening of understanding will occur over a period of years, not months, and does not come a about as a result of one kind of investigative activity (Teacher Interview 8/19/86).

Up to this point I have portrayed a classroom where teachers intend for students to get a broad exposure to historical knowledge by participating in an overall investigative process, but also have portrayed a classroom where students interpret the routines for implementing the process in such a way as to seem actually to limit their opportunities to develop knowledge, not necessarily expand them. Is this a matter of the teachers' actions not fitting with their intended goals, or are there alternative explanations? One place I began to look for alternative explanations is beyond the students' interpretations of individual activities to the interconnection between and among the various activities, a place Mr. and Mrs. Stanford seemed to look as they conceived of their curriculum developing over time, and as they conceived of the

interconnected set of activities in the investigative process being an important indicator of knowledge development. In the section that follows, I will explore possible connections between the structure of two research-related activities, writing and drawing, the students' responses to the two activities, and their corresponding opportunities for knowledge development.

The Relationship Between Writing and Drawing

Part of completing the "final copy" research is drawing a picture at the top of the page. When I asked seven of the students whom I interviewed what they liked best about doing research, six answered enthusiastically that they like doing the drawing the best (See Table 8 , p.235). Only Anthony singled out reading as his favorite, and Steve likes both reading and drawing.

One possible explanation for this positive response to the drawing is that of the three different research activities (reading, writing, drawing), the drawing activity provides the most "freedom within limits." The reading and writing tasks are fairly straightforward: (a) choose from a specified list a specified number of selections and read them; (b) at least once a week, for one selection, pay attention to details that answer the three focus questions; (c) for that selection, write your research that includes the answers to the focus questions. That is, these activities are relatively "tightly framed," with quite a bit of teacher control over the selection, pacing, timing and organization of knowledge learned. As previously discussed, the students seem to fall into a uniform pattern quite readily, as evidenced by the finished the products they produce.

Contrast the structure of the reading and writing with the structure of the drawing activity: draw a picture about your research. Compared to the reading and writing activities, this activity is more loosely framed. While students still

Table 8: Summary of Student Responses to Research Process

Student	What do you like best about doing research?	Response
Carly	Actually, the pictures. I like drawing pictures.	Pictures
Joan:	I love drawing the pictures! Because my granddad says I'm so good at drawing pictures, I could be an artist.	Pictures
Carl:	[refers to pictures] That's the fun part!	Pictures
Ellen:	You get to draw pictures!	Pictures
Laura:	Drawing.	Pictures
Steve:	Oh, I like reading it like I've told you... and I like drawing pictures.	Reading/ Pictures
Anthony:	Reading. I like reading a lot.	Reading

must draw their pictures to meet the specified deadlines, so that the teachers maintain control over the pacing, and timing of the activity, students by this time of year have the option of whether to draw at all (Teacher Interview 8/19/86). Moreover, the degree of control students have over the selection (of what to draw), and the organization (how to go about drawing and representing ideas) of the knowledge they include is totally up to them. Given this difference in structure, how do the content of the writing and drawing compare?

The content of two students' drawings quite closely matches the content of their written piece, and what they say about the drawing closely matches their written text (Student Interviews 4/28, 4/29, 4/30/86). Steve's picture for his final

copy research (shown in Figure 17a, p.237) elaborates his text where he says, "He [John Paul Jones] fought the English for independence and won." As Steve talked about his drawing, he explained:

> He's in the battle. There's the other person's ship and there's his ship...He fought the English for independence.

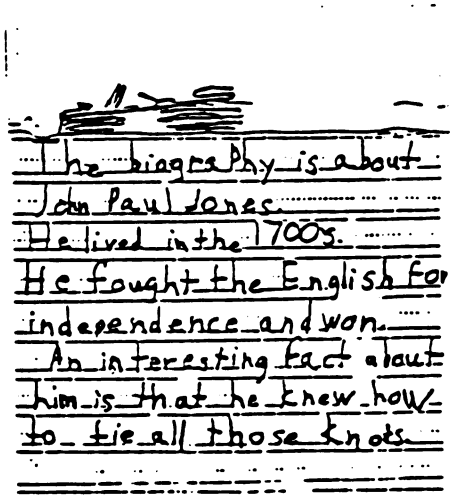
Steve has included two ships in his drawing, apparently in battle, and apparently an illustration of how "He [John Paul Jones] fought the English for independence and won." His drawing is similar to his answers to the focus questions (who or what is the event about, what happened, why is it important). Thus, he sees his drawing as an extension of his text, and has added more details to his drawing that explain more about the basic fact that John Paul Jones fought against the English.

Nancy's drawing on her final copy research (shown in Figure 17b, p. 237) also elaborates her text to illustrate what "discovered" means. She focuses in on what the scene might have looked like as Christopher Columbus was sailing, and recognizes, in her explanation of her picture, that she has only included one of the three ships in her drawing:

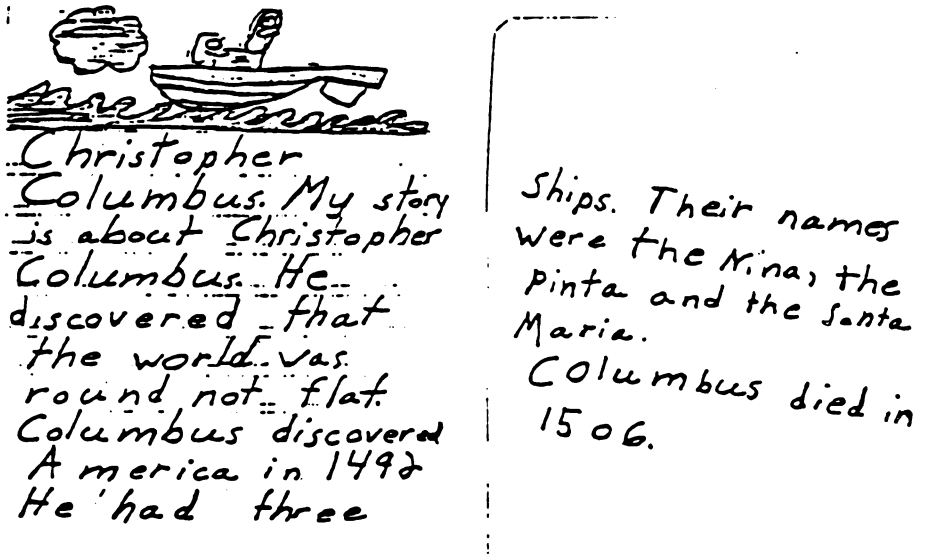
> Well, I made one of the ships and put some things on it. I put Christopher on it and (pause) his ship is out on the water and (trails off)...

For Steve and Nancy, the drawings served to embellish information in the text, to illustrate the scene they discuss in their text.

Other students go beyond simply drawing a picture of something they mention in their text, add information that is not in the text, and add information that is not called for in the three focus questions they are to write about. For example, Ellen's drawing of Johnny Appleseed (shown in Figure 18a, p.238) is

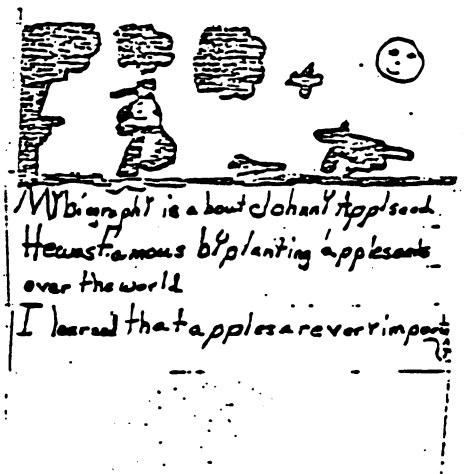


17a: Steve's Research on John Paul Jones

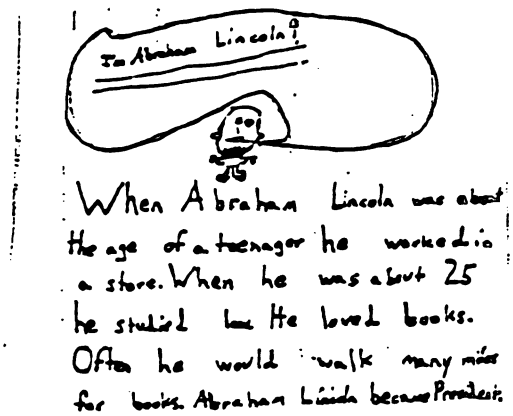


17b: Nancy's Research on Christopher Columbus

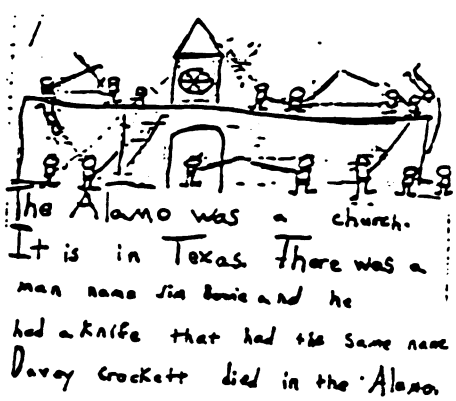
Figure 17: Steve and Nancy's Final Copy Research



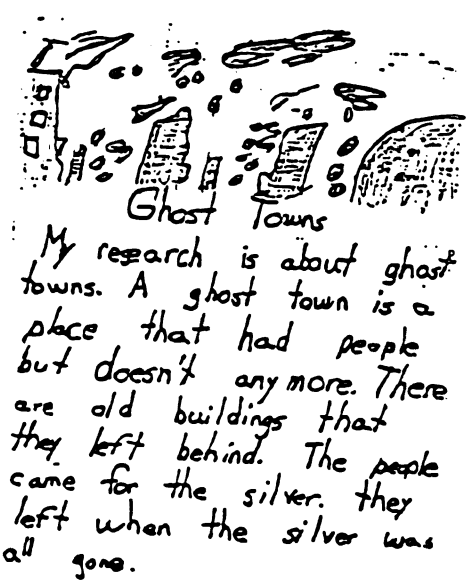
18a: Ellen's Research on Johnny Appleseed



18b: Anthony's Research on Abraham Lincoln



18c: Ken's Research on the Alamo



18d: Joan's Research on Ghost Towns

Figure 18: Final Copy Research for Ellen, Anthony, Ken and Joan

in brilliant colors, and reflects Ellen's love of drawing. She depicts Johnny Appleseed's activity ("planting apple seeds all over the world"), but goes beyond merely showing Johnny with seeds. She creates a more detailed context for the seed planting activity in her mind, and tries to show this context on paper. Johnny Appleseed has been placed in a situation, with accompanying pets, on a sunny day, near another tree, for his activity. This scene is consistent with her concluding remark, "I learned that apples are very important." This is also consistent with her remark that she includes "the special things" when she decides what to include (see Table 7, p.224). She comments, in response to my question about whether all of her pictures are as colorful as the one we were looking at that illustrated her research on The Golden Spike, "Look at this one," (and points to Johnny Appleseed drawing). Ellen's texts to her research are typically short and to the point, while her drawings are done with care, and she takes a great deal of time with them. She is exercising the option of pursuing an "avenue" to show she is "in touch" with the research process.

Other students elaborated their text through their drawing (shown in Figure 18, p.238), and as they talk about them, they reveal further knowledge of their subject that was not included in their text, and knowledge that is not asked for in the focus questions (Student Interviews 4/28, 4/29, 4/30/86). Anthony's text on Abraham Lincoln discusses Abraham Lincoln in his youth, but his drawing (see Figure 18b, p.238) and comments about his drawing focus on Lincoln's appearance:

> That's Abraham Lincoln in a suit...His beard, that's right, and he's talking right here. He's saying "I'm Abraham Lincoln."

Ken's text (see Figure 18c, p.238) tells more about the Alamo structure itself, where it is, and who was involved in the battle that occurred there. His

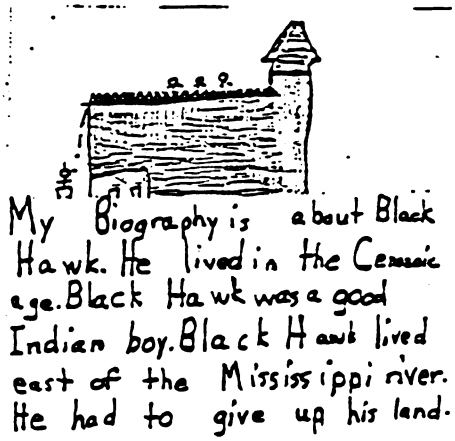
drawing is a detailed battle of the Alamo. He may have known more about the details at the time he drew the picture, but is unable to recall the details at this time, as he explains:

> ...You know the good guys...Well, they're fighting the, (pause) ...oh, I can't remember the story how they did this.

Joan is a first-year student, and shown in Figure 18d is her first research that she composed on her own, by dictating her text to Mr. Stanford, instead of composing it with the group of first-year students. Her explanation of her drawing indicates that the drawing elaborates a dramatic effect of spooky, deserted buildings that were abandoned when the silver was all gone. These were details that were included in her text ("There are old buildings that they left behind."), but she seems to feel she achieved the dramatic effect through her drawing rather than through her text. She carefully chose each color for a specific effect, and was very proud of her drawing as she explained it:

> Then I got a picture of old buildings and there it's raining out and the clouds are all darkened...It's storming and I got some yellow crayon up there for it looks like the wind, and I have, um, a hill, and then I put some orange, I put some orange for the dark. I put some storms on the hill, then I put some dark crayon for, um, like all dried up and then I put some green things like footprints.

Carl's illustration (shown in Figure 19a, p.241) is of a battle that is not included in his text, and about which he seems to recall few particulars. He also included a picture of a fort, which he saw in a book; it is not clear as to whether the picture of the fort accompanied his selection on Black Hawk, or whether he saw it elsewhere:



My Biography is about Black Hawk. He lived in the Cenozoic age. Black Hawk was a good Indian boy. Black Hawk lived east of the Mississippi river. He had to give up his land.

Figure 19a: Carl's Research on Black Hawk



My story is about the Homestead act. People in the west lived when they made homes out of mud. the Homestead act was important for the people moving out west because it gave them land cheap. The people were important for planting fields for crops until the grasshoppers came and ate all the crops up.

Figure 19b: Laura's Research on the Homestead Act

Figure 19: Final Copy Research for Carl and Laura

> Let's see, there's Black Hawk right there with the soldiers and there's the other people that are fighting against him... I saw it [the picture of the fort] in a book.

A final example of the drawing elaborating the text is Laura's final copy research (shown in Figure 19b, p.241). Her "favorite part" of the selection she read is illustrated through her drawing, rather than included in the text of her research. She chose this selection because Mr. Stanford recommended it as a selection that had a funny story. She tried to summarize the factual information in answer to the focus questions for the research, but still found a way to include her favorite part by drawing the scene:

> That was my favorite part, when a cow fell through the roof...He thought it was some grass so he walked up there and fell through.

The scene of the cow falling through the roof is not included in the text at all, while the answers to the focus questions are. Laura says she decides what to include by using the focus questions and "the best part" (see Table 7, p.224). Her text includes the focus questions, and her drawing includes the best part.

These drawings and the students' explanation of them indicate that they tend to go further than the focus questions when they approach drawing about their research topic. Graves (1983) points out that when young children draw and write, it is generally the drawing that receives the greatest attention. For students like Ellen, this seems a plausible explanation. Dyson (1983) further elaborates that this may be because at younger ages children's ability to express the written word is more limited than their ability to write. Joan's use of her drawing to communicate a dramatic effect is an example of using her drawing to communicate something she was not quite ready to do in her writing (this was her first time to compose without the group). Eventually, Dyson

explains, as they become more proficient at writing, children begin to learn that the power of written expression is ultimately greater than what they can express through drawing, and they give up drawing for writing as a means of expression.

In this case, the structure of the activities (one with structured focus questions, and one with little or no direction at all) and the students' enthusiasm for drawing (at this point they seem in general to enjoy drawing more than writing) shaped the content of the writing and drawing more than the children's writing abilities. Some of these students (e.g., Steve, Carl, Laura, Nancy) are eight years old, and very capable of including in their writing the details that they included in their drawings, but for some reason, did not. I argued earlier that these students seem to interpret the focus questions as what they should write about, not as a mere possibility. In contrast to the way the writing activity is structured, the drawing activity is now optional, and is open-ended. Students are allowed to draw whatever they want, and are not asked to hand in a "rough copy" for which someone else is in charge of judging its quality. They have more responsibility for deciding what to draw, and for deciding whether the drawing is sufficient, not only for fulfilling assignment requirements, but whether it is sufficient as a form of expression. When Mr. Stanford and Steve discussed what Steve would include in his Star Spangled Banner drawing (Figure 15, p.220), he did not ask Steve to bring the drawing back to him to pass his approval as Steve had to do with the rough copy. Drawing, as it is structured in this context, is more closely an "avenue" for students to show they are "in touch" with the investigative process, whereas the writing activity is more of a requirement than an avenue as it is experienced in this context. As the frame or control over the activity is loosened, the students change the nature their expression about their research topics. When they had the opportunity to set

their own goals, and had the choice of whether or not to include a drawing, they seemed to work more toward the "intrinsic" rewards Mrs. Stanford seeks (Teacher Interview 8/19/86) than they did with the writing activity as required by the checklist.

In summary, the structure of the two activities contrasts in important ways, and the two kinds of activities, as they are carried out, result in different role relationships, and different responsibilities on the part of students and teachers. For the drawing activity, the teacher is responsible only for arranging for it to occur, but the students are responsible for all other aspects. This contrasts with the writing activity for which the students see the teachers as taking responsibility for important steps in the process (e.g., the correction process), and for which the students see the teachers having control over judging the quality. An important consequence of this difference in role relationship is the way students experience or interact with the subject matter content. The structure of the writing activity focuses the students' attention quite narrowly on answering specific questions, whereas for Ellen, Anthony, Ken, Joan, Carl, and Laura, the drawing activity opens up their view of the subject matter, and its looser frame allows them to explore more about their topic than when they write. It seems that for most of the students, the final criteria for deciding what to include in their research (interest, excitement, the best parts, the special things, as shown in Table 7, p.224) is exercised in the drawing, not in the writing. The writing satisfies the teacher's focus, whereas the drawing satisfies their own focus.

Summary

I have shown, through a description of how students interpret the research cycle, the connection between how activities are structured, and corresponding opportunities for knowledge development. As the frame loosens, there is greater opportunity for students to explore knowledge in different ways. In the next major section, I will provide further examples of the relationship between the framing of activities, and opportunities for knowledge development, and argue that students had the opportunity to use the chronological understanding they were developing from the weekly research cycle as a foundation, and had opportunities to deepen their understanding of American history further.

Opportunities to Deepen Understanding of American History

In Chapter IV I asserted that the underlying learning activity structure gradually "opened up" in terms of the way students and teachers exercised their roles, and in terms of the ways students were able to interact with subject matter. It was with the Civil War simulation in week 2 of the seven-week time period that the shift in subject matter and roles began to take place, and continued on through the seventh week. In this section, I will detail several examples of how this "opening up" occurred, and examine the corresponding shifts in role relationships and opportunities for knowledge development.

Special Events and a Special Research Cycle

As I detailed in Chapter IV, the structure of the special events and weekly research routines gradually loosened. In this section, I will describe the Civil War simulation that took place in week 2 and the Inventions research cycle that took place in week 3. I will show connections between the changes in the underlying structure, changes in the nature of student involvement in their work, and changes in the way students focused on subject matter knowledge.

The Civil War Simulation

The Civil War simulation that took place during week 2 (see Table 3, p.171) was an enactment of two famous battles during the war with students either playing on the side of the North or the South. Some were soldiers, some were slaves, and some were members of the underground railroad. These games extended over the last three days of the second week of my observations when the children were finishing their study of the 1800's time period.

There were several activities in the classroom that set the tone and provided background information for the game (Field Notes, 4/22/86):

> Beginning on Tuesday, Mr. Stanford called the first-year students together as a group to discuss the Civil War. His purpose in doing this was to foreshadow the next day's large group after-lunch discussion, "In the large group tomorrow, this should help you understand what I'm talking about." The focus of his discussion with the small group (and with the large group the following day) was on the fact that this war, unlike the others they had previously discussed, was a civil war, one fought among ourselves. The issue the war was fought over was slavery, and he

asked them to think about how they would feel if they were owned by someone. "Terrible!" exclaimed Jack. Mr. Stanford had a map available to point out the geographic areas involved in the war, and set up two columns on a poster that were intended to help students sort out basic characteristics of each side in the Civil War:

North	South
Union	Confederate
Blue	Grey
Yankees	Dixie
free slaves	keep slaves
Abraham Lincoln	Jefferson Davis
U.S. Grant	Robert E. Lee
Monitor	Merrimack

4 Years: 1861-1865

These two columns encompassed facts different students might have read about if they chose to read one or more of the seven selections on the Civil War that were included in their 1800's reading list.

Earlier in the week, the first-year students had read together three selections connected with the Civil War (on slavery, the underground railroad, and Abraham Lincoln), so they added information to the discussion that they understood from the reading. The format of this discussion was similar to the format in previous weeks, with Mr. Stanford taking the lead, offering most of the information, and occasionally fielding questions or taking in details students volunteered.

The following day, the first-year students also composed as a group their research that tied together these three selections. Displayed in Figure 20 (p.248) is a first-year student's final copy that the group of students composed together. The text indicates the group attempted to clarify the concepts of slavery and civil war, how Harriet Tubman and the underground railroad were related to the issue of slavery, and how Abraham Lincoln was involved in the Civil War.

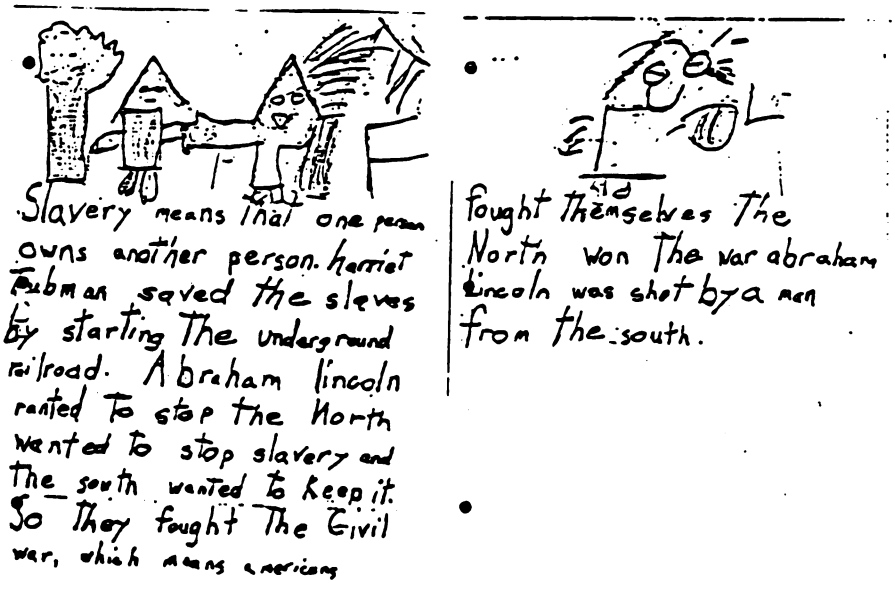


Figure 20: Mary's Final Copy of Civil War Research

So this writing activity, this discussion and the large group discussion on Wednesday, were intended to frame the overall issue over which the Civil War was fought, and to help students place pieces of the puzzle (such as those from the chart above) into some kind of understanding of who fought on which side and why. Once again, the students are asked to focus on the information in a similar fashion as when they answer the three guide questions in their writing: (a) Who or what is your research about?; (b) When did it happen?; and (c) Why is it important? Since the Civil War is such a large event, and encompasses several details (as listed on the chart), this was a summary of a broader topic than some of the students had previously experienced. The roles were similar to those that were typical in the previous weeks, where students operated within a carefully orchestrated set of guidelines.

The game began Wednesday afternoon during Physical Education time. The same afternoon, the children had music as well. One of the music activities was to learn to sing the songs "When Johnny Comes Marching Home" and "Dixie." These songs were sung in unison each day as children paraded outside to play the game. Thursday afternoon during work time before the game was to start, Mr. Stanford said to Jeremy, "Let's put your record on, Jeremy, and see if we can get a little atmosphere for the Civil War" (Field Notes, 4/24/86). As the first song, "Dixie," played, several children sang along as they did their weekly work. In addition to reading, writing, drawing and discussing, children were beginning to experience other ways of finding out about the war.

At the end of the afternoon work time, the game began. This activity, as did the after-lunch discussions, included both the upper elementary and lower elementary children. The first "round" of the three-day game was one of feeling out the situation and getting oriented. There was much confusion, a lot of wild

running around with no apparent purpose, but emotions were running high. Mr. Stanford chose 18 students who just happened to wear grey to school that day to be on the side of the south, and the remaining 35 children were on the side of the north. Students were either generals, soldiers, slaves or underground railroad workers. Essentially, the object of the game each day was to enact a battle among the soldiers, during which time underground railroad members would try to free slaves. This day's battle was the attack on Fort Sumter. Mr. Stanford reported to me that the students on the side of the south reacted very strongly to the "unfairness" of smaller numbers. His purpose was accomplished: he wanted them to feel what it is like to be outnumbered, to oppose people they already knew and felt close to, and to feel the confusion of being in a battle (Field Notes, 4/24/86).

The adult guidance during this game was quite different from the type that was previously offered during special events such as the field trip (see Chapter IV for a discussion of the adult guidance during the field trip). For example, while Mr. Stanford structured and paced the simulation and defined which side students would be on, the students had the opportunity to decide which role they would play in the game, and had quite a bit of latitude as to how involved they became in the game. Most participated enthusiastically, so there was little need for the kind of prodding Mr. and Mrs. Stanford had to do with the daily work. However, there were some exceptions, such as Ann, who said to me as she chose to stay inside and finish some of her work from her history folder instead of playing, "I'm glad. I don't even want to play the Civil War. I have a lot of papers to copy" (Field Notes 4/24/86). Notice that she had the option of choosing to stay inside, so that those who were outside playing the game were out there by choice. The excitement surrounding the game was so infectious that few exempted themselves, and most seemed to take on the

commitment seriously to do the best job they could for their side, as I will show in the description below.

The next day, Thursday, most students came to school with the appropriate color clothing (grey or blue). A parent told me that her son Jeremy was so excited about the game that he could not sleep, and that he talked about it almost constantly. He was on the side of the South, and had always thought he supported the North's cause. He now asked his parents, "Isn't there anything good about the South?" and explained to them his feelings of frustration and defeat at being part of the underdogs (Field Notes, 5/2/86). Steve, in contrast, was part of the North's group so his excitement and involvement in the game was on a cheerier note. He made sure the second day of the game that he wore blue, and explained to his younger brother that the war involved people fighting against each other, sometimes even "brother against brother" (Field Notes, 4/24/86). This is something that had been discussed the previous day at school. There was a low hum that morning among students as they entered school and conversed about the colors they were wearing. There was generally an atmosphere of anticipation, that the children came prepared to play the game that day, and were thinking about it first thing in the morning, despite the fact that it would not take place until late afternoon.

The Thursday after-lunch discussion centered around the slavery issue, and the secession of states. As was his usual habit whenever he saw an opportunity, Mr. Stanford related this event to something they might be familiar with, or something that is closer to the children's lives, "It'd be like Michigan now choosing to leave the United States 'cause we don't like what they're doing" (Videotape 4/24/86). Famous people different students may have read about previously were brought into the discussion, such as Clara Barton founding the

American branch of the Red Cross during this time. This discussion is an example of how divergent student knowledge of famous people and events (each one studying different topics within a time period) is brought together by some central focus of the group. The students are asked to contribute the factual knowledge they have learned about to help create a hierarchical structure (fit events within the chronological time frame) that starts with broad inclusive categories (each time period), and within those categories, showing how facts relate to one another. By Thursday, even though the format of the discussion was similar to the previous two days's format, there was more participation from the students (Videotape 4/24/86).

Before students went outside to continue the game, Mr. Stanford commented:

> I heard some grumbling yesterday about whose side they were on, who's in charge, and that's what happened during the war...I purposely set it up like this so it wouldn't be fair... I did tell General Lee that they need a plan, and now they're starting to think. The generals were better in the South... (Videotape 4/24/86)

Here Mr. Stanford shared with students his intentions for the way the game was orchestrated, something he did not typically do during activities. He seemed to want to increase students' awareness of their involvement in the game, and understand why events unfolded as they did. Before students went outside with members of their respective sides, they gathered the appropriate equipment they needed (e.g. flags, belts to indicate which side they were on). Thursday's game was the enactment of the Battle of Gettysburg while the slaves tried to make it across the Mason-Dixon line with help from members of the underground railroad (Field Notes, 4/25/86):

> There was much excitement, wild running all over the play area, and high-pitched screaming. As I watched, I was thinking that they

> certainly seemed to be enjoying themselves, but many children did not seem to know what was going on. However, I found out my assumptions were incorrect when after the game several children who were slaves (the ones I thought did not know what was happening) reported during the follow up discussion that they had been freed. What looked like random, wild running and screaming was purposeful motion accompanied by expressions of suspense over whether they would make it across the Mason-Dixon line in time to be freed. Meanwhile, the generals were on the hill "conferring" with one another, and trying to implement their planned strategies for carrying out the battle.

Jeremy's report to his mother was similar, that the first day he felt like he didn't know what was going on during the game, but as it progressed each day, he felt more and more like he understood the game, and his part in it (Field Notes, 5/2/86). Here were 54 children, given a set of guidelines to follow, and then "set free" on the playground to enact a battle according to rules that had been laid out. By the second day, they had taken it upon themselves to make sure they understood the game, to encourage one another, to get themselves organized, and to participate in a rather complicated set of rules for enacting a battle while the underground railroad operated. Basically, the adults stood by and watched the game unfold (Field Notes 4/25/86), which contrasts greatly with their involvement in making sure the checklist gets followed during the weekly research cycle.

The Friday after-lunch discussion focused on the end of the war (which corresponded with the events in the game that afternoon where the Battle of Gettysburg was to be completed). First was a review of the attack on Fort Sumter from Wednesday, where Mr. Stanford clarified that many soldiers stood around unsure of what to do, just as the students had done the first day (Field Notes 4/24/86). Here he was connecting the students' experiences with the historical information they were learning about. The students discussed the Gettysburg Address and the Emancipation Proclamation. A student posing as

Abraham Lincoln read the Gettysburg Address to the group. As she cautiously uttered the difficult vocabulary that she had worked on mastering, the audience was generally polite, although there was some squirming, fidgeting, and a few whispers. The group broke into applause when she finished. This ceremonious atmosphere during the reading and response marked that day as the last of the simulation game, which represented the end of the war. This reading was followed by Mr. Stanford reading a selection to the students about Abraham Lincoln and the Gettysburg Address, which was followed by a discussion of some of the vocabulary use, such as who "our fathers" are, and what "testing our nation" meant. In contrast to the level of adult guidance I saw on the playground each day, in the classroom, Mr. Stanford continued in his role of directing students' attention to certain pieces of information and how it fit with the chronological time frame within which he wanted them to comprehend the information.

Immediately before the students were to go outside to finish the Battle of Gettysburg and end the war, Mr. Stanford reviewed that this was the battle where Lee surrenders to Grant, and for today's game, they would follow this surrender with a celebration with no hard feelings. (Unlike the aftermath of the actual war, this classroom had to continue functioning immediately after the simulation as a class of students again.) The final day of the simulation was an organized, smoothly run operation (Field Notes, 4/26/86):

> The Northerners sang "When Johnny Comes Marching Home" in high spirits as they paraded outdoors, while the Southerners gathered around Jeff (General Lee) who had made a Confederate flag, and the group competed loudly with the North's song while they sang "Dixie" in high volume.
>
> This day's battle was quieter, and seemed even more organized than the second day. Students were systematically carrying out their plans, and less wild; there seemed to be less random excitement and more purposeful movement. Some

> students were directing others as to what to do and where to go, and those being directed were following directions carefully. An outsider who did not know what the activity was would at least know that the students were carrying out an activity they understood and were in charge of. Finally, the war was declared over, there were cheers and shouts, and each song was sung again with great vigor. Then the students played North/South baseball for the remainder of the afternoon.

In many respects, the Civil War simulation was more loosely framed than the reading, writing and drawing activities the students completed during weeks 1 and 2. While Mr. and Mrs. Stanford provided the resources and conditions for the game to take place, and defined the difficulty of the activity (by expecting the students to comprehend the events well enough to simulate them), the students largely had control over their own goals (the extent to which they would become involved in their group's efforts), and over the rewards they would receive (would they contribute to their group's cause). This was not an activity they could or were expected "check off" of their checklist. Instead, their participation was measured by their contribution to the group, and at times they were more severely sanctioned by members of their group for incorrect actions than they ever would be by their teachers. Mr. and Mrs. Stanford, in a sense, redefined their pedagogical relationship with the students in order to "set them free" to construct deeper understanding of the Civil War. As in the rest of the tour of historical knowledge in this classroom, it was the students' responsibility to take part and actively make sense of the experiences offered, but in this case, the nature of the experience had changed a great deal.

This change in activity structure provided an opportunity for students to structure their developing knowledge differently than with the previous activities. Students had the opportunity to go beyond a comprehension of how the events fit into a chronological framework, to see new relationships and form new propositional links among concepts and facts. This kind of mental structuring of

information is called "progressive differentiation" (Novak & Gowin, 1986). From their earlier reading, writing, drawing, and discussion activities, students had a basic knowledge of events in the Civil War, and of important figures in the War. They could draw on this knowledge to actually try to carry out the events they had read about or discussed. This would be a way for students to better understand and realize the difficulty of the struggles of the underground railroad member to free the slaves. Now they would (and did) feel what civil conflict and being outnumbered is like. Now they would (and did) experience the confusion of being in a battle and have the opportunity to uncover some of their impressions of what it is like to try to carry out a battle plan. They could feel the social pressure to contribute to their side's cause, and the obligation to deepen their own knowledge of specific facts or events, and understand their interconnection better (e.g., the efforts of the underground railroad not only occurred during the war, but were an important part of the war effort), so that they could contribute to their side's cause more effectively. There was a new intensity and purpose to their learning.

While there are contrasts in the kinds of learning opportunities that emerged from the research cycle compared to the simulation, there is a close tie between the two types of activities as well. The reading, writing, drawing and after-lunch discussion activities provided a knowledge base from which the students could draw in order to play the Civil War simulation. They needed the hierarchical structure they had begun to build, the understanding of how events fit in a chronology, and that certain events within a time period interrelate, in order to act on and simulate the battles. The two kinds of activities, one more structured and tightly framed than the other, were mutually supportive in that one built upon the other, and the more loosely framed activity provided an opportunity for students to interact with one another and their teacher differently

so that they could go beyond developing chronological knowledge and understanding with at least one major event.

The Invention Research Cycle

As I described in Chapter IV, week 3 of the research cycle was a "turning point" in several ways. Students were asked, for the research assignment that week, to describe and draw an invention instead of reading and writing about a historical topic. They had discussed several inventions they saw on the field trip to the Henry Ford Museum, and Mr. Stanford wanted them to try out their own inventive thinking. As indicated in Chapter IV, this week is characterized by a change in the expectations for writing (more detail), the drawing (more detail, from three views, counts as geometry and measurement work for the week), in the pace (students were allowed extensions in the deadlines typically enforced for the checklist), and a change in the nature and amount of discussions (extra discussions held, with lots more audience participation). When I took a closer look at how students interpreted the changes, I saw changes in their role as writers, and in the kinds of opportunities for knowledge development that were available, which I will describe below.

Since I have already described Steve's interpretations of the writing process during weeks 1 and 2, I will also describe his interpretation of the writing process during week 3 as a way to contrast his interpretations. When I interviewed Steve during week 3, he had already caught on to the requirements of what to include, and what he would get credit for:

> Steve: Right now we're doing it on our inventions. We're making inventions.
>
> Interviewer: Ok, and what should you include in your research on inventions?
>
> Steve: Um, the name, um, why it would be useful, how it works...Yeah,

> in geometry you have measurement, you have to draw your invention. (Student Interview, 4/30/86).

This week, Mr. Stanford commented to me that the routine had changed somewhat, since they were expecting greater detail in the drawings and in the written text before a final copy was made. This meant several students had rewritten their first draft once by the time Wednesday's due date for the rough draft came up. Steve's first draft that he put into the pocket on Monday was about two sentences long (Field Notes, 5/1/86), and his second draft is shown in Figure 21a (p.259). Note that he has answered the focus questions in his text: the name, how it works, and its use. As he talked over this draft with his teacher, Mr. Stanford refers to the increased detail he had asked for from the first draft, and still does not see in the second rough copy:

> Mr. Stanford: Ok, how, you still haven't answered my question from the other day, and that is, How is this any different? Right now they, the Army has heavily armored trucks that have weapons on them, and they are heavily, and they are ready for attack. So...how come yours is special?
>
> Steve: Well, have you ever seen a semi with um, a lot of weapons on it?
>
> Mr. Stanford: Uh huh.
>
> Steve: I haven't.
>
> Mr. Stanford: You haven't seen an army thing like that? Let's see, you are gonna take, you're taking like a big semi truck, rather than a tank kind of thing and you're gonna put all this on. Ok, you can draw something that looks different from a typical army truck...But it should be, it's gotta have some different stuff on it, 'cause I don't want it just to be an army truck. (Audiotape 5/1/86).

Unlike his previous conversations with Mr. Stanford about his rough drafts, Steve was not willing to go along with Mr. Stanford's ideas about changes as readily. He defended his idea, and insisted that his idea was a true invention and not just another version of something that already exists. He had developed

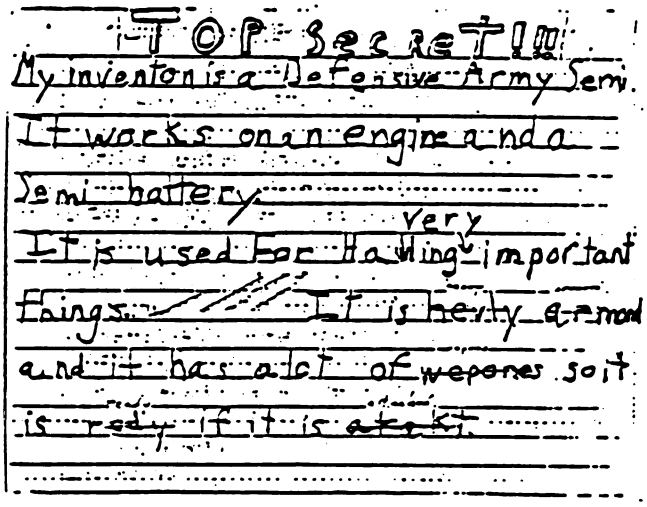


Figure 21a: Rough Copy

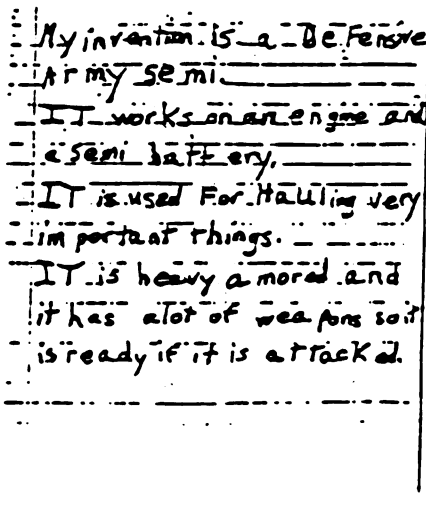


Figure 21b: Final Copy

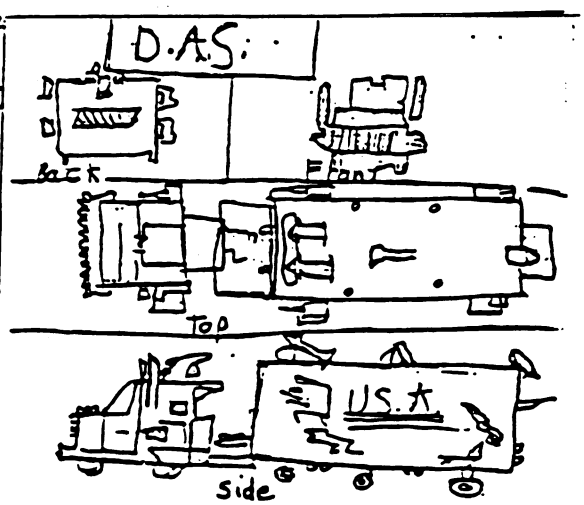


Figure 21c: Drawing

Figure 21: Steve's Invention Research

this idea with Carl and Anthony (students were allowed to work with others on their ideas), and felt committed to his concept. His role had changed from dutifully following Mr. Stanford's noted changes to deciding for himself what he thought was an acceptable finished product. He also had the aid of his drawing (shown in Figure 21c p.259) to help him discuss with Mr. Stanford what his ideas were. Usually, students draw after they get their rough copies corrected, so whatever ideas my be reflected in the drawing are not yet available to student and teacher to discuss. Instead of adding details to the text that convince Mr. Stanford of its inventiveness, Steve uses the drawing to insist on his idea, and to express the level of detail that is expected. He is willing to let Mr. Stanford have "quality control" over his text, but not over his actual idea for the invention, despite Mr. Stanford's insistence about what he does or doesn't want. Note that no changes other than corrections in spelling are made on Steve's final copy (see Figure 21b). Steve has also gotten Mr. Stanford to cross out the two questions he had written on the rough copy that they started their discussion with: "How is it different? What is it capable of?" The nature of this conversation contrasts greatly with the typical conversations I observed among students about their writing during week 2 (Field Notes, 4/24/86). This conversation, with Steve's defense of his idea with the aid of his drawing, was a real negotiation of what would be acceptable.

In addition to students taking on different roles in their learning, opportunities for knowledge development were different during the course of this week. The emphasis on chronology was diminished, and turned to an emphasis on inventive thinking. Students had viewed inventions on the field trip as finished products, but this work required thinking about what creating an invention really means. The after-lunch discussion on Monday to get the assignment started focused on what "inventive thinking" is, and what it takes for

an idea to be "unique; one of a kind" (Field Notes, 4/28/86). Different ways of thinking of new products were explored: reversing, designing, redesigning, finding new uses, improving. Students were asked to create ideas during the discussion, not just report back information they had read about. Therefore, this discussion and the follow-up assignment provided the opportunity for students to seek new relationships between and among sets of concepts or propositions. This generally involves coming to a deeper or new understanding of a familiar term or idea, or replacing an inaccurate or undeveloped notion with a more sophisticated one. This third level of thinking, called "integrative reconciliation," (Novak & Gowin, 1986) is more complicated than understanding hierarchical relationships (as in the work during weeks 1 and 2), or seeking progressive differentiation of ideas (as in the Civil War simulation). By opening up their routines, by restructuring the weekly research cycle substantively (in the kind of thinking required for the writing) and structurally (in the pacing, timing, and social organization), Mr. and Mrs. Stanford changed the nature of the learning opportunity for students.

As with the Civil War simulation, students drew on their knowledge they had developed in previous weeks, on their understanding of the place inventions have in their history and how they have changed their lives, in order to create ideas that fit the criteria of being "unique" or "one of a kind." There was a mutually supportive relationship between the kind of knowledge students developed in the earlier weeks, and the kind of knowledge they were attempting to develop in week 3. They needed a basic understanding of relationships in general before they could seek "new relationships" among sets of concepts or propositions.

Summary

These two special events, the Civil War simulation, and the Inventions research cycle, are examples of the shift in role relationships and opportunities for knowledge development that occurred as the framing loosened during the American history unit. In the final section below, I will describe what seems to me to be the kind of learning opportunities that can result from the cumulative effect of experience, as well as from the way the experiences are structured. That is, while there was a gradual opening up of the underlying learning activity structure, there was also a gradual accumulation of experiences for the students that gradually built up to an intense investigative process in the classroom. This accumulation of experience contributed to a different level of participation in the weekly routines, and an intense participation for some students in a totally voluntary activity, the genealogy activity.

The Investigative Process in Full Swing

Weeks 4 and 5 of the twelve-week American history unit, which were the last weeks of studying time periods before students began a two-week review, took on a character of their own that was different from the previous weeks. In this section, I will argue and illustrate that the changes in the role relationships and changes in the learning opportunities that took place during these two weeks connect with two factors: the changes in the underlying learning activity structure, and the nature of the general atmosphere in the classroom during these two weeks.

The 1900's Research Cycles

In Chapter IV I argued that during weeks 4 and 5 the nature of the research cycle changed. Students took on a different role relationship as they

participated in group reading with one another. For example, many students volunteered to read to a group of students, and also took responsibility for writing down for a group the rough copy as they composed together. This was the role the teachers previously took with first-year students. In addition, the nature of the subject matter for reading shifted slightly to include readings on general topics of interest that connect with students' daily lives (e.g., television, astronauts, airplanes) in addition to the usual types of readings they were used to (e.g., famous people, famous historical events). Due to the increased social interaction, the pace at which the research cycle occurred increased, with students finishing their rough copy research by Monday afternoon or Tuesday morning, instead of the previously established pace of finishing by Wednesday at noon. Moreover, the amount of reading students were doing increased dramatically, so that instead of reading a minimum number of selections, students were reading everything on the reading list. Mr. Stanford called this "spontaneous" participation that teachers cannot plan for in the summer as they forsee how their year will progress (Teacher Interview, 8/19/86).

I argued in Chapter IV that this change in students' roles as learners and the change in their intensity of participation can be attributed to the more open content and more loosely framed activities. Simply put, there were broader choices in reading topics, and increased opportunities for students to interact with one another about their reading and writing. An additional explanation is that these students carried with them a past history that contributed to their excitement and enthusiasm for studying this time period. First, they had played a Civil War simulation that had permeated their awareness for studying history during the entire week (week 2). As previously described, enthusiasm for this activity was even seen at home by parents. Second, they had just completed a week of research where they had created their own inventions, and students

were still bringing in inventions they had made at home on their own to show the class. For example, in addition to continuing their weekly routines, they were enjoying sharing with one another objects such as a "game bed," a "nose warmer" and a "sneeze catcher" (Field Notes, 5/2/86, Audiotape 5/5/86). In addition, many had worked together on their invention ideas, and therefore had helped one another through the research process in a way they had not previously had the chance to do. By the time the group reading was made possible during week 4, there was a feeling of togetherness, of joint participation and investigation, on which their interest in the 1900's could build. In short, the investigative process was already in "full swing," and now the opportunity for increased social interaction and joint investigation only contributed to the intense reading and active writing that took place. Students were benefiting from their past experiences and carried with them an enthusiasm for investigation that I did not see during my first few weeks of observing. This context of intense investigation accompanied the occurrence of the genealogy activity that was introduced on Friday of week 4 and carried over into week 5.

The Genealogy Activity

The genealogy activity was yet another opportunity for students to solve portions of the history puzzle, but in a different way than students had previously experienced. It was introduced on a Friday, and was a worksheet students could take home to do with their parents (see Figure 9, p.185). It consisted of listing ancestors from various categories, to try to help classmates discover their historical roots, what they have in common with other classmates, and how their ancestors may have contributed to history.

It turned out that members of the group had relations going all the way back to the American Indians, spanning on up to being related to George

Washington, and later Presidents. The way this activity was framed was that it was a study of "personal history" (Videotape 5/16/86). Mr. Stanford shared with the class his personal history as an example of how to fill in the genealogy worksheet.

As with many activities in this classroom, Mr. and Mrs. Stanford introduced it, but it evolved differently than they had expected:

> ...looking back on the exercise the better, the best thing that happened was when three or four kids sat down and actually were proud of something that they had written down there, and they shared it with another kid, and then somebody else came in with something else. It turned out to be more of a small group thing than a large group thing. I had envisioned it as being a large group thing, and their putting all the stuff together, and then looking at the comparison...but they weren't to that point. They weren't sophisticated enough to get there....but I think it was more, they were really proud and they were putting their kind of own contributions in... (Teacher Interview, 8/19/86)

What started out as a group activity evolved into an occasion for children to delve into their family's history to the extent they had the interest and the desire, and an occasion to share with interested classmates what they had learned. Instead of carrying out the organization Mr. Stanford had originally envisioned, he allowed the students' interest and participation to shape the way the activity turned out. Students, in this case, had a great deal more input into the nature of the activity than they had previously experienced.

I sat in on one of the half-hour (voluntary) sharing sessions, and once again, Mr. Stanford started by filling in his personal history on the large sheet of paper that was to be a collection of each student's contributions (Audiotape, 5/19/86):

> "This is my example...I'm gonna write mine down...This is one of them, and after it I'm gonna put my initials...Ok, have you got one, Carl? Ok, come over here and talk about it while you do it."

Then the students took turns volunteering names, starting by writing down surnames. They questioned whether there are similar names or duplicate names, and fired out names with such enthusiasm that Mr. Stanford had to maintain the pace so students would have time to write the names. They seemed to enjoy commenting on some of the unusual names, pronouncing some and saying them over and over again, and also discussed the countries from which the names originated. As they progressed on to first and middle names, there were spontaneous comments about some of the old fashioned names like Nellie ("Whoa Nellie!") and Joppa Luthor ("Joppa Luthor, I like that one."), Romeo ("Romeo and Juliet!"). Most took up Carl's suggestion to "Write something unusual," when they decided which name to write on the paper.

The discussion of places ancestors are from produced the most obvious differences: India, Ireland, Finland, Italy, Netherlands, Germany, France, Scotland, Prussia, England, Norway, Canada. They did find countries in common, such as seven out of the group of nine children all have some ancestors from England. Cities and states included places all over the United States, and other countries as well.

The children seemed especially proud of the famous people and events they could share, and had to be prodded to limit themselves to just telling about a few. The array is quite diverse and very interesting: one man came over on the Mayflower; another made the first chassis for the Model T for; another founded an astrolabe in Canada; a woman was a Irish pirates; a Scottish man was knighted; a family sold tar boats to get money for passage from Finland to the United States; one girl's relative ran for Governor, her grandpa drove a truck in World War II, the other grandpa was a pilot in World War II, and her grandmother was an American Indian; another girl's great great grandfather was in the Civil War, and she is related to George Washington; another girl is related to someone who signed the Declaration of Independence.

As they completed their turns around the circle, there was a burst of conversation, with everyone trying to add more details at once. Mr. Stanford announced that the large sheet of paper would be in the art area the rest of the week so they could continue to add names if they wanted. The group disbursed, while Carl remained to finish writing his contribution (Audiotape and Field Notes, 5/19/86).

Mr. and Mrs. Stanford reported that the art area is where some interesting conversations occurred among children over the remainder of the week, as they wrote down various names and explained what they were writing to each other

(Teacher Interview 8/19/86). Note that the students did not need or require the presence of one of the teachers to continue this discussion on their own, and took responsibility for following through on their own learning opportunity.

Steve was an active and enthusiastic participant in this activity (Field Notes 5/20/86):

> Steve returned from the weekend with his genealogy worksheet all filled in. Immediately upon his arrival he approached Mr. Stanford and started reading his list of facts to him (Field Notes, 5/19/86). His search for the information included a call to his grandmother, who said she couldn't recall all the information about his maternal grandfather's family, but she was sure Aunt Beth could tell more. During the genealogy group discussion, Steve volunteered, "I could call my Aunt Beth and get even more information!" (Audiotape 5/19/86). He went home from school that day and prodded his mother to find the slip of paper she had misplaced that would tell him more about his dad's side of the family. Instead of just completing the assignment, he wanted to extend it. The group discussion was a beginning part of his investigation, not an ending. When his mother found the list and sat down to discuss it with him and help him record the information, he kissed her excitedly. The paper was carefully placed in his lunch box in the refrigerator that night so he would not forget to take it to school the next day. That evening, he took out his lunch box twice to retrieve the paper and read over the information. Once again, when he arrived at school, he made a bee-line for Mr. Stanford to share his additional information . This activity held his interest and enthusiasm over several days, and it was a personal investigation he took very seriously.

This activity was the most loosely framed one I saw during the history unit. It was structured enough to introduce it to students, and after that, it was up to them as to whether they completed it, as to whether they attended any follow up group discussion, as to whether they took the time to write their contributions down on the large sheet that was meant to compare their information with others' information. Like the Civil War simulation, rewards came from within, or from a peer who recognized their contribution, not from being on schedule. Also like the simulation, the social interaction surrounding the activity, the group

discussion and individual discussions, contributed significantly to the rewards and significance for the students who participated, and to the momentum of the investigation.

I argued previously that the reading, writing and drawing activities provided opportunities for students to structure their knowledge about history chronologically. The Civil War simulation was an opportunity for students to "progressively differentiate" or deepen their knowledge of historical events. Like the Inventions research cycle, the genealogy activity was an opportunity for students to participate in the most complicated type of structuring activity, "integrative reconciliation," (Novak & Gowin, 1986) where new relationships are constructed between related sets of concepts or propositions. Students had the opportunity to investigate history from a personal viewpoint, to look across their own and others' generations, to look across various geographic areas to look at a variety of contributions, and relate their findings to their own heritage. They could try to understand the personal contributions to history their own family members might have made, or their classmates' family members. Yet they needed the chronological foundation built from the weekly research activities in order to make sense of this personal investigation. They needed and used the chronology and their feel for the nature of events during each time period as a way to make sense of the vast array of details that came out of the discussions during the genealogy activity, so that they were not just a series of random facts. For example, as Carl shared with the group that one of his relatives had made the first chassis for the Model T, his classmates could comprehend that this occurred during a time period of intense development and implementation of new ideas in the United States. They had a place to "put" this event in their minds, a time period to associate it with, and were not left with just interpreting it as an isolated fact. As with the mutually supportive relationship that arose out of

the weekly research activities and the Civil War simulation, there was a mutually supportive relationship between the weekly research activities and the genealogy activity. Without the foundation or chronological context that their historical knowledge and chronological understanding provided, the opportunity for the deeper, more complex understanding that arose out of the genealogy activity would not have been possible.

As with the participation level for the reading during weeks 4 and 5, the momentum that had been building during the previous four weeks greatly contributed to the enthusiastic, totally voluntary participation in this activity. Mr. Stanford had originally planned it as an activity that might catch some students' interest, but did not see it as an essential activity:

> Not everybody came through with it. It was a sent-home thing that, if a parent didn't want to sit down with them, and maybe it never even got home. But if they were interested, they came back with some things. The stuff we got back was fascinating. It was the way it was with a lot of stuff. It was not essential. You know, history is very difficult for young kids. It wasn't an essential part of what we were doing, but it was, for some kids, they could tie it in...and some kids just never made any connection, or they didn't take it home. They didn't connect the thing. (Teacher Interview 8/19/86)

These comments indicate that Mr. Stanford had not necessarily planned to get this type of response to the activity, nor did he expect that all students would or could participate. This fits with his overall expectations that everyone would get the chronological understanding of history on some level, but that it would take time before students progressed to deeper levels of understanding.

The nature of the activities in weeks 4 and 5, and the corresponding atmosphere for the investigative process both contributed to learning opportunities that allowed students to deepen their understanding of history in a way that contrasts sharply with the kind of learning opportunities that were available in weeks 1 and 2. Yet, as I have argued, there was a mutually

supportive relationship across the weeks, as students used the knowledge they had gained in the earlier weeks to try out different opportunities in the later weeks.

Summary

In this chapter I have described how students assigned meaning to learning activities in the American history unit, and have shown how their interpretations connect with changes in the underlying learning activity structure that were described in Chapter IV. I have shown how students' interpretations of their role, their rights and obligations, and the activities themselves shaped the nature of the learning opportunities. I argued that as the frame loosened in terms of teacher control over selection, organization, content, pacing and timing of subject matter content loosened, students' interpretations of activities changed, and different opportunities for knowledge development emerged. This analysis shows the complex interconnection between the academic and social worlds in the learning environment, and also illustrates a way of studying classroom life to learn about the complex interconnections between the academic and social aspects of the learning environment.

CHAPTER SIX
IMPLICATIONS FOR RESEARCH AND PEDAGOGY

Overview

The purpose of this chapter is to explore implications of this study for research and for pedagogy. In the first section, I explore the implications of obtaining a comprehensive view of the learning process for conducting research. This includes a discussion of what this study's findings suggest regarding four features of the learning process that require researchers' attention: (a) learning occurs across real time; (b) meaning develops gradually and cumulatively over time; (c) learning is interactive and social in nature; and (d) interaction between the individual and the learning environment changes over time. It is argued that if researchers intend to account for how individual learners construct meaning as they participate in learning activities, these four features must be considered in order to preserve for study the dynamic, changing nature of the learning process. Implications of using the pedagogical encounter (focusing on learning activities designed to teach subject matter content as they naturally occur in the classroom environment) as the unit of analysis are explored through a discussion of alternative ways researchers might document and analyze the learning process to build on and extend what was learned in this study.

In the second section, I discuss implications of a comprehensive view of the learning process for helping teachers reframe how they think about classroom learning, and for reframing curriculum questions. First,I discuss four areas experienced teachers could learn about from this study: (a) their assumptions about the learner and the teacher's corresponding role; (b) ways

to reframe thinking about experience in the learning environment; (c) ways to reframe views of subject matter; and (d) ways to reframe curriculum questions. I conclude with a discussion of the potential of using this study's findings to help novice teachers understand and reflect on classroom teaching and learning.

Research: Investigating How Students Come to Understand Subject Matter

In this section, I examine what the findings in this study suggest for researchers as they conduct research on the learning process, and explore ways in which further research can build on and extend what was learned from this study. First I describe four features of the learning process that researchers must pay attention to in order to account for how individual meaning comes about during the learning process. Second, I show how thinking about the learning process as embedded in multiple layers provides a way of exploring the interconnections between the academic and social aspects of the learning environment. Finally, I explore what using the pedagogical encounter as the unit of analysis reveals about the learning process, and suggest alternative ways researchers might document and analyze the learning process in order to improve and enrich the view one can get of the learning process as it occurs in the classroom context.

Key Features of the Learning Process

The findings from this study carry with them implications for what researchers need to pay attention to as they study the learning process. A review of the major findings of the study will serve as a means of teasing out

four features of the learning process that required my attention during the study. This study illustrates how the academic and social aspects of the learning environment during the American history unit shaped one another and how the interconnections between these aspects influenced the way teachers and students interpreted their role relationships. Moreover, changes in the underlying learning activity structure over the course of the American history unit shaped the way students interpreted activities, and subsequently changed their opportunities for knowledge development. That is, students progressed from opportunities to learn basic historical facts which they placed in a chronological framework to opportunities to deepen their understanding of history by seeking new relationships among facts and concepts. These changes in knowledge development opportunities arose out of changes in the underlying learning activity structure which "opened up" and became more variable and flexible in its constraints as the unit progressed. Embedded in these findings are four features of the learning process that needed to be considered if I was to account for how the changes in knowledge development opportunities came about: (a) learning occurs across real time; (b) meaning develops gradually and cumulatively over time; (c) learning is interactive and social in nature; and (d) interaction between the individual and the learning environment changes over time. In the discussion that follows, I will describe each of the four features and show how each feature is important to uncovering origins of or influences on meaning.

The first main feature that I needed to preserve in documenting and analyzing the learning process is that learning occurs across real time. This meant studying learning experiences during the American history unit in light of what they meant to the learner at the moment, or what they meant to the learner during the experience. At the same time, I needed to pay attention to how a

particular learning experience was located in chronological time for the learner, or where it was located in the overall context of the history unit. A central theme in this study is change: changes in the role relationships as interpreted by teachers and students; changes in the underlying learning activity structure; changes in students' interpretations of learning activities; and changes in opportunities for knowledge development. To interpret an activity as different, one must have something to compare it to, so that an essential element of identifying and accounting for change in the learning process is documenting a before, during and after view of a learning activity. In this way, one can begin to determine what is different or changed about a learning activity, and account for how or why the change has occurred.

A second and related feature of the learning process that I needed to pay attention to is that meaning develops gradually and cumulatively over time, not as a series of isolated moments, but as an interrelated set of experiences that shape one another. Each activity in the American history unit was a specific experience for the students, but at the same time, the students interpreted activities by drawing in some way on their prior knowledge of the subject matter, their prior skills in completing activities, and their growing and evolving understanding of similar learning activities in which they had previously participated. That is, as the unit progressed over time, I began to see how students drew upon their interpretations of what it meant to complete a particular type of activity such as the research report. They approached each research report based on the way they had previously organized subject matter knowledge in their previous written reports, and based on their previous interpretations of and experiences with what "doing research" as a learning activity entailed. The gradual changes in the underlying learning activity

structure I discovered were intricately related to the cumulative nature of the learning activities over time.

A third feature of the learning process that was important to the findings in this study is its interactive and social nature. It became obvious as I interviewed students that they actively intrepreted learning activities, rather than simply "receiving" knowledge from them. Moreover, their interpretations of the activities shaped the way they focused on subject matter knowledge as they completed activities, so that changes in their interpretations of activities created changes in their opportunities to structure their knowledge. A second aspect of the interactive nature of the learning process is that while learners make sense individually, they do so (particularly in school) in a social context, and that context influences what and how they learn. For example, as students interpreted the research report writing activity, they included in their interpretations the role they thought they and their teachers were expected to play in completing the activity. As the example of Steve's interpretations showed, the behavior and discourse patterns that surrounded his weekly interchanges with his teachers shaped his view of the extent to which he was responsible for the quality of his writing. That is, his individual sense making was filtered through the social interaction that surrounded the activity. Without attention to the interactive and social nature of the learning process, researchers cannot uncover the origins of individuals' interpretations.

A fourth and final feature of the learning process that I needed to take into account is that the interaction between the individual and the learning environment changes over time, and therefore learners' interpretations of their experiences also change over time. Two types of changes in particular are important to consider. First, learning activities can change over time in several ways. Examples of changes documented (in Chapter IV) in this study were:

changes in the way subject matter was organized and represented through activities; variations in the level and amount of social interaction surrounding activities; changes in the expectations or rewards for completing activities; variation in the nature of the materials or resources for activities; and changes in the purpose for completing the activity. Examples of consequences of these changes documented in this study (in Chapter V) were changes in the way students interpreted learning activities (e.g., different intentions regarding goals or commitment level, different interpretations of role relationships), and corresponding changes in their opportunities to understand subject matter knowledge. A second type of change in the interaction between the individual and the learning environment that is important to consider is changes in the subject matter itself. This study illustrates how changes in the way subject matter was organized as represented through learning activities (e.g., going from a hierarchical organization in the research writing to a more integrated organization through the Civil War simulation) stimulated different approaches to the way students completed activities, and correspondingly provided different opportunities for students to structure their knowledge. This feature of the learning process, that the interaction between the individual and the learning environment changes over time, encompasses the previous three features of the learning process described above. This study has illustrates that each feature influences and shapes the others: that learning takes place over real time; that meaning develops gradually and cumulatively over time; and that the learning process is interactive and social in nature.

In summary, the findings in this study indicate that the learning process is dynamic, and changing. Further, its component parts such as the learners (including their prior knowledge and experience), the learners' interpretations of activities and subject matter, interaction patterns, classroom routines, learning

activities, use of materials, and subject matter as represented through learning activities are dynamic, changing entities as well. These characteristics suggest that the task for the researcher who wishes to describe, understand and account for how learners construct meaning in the learning environment is to capture the process as closely as possible in its dynamic, ever-changing form so as to preserve its features for closer study and analysis.

In addition to the features of learning as a process as described above, the findings in this study suggest that the environment in which the process takes place contains multiple layers that the researcher must take into consideration when studying how students interpret learning activities. I now turn to a discussion of how consideration of the various layers of the learning environment provides a way for researchers to explore and account for the interconnections between the academic and social aspects of the learning environment. I argue that including the social as well as academic aspects of the learning is essential to understanding the learning process.

A Story of Learning with Multiple Layers

Understanding subject matter learning in the classroom requires focusing on it from several different viewpoints in order to see how various factors in the learning environment interconnect for students as they construct meaning. It is common among researchers to argue for studying learning in its natural setting in order to capture the nature of the learning process accurately, but often this is interpreted as viewing the social context as an adjunct category that "mediates" the way the learner engages in learning the curriculum. That is, the social ecology of the classroom, including its process and structure, is not seen as something that is jointly constructed by teachers and students as they

work together in the classroom. Instead, it is seen as a unidirectional influence, created by the teacher (as input), and interpreted by the student (as output). In contrast, the research approach that I took in this study suggests that there are multiple layers to the general term "the learning context," and that those multiple layers must be considered as part of the medium and the message if one is to more fully understand learning in action (Erickson, 1982b; 1986b). The model used in this study to think about the learning process has three nested layers (see Figure 1, p.44). One layer is the underlying learning activity structure that constitutes the students' opportunities to gain access to information, and opportunities to display knowledge. A second layer is the enacted learning activity environment, which includes the materials, lessons as enacted, representation of subject matter knowledge, and the social relations surrounding the enactment. A third layer is the mental and emotional lives of the teachers and students, which includes cognition, personality, interests, and attributions (Erickson, 1982b). While this third layer is the most prominent in a study about learning, it must be viewed and interpreted in light of its close interconnection with the other two layers. Moreover, within each layer, there are social and academic features that are mutually constitutive and that reciprocally shape one another. Therefore, these multiple layers encompass the close interconnection between academic and social aspects of the learning process, and reflexively shape one another.

The means by which I uncovered the interconnection among the multiple layers and the interconnection between the academic and social aspects within and between layers is by taking a narrative approach to understanding classroom life (Erickson, 1986b; Nespor, in press; Connelly & Clandinin, 1985). The approach taken in this study is narrative in the sense that the description provides a detailed account of classroom events as they unfolded in their

natural context, and provides views of events from the students' and the teachers' perspectives. Narrative description of classroom events preserves the chronological and real-time features of the learning process, and provides access to multiple viewpoints. This form of writing about classroom life allows the researcher to step back from the immediacy and complexity of events as they naturally occur, and systematically explore sources of meaning for students and teachers in the classroom. That is, documenting, examining, and writing a narrative account of how students interpreted learning activities to understand subject matter knowledge about American history over several weeks time as it was situated in the underlying learning activity structure and enacted learning environment afforded several opportunities. I was able to explore the interconnections across levels to find out about the way the underlying activity structure shaped the students' approaches to activities and the way they made sense of the purpose and function of activities. At the same time, I was able to explore the way the structure of the activities shaped the students' opportunities to understand subject matter knowledge. In addition, it was possible to examine underlying influences (e.g., teachers' beliefs about student development, about teacher's role, about past experience, and about subject matter knowledge) that shape the way activities are designed and enacted. In turn, I explored how these influences had emerged from previous experiences on which teachers reflected retrospectively after activities had been carried out. In the next section I will discuss in greater detail alternative ways one might use this model to build on and improve the view of the learning process provided in this study.

Embedded in this narrative of students' learning about American history were opportunities to examine closely the interconnection among the academic and social aspects of the learning process within these multiple layers. For

example, topic choice in the research project was not a straightforward task of students choosing what interested them. Rather, it was a complex process that involved what materials were available, what deadlines had to be met, what students' friends were doing at the time, what personal or previous experience learners had with topics, in addition to what learners' interests were. Moreover, what students paid attention to as they read, wrote and drew about a historical event was shaped by the way the task was structured (i.e. the focus questions) as well as how the students interpreted what it meant to successfully complete the task as it fit within the reward structure in the classroom. For some, being "on schedule" was interpreted as more important than using the opportunity the teachers intended to provide for children to explore areas of interest. In other words, the overall guidelines and framework for writing that the teachers provided were interpreted by some as a concrete plan that was to be followed explicitly. A final example of the close connection between the academic and social aspects of the learning process is when the teachers provided special events or activities that fell outside of the weekly work cycle framework (e.g., the Civil War simulation, the genealogy activity). As the "tight frame" loosened (e.g., the nature of teacher control over selection, timing, pacing, and organization of knowledge changed), different opportunities for students to structure their knowledge emerged. Students had opportunities to broaden their understanding of subject matter from seeking hierarchical connections to seeking connections that could deepen their understanding of how concepts might interconnect.

In this study I showed how an adaptation of Erickson's (1982b) model of the levels of organization in the immediate learning environment can help researchers describe and understand how academic and social aspects of the learning process shape meaning. The description of students' interpretations of

learning activities in this study underscore's Erickson's assertion that social context is more central to the learning process than simply being an adjunct category that mediates student learning. Rather, this study shows that it is an integral part of students' interpretations of learning activities, and therefore is an important aspect of the learning environment for researchers to consider. In the following section I discuss the use of the pedagogical encounter as the unit of analysis in this study, and describe ways in which researchers might build on this work.

The Potential of the Pedagogical Encounter as a Unit of Analysis

The findings in this study illustrate the potential for using the pedagogical encounter as a unit of analysis as a way of studying the learning process in its dynamic form. That is, it provides a way of studying products of learning in relation to the part they play in the learning process. Moreover, instead of studying surface features of learning, dynamic relationships are in focus. In addition, the focus is not simply on behaviors as end results, but on discovering the origins of behaviors. Therefore, researchers have a greater chance of explaining how learning occurs rather than being limited to studying end products. This kind of explanation of the learning process has greater potential for identifying problems related to classroom teaching and learning that may be of interest to researchers and classroom teachers. In addition, understanding how various factors shape the learning process holds potential for increasing the knowledge base of the teaching profession that is grounded in actual classroom practice. Finally, descriptions and explanations of classroom processes can help generate promising solutions to problems related to teaching and learning.

In this section I consider the complexity of using the pedagogical encounter as a unit of analysis. Specifically, I review choices I made about which aspects of the learning process to focus on for this study. I suggest five issues that emerge for researchers to consider as they document and analyze the learning process to build on and extend what was learned in this study: (a) balancing the focus on the individual versus the group; (b) balancing the focus on interpretations of activities versus interpretations of subject matter content; (c) defining the subject matter content to be studied; (d) balancing the focus on the mental lives of teachers versus students; and (e) defining the context in which the pedagogical encounter will be studied.

Balancing the Focus on the Individual Versus the Group

One issue I struggled with as I collected data, carried out my analysis, and wrote the research report was the tension between focusing on the individual learner versus the group. As I stated in Chapter III, I wanted to provide a view of meaning from the learner's viewpoint, but I also believed that the account of how meaning evolved would be incomplete if I left out information about the overall learning context. The choice I made was to collect as much as I could about both individuals and the group so that I could place individuals' interpretations of activities within an overall context, particularly noting the nature of the social interaction surrounding learning activities. Since I had interviewed nine students, I tried to focus on those students' individual progress as they completed learning activities. By making this choice, I sacrificed consistently detailed information about individual students' progress. That is, since there were times when I focused my attention on the group and how several individuals approached their work, at those moments I lost

opportunities to continue my focus on certain individuals. (When I discuss the second tension below, I will discuss more specifically what was lost by making this choice.) An alternative choice in the research design might be to focus quite specifically on one or two students (with more of a case study focus). This option would still preserve the dynamic nature of learning as long as the researcher made sure to document significant amounts of social interaction surrounding these individuals' work. The tension of how to maintain the balance between the focus on the individual and the group would still be present. The implication is that there are different choices researchers can make about how to made the balance work. In the section below I discuss issues researchers must consider regarding how they focus on the individual learner.

Interpretations of Activities Versus Subject Matter Content

A second issue that continued to come up in my research activities was the extent to which I was able to focus on how students interpreted activities versus how they interpreted subject matter knowledge. As my data collection progressed, I came to realize that without an understanding of how students interpreted activities, I would be unable to account for how their understanding of subject matter came about. Therefore, I made the choice to focus on how students interpreted activities, and limited my treatment of subject matter understanding to how students' interpretations of activities served as a "filter" for the kind of knowledge they sought and the opportunities that were available for them to structure their knowledge. An alternative way to approach balancing this tension is to focus on both kinds of interpretations. That is, researchers could build on the approach I used and focus on how students interpret

activities, and go beyond that to also document and analyze students' evolving conceptions of subject matter during the course of the unit. This course of action would probably require choosing to focus more specifically on a few individual students (an alternative way of approaching the first tension discussed above), and would also require collecting more data at the start of the unit on individuals' prior knowledge of and experience with the subject matter, and prior knowledge and experience with approaching learning activities. How the researcher resolves this question also relates to how subject matter is defined, the subject of the next section.

Defining Subject Matter Content

A third issue in this study centered around the tension of whether to focus on students learning to write versus students learning American history. In other words, it involved making a choice as to how to define subject matter, and what subject matter would be the focus of the study. As I collected data, and began my ongoing analysis, I discovered that writing was a means to learn history, and decided to make history figure and writing ground for the purposes of defining subject matter. However, even though I selected this focus, I learned a great deal about students' evolving conceptions of the writing process in addition to learning about how students interpreted several kinds of activities to learn American history. In addition, there were important connections between how students interpreted the writing process and subsequently how they focused on subject matter content. The point to be made here is that as researchers make decisions about the subject matter on which they will focus as they study the pedagogical encounter, they need to be open to documenting and understanding interconnections across subject matter domains. What may

appear to be a case of studying learning in one subject matter domain may turn out to be a study of how subject matters intersect as meaning evolves. The way subject matter is viewed and defined also includes the way the teacher views the teaching and learning situation, which I discuss below as another issue for the researcher to consider in studying the pedagogical encounter.

A Focus on the Mental Lives of Teachers Versus Students

In addition to alternative ways of focusing on the pedagogical encounter that stem from balancing the three tensions I have described above, there is another other aspect of the learning environment that might play a more prominent role in the researcher's exploration of the learning process in future studies. A central figure in the learning process is the teacher. As students interpret activities, they make sense of them in light of how they understand their role relationship with the teacher. While the focus of this study was on the learners' interpretations of activities, as part of studying the learning process from the students' viewpoints, I learned a great deal about the teachers' mental lives (see Figure 1, level III, p. 44) as well. The descriptive information in this study about the teachers' goals, beliefs, assumptions, and interpretations of learning activities suggests that the pedagogical encounter is a potentially fruitful unit of analysis for studying teachers' practices as well. For example, interconnections among the teachers' understandings of history, their ways of representing history through learning activities, and how students' interpretations of activities and American history evolved could be explored. These areas include how teachers' views and their classroom practices fit in with the broader contexts of the school, and the daily lives of students and teachers. This final issue will be discussed the the following section.

Defining the Context in Which the Pedagogical Encounter Takes Place

A fifth aspect of the pedagogical encounter that researchers could explore is its interconnection with the broader contexts in which it takes place. The context in which I explored the pedagogical encounter was the immediate learning environment, with some attention to how it was situated within a broader context (see Figure 2, p.70). It is also possible to study the pedagogical encounter with greater emphasis and focus on how it relates to the overall school year (See Figure 2c, p.70), the three-year curriculum (see Figure 2d, p.70) which encompasses institutional norms, or the students' and teachers' daily lives (see Figure 2e, p.70) which encompasses societal norms. While some reference was made to these contexts in this study, a more systematic consideration of them could reveal a more comprehensive picture of origins of meanings that students construct. Moreover, investigation of this interrelationship not only provides descriptive information about the learning process, but about how broader contexts shape the process.

Summary

In sum, the decisions that I made regarding ways to focus my documentation, analysis, and description in this study provide a starting point for alternate approaches researchers could take to using the pedagogical encounter as a unit of analysis. The alternative approaches suggested here are intended to stimulate discussion regarding ways in which the adapted model for studying the learning process (see Figure 1, p.44) might be further elaborated,

or might be implemented with a different configuration of aspects that receive the researcher's attention.

Along with showing the rich potential using the pedagogical encounter as a unit of analysis holds, this study has demonstrated that it is possible to provide a comprehensive view of how learners interpret a dynamic, changing curriculum by intensively studying a relatively short time block in the classroom (seven weeks). By seeking data from multiple sources and analyzing it as it is embedded in multiple layers, a small slice of classroom life provides a way for researchers to document how participants interpret learning activities, as well as providing a way for researchers to describe the interconnection between social and academic aspects of classroom life and to account for how the meaning students construct comes about. As researchers look to practice, to what teachers do in their classrooms, to seek and find answers to important questions about teaching and learning, teachers can also learn from research ways to understand, improve, and ask questions about their own practice. In the section that follows, I consider how the approach to viewing classroom life, and the findings in this study can contribute toward those endeavors.

Pedagogy: What Teachers Might Learn from Understanding the Learning Process

Teachers not only have the challenge of teaching students subject matter, but they also have the challenge of understanding the learning process in order to assess student learning and improve their own practice. In this section, I argue that the view of learning obtained from a comprehensive description of the learning process can be helpful to experienced teachers in

better understanding the learning process, and in thinking about ways to improve their practice. Specifically, I discuss four areas in which this approach to describing the learning process might help teachers reframe ways they view and evaluate the learning process. These four areas include: their own assumptions about the learner and teacher's role; their views of experience in the classroom; their views of subject matter knowledge; and their views of curriculum questions. Second, I discuss the potential of this view of classroom life for helping novice teachers understand the teaching and learning process.

Reframing Classroom Experience

Researchers have shown that experienced teachers think about teaching in terms of activities, and as they plan, they operate on an image of how they think the activity should progress (Parker & Gehrke, 1986; Yinger, 1979; Morine-Dershimer, 1979; Clandinin, 1986). Beginning with the same starting point, the activity, the approach to studying the learning process taken in this study provides a way to reframe classroom experiences, and holds the potential for experienced teachers to see more as they reflect on these experiences. As teachers create or select learning activities for students, there are several influences on the way they conceive of curriculum: (a) their view of the learner and their corresponding role as teacher; (b) their views of students' past experiences in the academic and social learning environment; and (c) the nature of the subject matter they are teaching. Narrative accounts of classroom learning as they are embedded in multiple layers of context allow teachers to examine these areas more closely. Opportunities to study interconnections among the layers of context and between the academic and social factors in the learning process as they occur in others' classrooms (e.g., the classroom in this

study) can help classroom teachers reframe the way they view the learning process in their own classrooms. This view of the learning process can help them ask questions and seek answers that will enhance their understanding of their own students' learning. In the sections that follow, I will illustrate four ways in which experienced teachers can reframe the way they view the learning process for the purposes of understanding and improving their own practice.

Assumptions about the Learner and the Teacher's Role

The teachers in this study had well defined learning goals for their students (as discussed in the section on The School's Stated Curriculum in Chapter III), based on assumptions about the learner and the teacher's and student's role in the learning process. That is, they believed that learners need "freedom within limitations" (Teacher Interview, 8/19/86) in order to learn, and that learners need the opportunity to take responsibility for themselves as learners so that they can have access to a wide range of knowledge through various learning activities and can pace their own learning. In addition, they viewed learners as individuals who must interact with subject matter in order to comprehend it (Teacher Interview 4/28/86). Accordingly, they defined their own roles as being facilitators of learning, and as needing to provide the appropriate resources, activities, and guidance for students to complete the activities. As illustrated in this study, these teachers created a complex learning environment in which students used a checklist to help them pace much of the academic work they did in the classroom, and built into the weekly routines ways to guide the students' work (e.g., focus questions for reading and writing research, and a correction process for editing and revising the rough draft of their research). By looking closely at the interconnection between the guidance provided to

students and how the students interpreted the guidance over time (e.g., the "delicate balance" maintained with the use of the checklist, and how students interpreted their purpose for doing research), this study provides opportunities for these teachers to examine the role relationships that actually developed out of the learning environment that was created, and to examine whether the learning environment that was created is consistent with their chosen view of the learner (Bruner, 1986). This type of examination goes beyond simply deciding if what was taught was learned. Instead, it provides a view of the learning process as it occurs over time, so that the cumulative nature of learning is included. It therefore provides access to understanding of various factors that might affect the understanding of subject matter students develop. This type of view of the learning process as dynamic and changing provides a way for teachers to define, assess and solve problems (such as the way the use of the checklist evolved) with which they find themselves struggling.

Reframing Views of Experience in the Learning Environment

The cumulative nature of the learning process is an important theme in this study. It was shown, for example, that as students repeatedly participated in the research cycle, and as they repeatedly used the steps for completing research, they developed a view of their purpose for writing about history as one of finding factual knowledge and telling about it. The patterns students were to follow (e.g., answering the same set of focus questions, and following the same correction procedures each week) were intended to be overall guidelines they were to internalize and apply in a general way to the reading and writing process (e.g., when one writes, one narrows the focus from all the information that was read about to focusing on a smaller subset of ideas).

Instead, students interpreted the patterns as specific steps to follow (e.g., when one writes in this classroom, one answers three specific questions about the reading) which filtered how they interacted with subject matter knowledge in a way that may not have been intended. This study provides the opportunity to explore how various factors contribute to the students' developing interpretations of the activities, and to examine how students' cumulative experiences in the learning environment potentially impact their knowledge development over time. Likewise, the view of the learning process obtained from this study provides a way for teachers to examine the relationship between how students interpret and achieve short term and long term goals. For example, as the students completed the writing activity in a satisfactory manner (and reached a short term goal), they also were gradually organizing their knowledge of American history (a long term goal). The extent to which the writing activity (the short term goal) appropriately helped the students reach the long term goal is made visible to the teachers through this study of the learning process, and thereby allows them to interpret the students' experience differently (in a cumulative way) than they might see it by just looking at the research reports.

Reframing Views of Subject Matter

How teachers represent subject matter to students through the ways they structure activities can have important consequences for what students learn (Doyle, 1985). Mr. Stanford developed his curriculum for learning American history out of what he perceived to be a "limit" students have of not having an overall understanding or framework for interpreting historical events he wanted them to learn about. Therefore, he used as an overall framework a

chronological approach to teaching history, and tried to help students learn how to place historical events and figures within four time periods. The weekly research activities (reading, writing, drawing) were the means by which students were to learn about historical events and begin to associate different events within time periods. This study illustrates how different kinds of structures for activities (e.g., the extent to which activities are tightly framed in terms of selection, organization, pacing, and timing of knowledge transmitted) allowed for different kinds of knowledge development. Teachers typically structure activities for students in ways that enable the students to complete a finished product (e.g., follow these steps as you write). Yet how teachers structure activities (e.g., the writing activity in the research project) is intricately connected with how knowledge is represented to students (e.g., it encourages students to hierarchically structure the knowledge), and therefore impacts the nature of the opportunities that are offered for students to structure knowledge. Therefore, this view of the learning process allows teachers to look at the relationship among the way they structure learning activities, the way students interpret those activities to focus on subject matter, and the opportunities for knowledge development that evolve.

Another important factor in how activities are structured is to consider how knowledge is organized across different types of activities. For example, the mutually supportive relationship that developed between the weekly activities (where students developed a knowledge base) and the special events (where students had the opportunity to apply the basic knowledge and understanding they had developed) was an important condition for providing different opportunities for students to deepen their understanding of American history beyond a chronological understanding. Understanding the kinds of opportunities they provided for students to structure their knowledge could

influence how Mr. and Mrs. Stanford go about evaluating students' written work and participation levels in activities. Without this understanding, these teachers could miss or overlook potential sources of information about student understanding.

This view of the learning process also provides opportunities for teachers to reframe the way they see the relationships among subject areas in their classroom, and the way they represent subject matter to students. Teachers often create activities that require multiple modes of learning (e.g., read, write, draw, discuss) as different subjects are learned. Choices teachers make about which activities "count" in the credit economy in the classroom (Doyle, 1979) could be better informed if teachers understood more about the way work in different subject areas interconnects. For example, in this study, many students interpreted completing the weekly routines (the activities on the checklist) as a goal in itself, instead of as a means to learning goals as Mr. and Mrs. Stanford intended. The teachers had the benefit of creating and seeing the overall picture for learning toward which the checklist activities were a means. In contrast, the students, without this overall picture, interpreted their experiences as individual activities to be checked off on a checklist. The kind of information provided in this study about how students interpret a series of learning activities that the teacher intends to cumulatively contribute to an overall learning goal could be useful to teachers in thinking about what kind of overall view of the learning process they communicate to students.

Reframing Curriculum Questions

Recent research in the area of curriculum has been influenced by a constructivist view of the learner. That is, "curriculum" is more than what is

intended by the teacher, but is also a dynamic and fluid process that is negotiated in the classroom by people who actively make sense of the world around them (e.g., Doyle, 1985; Nespor, 1985 and in press; Barnes, 1979; Rowland, 1986). Recognition of this complexity does not make evaluation of curriculum or of student learning any easier for the classroom teacher.

The models for thinking about how the learning environment is organized on three levels (see Figure 1, p. 44) and for analyzing data to understand interconnections among the three levels (see Figure 3, p.93) hold promise for alternative ways to view and evaluate learning. The most common way to document whether learning has occurred is to look at finished products (e.g., written assignments and tests). The approach used in this study provides alternative sources of information for teachers that not only tell more fully how students understand subject matter, but provides sources of information for accounting for how the understanding comes about. For example, the learning activity that requires the student to produce the finished product is viewed as it is embedded in the specific moment it occurs, as well as seeing it as it is located in time during the course of a unit of study or during the school year. This comprehensive, grounded view of the learning process provides ways for teachers to take into consideration the cumulative nature of learning, as well as the origins of the students' current interpretations of learning activities and subject matter knowledge. Therefore, what might be considered a successful product created by a student (and therefore a successful activity) at one point in time might be viewed differently at a later point in time, depending on the extent to which the student's interpretations of subject matter in each instance was appropriate. Part of how a teacher might make the judgement as to what is appropriate is by looking at the extent to which the student made use of or drew upon prior knowledge and experience from earlier activities. This implies that

an activity or learning experience can be judged on its own merits, but also can be judged by its overall contribution over time.

Summary

In summary, while the classroom that was focused on for this study appears to be different in many aspects from the "typical" classroom (e.g., open classroom format, integration of subject areas, private school), there is much to be learned from this study that applies to how one might approach thinking about and improving teaching and learning in any classroom setting. The issues highlighted here are similar to those most classroom teachers face, even though some of the specific details surrounding the issues may be particular to the setting studied. For example, an important issue for all teachers to consider is the relationship between the learning environment they and their students mutually create in their classrooms and how the environment fits with their view of how learning occurs. That is, teachers need ways of thinking about the extent to which their practices are consistent with their assumptions and beliefs, and this study provides ways of looking at and understanding classroom life to address that issue. Likewise, all teachers must be concerned with the relationship between reaching long term and short term goals for knowledge development and the extent to which the two types of goals complement each other. This study provides ways for teachers to consider learning activities from the dual viewpoints of the immediate moment and the overall chronological context in which the activities take place. Other issues raised in this study such as how the structure of learning activities shapes the way students focus on knowledge, or how subject matter areas interrelate for optimal learning, are central to finding ways to improve practice. The way of understanding

classroom life shown in this particular case can be applied to understanding such issues in other classrooms as well. Therefore, the findings in this study regarding how one thinks about the learning process, the questions one might ask, and the ways one might go about looking in the classroom to seek answers to questions can be applied to any classroom where students learn subject matter in a social context. With this comprehensive view of the learning process, experienced teachers have access to multiple aspects of the learning process and how they interconnect. This view holds the potential to enable them to figure out what to change or improve in the learning process to enhance student learning. By asking questions and seeking answers to how academic and social realms interconnect and how the connections evolve over time, there is a better chance of knowing what to keep, change, alter, improve or question about classroom practices to improve student understanding of subject matter (Sarason, 1982).

Conceptual Tools for Teaching Novices About Classroom Life

A difficulty in teaching novice teachers concepts related to teaching and learning is to provide appropriate examples that will enhance rather than confuse their understanding of classroom life. There is currently a trend in teacher preparation programs toward providing more field experiences for novice teachers so that they have a context in which to try out or see in action the ideas and concepts they learn about in their teacher education course work. Yet classrooms are busy, complex, and sometimes even confusing places where the press of daily occurrences tends to obscure one's vision of how immediate actions contribute to overall goals. The view of classroom teaching and learning provided in this study holds the potential for helping novices

develop a framework for understanding and analyzing the learning process as they participate in classroom life (e.g., through field assignments) and as they study examples of classroom life (e.g., through reading studies of classroom life).

For the purposes of discussing the classroom as a learning environment, teacher education courses tend to organize concepts and principles into categories such as learning, instruction, curriculum, and classroom management. Yet in the actual learning environment, these categories are intricately interwoven. The detailed description in this study of interaction and change during a substantial unit of curriculum (seven weeks of an American history unit) can provide a concrete and visualizable framework for organizing the discrete and abstract concepts and principles that are grouped around teacher education categories. For example, as novice teachers attempt to understand and visualize the learning process as an interactive, social process that cumulatively develops across time, the description of classroom life provided in this study provides a vivid illustration of the cumulative nature of teaching and learning over the course of seven weeks. Furthermore, examination of written details of this type of case of teaching and learning, where one's attention can be selective and intensive, provides an opportunity for the novice teacher to study the learning process in a way that preserves the real time quality that is so important to fully understanding and appreciating the complexity of the process. For example, the novice teacher can go beyond seeing teaching as a series of lessons as isolated units or as a means-end in itself, to examining the teaching and learning experience in light of how it fits with the academic and social lives of the teachers and students. In addition, the prospective teacher can gradually learn to see more in classrooms during their field experiences, and learn to look for and reflect on the interconnections

among classroom activities, the underlying social structure in which they take place, and the way students and teachers interpret classroom experiences. For example, what may go unnoticed in classroom visits because of the fast-paced action in a complex environment can be examined closely by studying a written description that makes visible the many complex factors that shape meaning. Thus, the written description can be used by the novice to "practice" seeing and understanding aspects of classroom life, so that he or she can gradually become more adept at seeing and understanding the complexities of classrooms during field visits and eventual classroom teaching.

Summary

Implications of this study for research and pedagogy have been explored. I reviewed four features of the learning process that require researchers' attention in order to provide a comprehensive description of the learning process as dynamic and changing. I explored alternative ways researches might focus on aspects of the pedagogical encounter to build on and extend what was learned about the learning process in this study. Next, I discussed four ways this study might help experienced teachers reframe their views of their practice, including new ways of viewing the teacher's and learner's role, new ways of thinking about experience in the learning environment, ways to reframe views of subject matter, and ways to reframe curriculum questions. I concluded with a discussion of how the view of the learning process provided in this study could help novices understand principles of teaching and learning, and help them learn more from their field experiences. A theme throughout the chapter is the notion that the portrait of classroom life provided in this study can only come from taking a close look at

the teaching and learning process in its natural context, and that a detailed narrative of change in the learning process over time can help both researchers and teachers improve their understanding of the teaching and learning process.

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APPENDICES

APPENDIX A: TEACHER INTERVIEW QUESTIONS

Teacher Interview #1

I have a general overview of your research goals. Let's discuss the current series of research on History.

1. What are your goals for this research work (past 3 weeks)?

   a. To what extent do you think kids are aware of those goals?

   b. To what extent do you think they can be aware of them?

2. Let's review all the tasks related to research...

   What is the specific purpose of each task?

3. What do you think are the teaching/learning opportunities incorporated into the research process?

   What parts of the process do you like? What parts are you not satisfied w

4. What do you think the kids think they are doing/learning/accomplishing from research? (form, function, subject matter acquisition). Is this what you intend?

Teacher Interview #2

1. How are students held accountable for research work?

2. What happens if students have completed work previously, but it doesn't end up in the history folder?

3. What happened to the geneology chart? Was it ever finished? How many groups talked about it?

4. Why was the picture timeline structured in the way it was?

5. What was the purpose in having students do the copying tasks (president/states)

6. How "successful" was the four-part research summary? What functions were served

7. What do you see as the "rewards" in this classroom? Which ones are kids aware o Which rewards do they seem to seek?

8. How much "control" do you think kids have over their own writing? How much "control" do you have?

APPENDIX B: Student Interview Questions

Student Interview Questions

1. Start by asking student to show me his/her past 3 weeks of research.
   a. Which one do you like best? Why?
   b. Why did you choose this topic?
   c. Tell me about your picture
   d. What did you read? Did you know any of this information before you wro

2. What is research?
   a. Tell me about the steps when you do research. What comes first, second
   b. When do you work on your research? How do you decide?

3. Let's look at the rough copy and final copy
   a. Why do you think you have to write 2 copies?

   b. What are differences between rough and final copies?

4. What kinds of things do you write about when you do your research?

   a. Can it be about anything? How do you decide on a topic?
   b. What kinds of things do you include in your research?
   c. Where do you get the information you include in your research?

5. Why do you think your teachers have you write research?

   a. How important is research?

   b. Compared to other work?

6. We have talked about what your teachers want you to get out of research. Do you get anything else out of doing it? Are there things you wish you could do but can't?

APPENDIX C: Transcript of Student Interview With Accompanying Written Work

Transcript of Student Interview with Accompanying Written Work

Interview# 6
Date: 4-29-88
History Research
Page 1 of 7

STUDENT 6

I. This is April 29, I'm talking to (Carl) We're gonna talk about two researches he did. One on the Statue of Liberty and one is a biography about Black Hawk. We can't seem to locate some of his other research. Ok, Chse from these two researchs, which one would you like to talk about first?

S-6. This one.

I. This one, ok, why don't you read this to me.

S-6. My biography is about Black Hawk. He in the Cenozoic Age. Black Hawk was a good Indian boy. Black Hawk lived in the East of the Mississippi River. He had to give up his land.

I. Ok, now how did you chose to write about Black Hawk? Do you remember?

S-6. Um, no. (pause) I can't remember.

I. Ok, um, can you tell me a little bit about your picture here?

S-6. Uh, let's see, there's Black Hawk right there with the soldiers and there's the other people that are fighting against him.

I. Ok, and did you see this picture of this fort in the book or did you just imagine what it looked like?

S-6. I saw it in a book.

I. So you read a book about Black Hawk and then wrote down what's in here? Now you didn't write about everything you read about right? How did you decide what to include and what to leave out?

S-6. Um, I just leave some things out that don't sound very interesting or that kind of stuff.

I. So you try to include what you think is interesting to you and leave the other things out?

S-6. Yeah, and Mr. has this list that he wants you to d that doesn't take very long to do. He just put down a few lines of it and that's what it says, what he's famous for and um, what is name is and what time he lived in.

I. Oh, and do you ever add any other information besides just answering those questions?

S-6. Sometimes I did.

I. Why would you add more?

S-6. Well, sometimes I, the story's not that interesting so I just make some more things in there that are interesting.

I. Oh, so you add more if it just sounds dull. If it's just t answers to those question?

S-6. Um-huh.

I. Alright, did you know any of this about Black Hawk before you read about it? Have you ever heard of his before or di you know of him?

S-6. Yeah, I heard of him before, but I never knew of anything about him. I heard about him.

I. Oh, so you knew his name but nothing else about him?

S-6. Yeah.

I. Alright, how bout this one? How'd you choose to write this one about the Statue of Liberty?

S-6. Well, I looked on the sheet and it said.

I. The list of books that you could read?

S-6. Um-huh.

I. And how, what made you choose this one instead of another o

S-6. It sounded pretty interesting.

I. Have you ever seen the Statue of Liberty before?

S-6. My mom has when she was going where, over this work shop that she has, she flew right over it.

I. Oh wow, did she tell you about it before you wrote it or after you wrote it?

S-6. Before.

I. So that might have helped you decide to write more about this too?

Transcript of Student Interview with Accompanying Written Work

S-6. Uh-huh.

I. And why don't you read this to me.

S-6. "The Statue of Liberty was a gift from France. Most of the people in the United States were not happy with the gift. They thought the statue of Liberty was a lighthouse for New York City. The original name of the island that the Statue of Liberty is on is Bedloe's Island. The statue is 151 feet tall. She means freedom to the whole world."

I. Oh, now that's a pretty long research isn't it? How'd you decide to include this information?

S-6. Um, I was reading with and he was doing the same book and um, Mrs. told us a few things about them.

I. So did you read with Mrs. Day too and Curtis and you talked a little bit about it along with just reading?

S-6. Uh-huh.

I. Do you like doing that? Does that help you do your research

S-6. Yeah, sometimes.

I. Sometimes, oh. If somebody came into our school and said, " , what's research? What is it? What do you do for it? How would you answer that question?

S-6. Um, well it's kind of like a report you do on something and you do a rough copy and you do a final copy and then you turn 'em in.

I. How do you decide what to write and where do you get your information?

S-6. Well, you usually get your information from a book.

I. Where else could you get it besides a book?

S-6. Mom and dad or some of the teachers.

I. Alright, is it ever stuff that you already know yourself?

S-6. No, not really.

I. Not really. And how do you decide what to write about for research? What kinds of topics can research be about?

S-6. Well, unless you have a certain thing you're doing, it's usually you can do anything.

I. And what do you mean if you have a certain thing you're doi

S-6. Like history or um, that's mostly thething he talks about history.

I. So sometimes your teachers say you have to write about history but you can choose within that topic and then sometimes you can write about anything?

S-6. Uh-huh.

I. Alright. How do you decide when you're gonna do your research?

S-6. Well, you have an assignment due for Thursday, I mean Wednesday morning at 12:00 and then your final copy has to be done by Friday afternoon.

I. So if your assignment is due Wednesday at 12, when do you usually start your research?

S-6. I start on Tuesday or Monday, but I know it ahead of time.

I. Alright, and um, how you decide? Do you just say I feel like it or do you look at your schedule or...

S-6. Sometimes I look at it and when we did the history one we did I looked on my schedule, when we're doing that kind of stuff. In this I usually start it on Tuesday and it didn't take me very long to make a rough copy. A rough copy I got it, I turned it in, I got it back usually on that day, and then I just do my final copy right then.

I. Oh, what's the difference between a rough copy and a final copy?

S-6. Well, the rough copy means it doesn't exactly have to be spelled right for the teachers will correct you after you're done and the final copy means it has to be absolutely perfect.

I. Alright, and why do you want the final copy to be perfect?

S-6. Well, some people want to go home to your mom and they want to see that you've done good work. Research in school, um it's...

I. Who reads your final copy?

S-6. Mr. . or Mrs. .

I. Anyone else? Does anyone else ever read it?

Transcript of Student Interview with Accompanying Written Work

S-6. My parents read it.

I. Your parents read it.

S-6. I bring it home or in my notebook.

I. Do you ever show your research to your friends?

S-6. Sometimes.

I. Do you ever read theirs?

S-6. Um.

I. When would you show it to your friends. What might be a reason to show it to them?

S-6. Um, um, um, (pause) I don't know. Let's see, if I just like them alot and I want to show them what I did or something like that.

I. Alright, oh, your teachers want you to write researches? Why do you think you do research?

S-6. Um, um. (pause) it's a hard question. Let's see. (pause)

I. Just to fill time? Just to give you something to do? Why would you think they would have you do research? What are you supposed to get out of doing research?

S-6. Um, well I know one thing, they don't want you to fool around and that kind of stuff so you can get it done, so you can get something done. (pause) Um, other things.

I. Why would they have you read books and write about what you read?

S-6. See what your interest is, maybe?

I. Um-huh. Do you learn anything from reading these books?

S-6. Um-huh.

I. How come they would just have you write about it too instead of just reading to learn?

S-6. So you could have a thing to read off of when you get older and that kind of stuff.

I. You could look back at it later?

S-6. Um-huh.

I. Oh, how important is doing research?

S-6. Well, um, (pause) it's pretty important I'd say.

I. How bout compared to your other work? How important is it compared to math, spelling, or language, or other things that you can do?

S-6. I'd say it's more important than spelling or math and language probably. But, um.

I. What's important about it?

S-6. You learn things from it and let's see what else can you ge from research. (pause)

I. You don't have to say more if you don't want to.

S-6. Mmm.

I. What do you want to get out of doing research when you do it? You know your teachers want you to learn new things. What do you want to get out of it when you do it?

S-6. Um, what do I get out of it? I usually like to do research, it's pretty fun.

I. Which part do you like the best?

S-6. Reading it.

I. Reading it? How about the writing part, do you like that part?

S-6. It's pretty fun. It's, it takes a lot of time if you're doing it in cursive and that kind of stuff. It is fun.

I. How about doing the pictures?

S-6. That's the fun part!

I. That's the fun part? I see that you've taken a lot of time with this picture, tell me a little bit about your Statue of Liberty picture. Is this just the bottom part of it?

S-6. This is the bottom part of it right there, and that's the I couldn't find enough room to put on the head and that kin of stuff so I just put the hand right there and I was going to put the head right there except it was time to clean up.

I. Oh, so since time ran out you ended up not finishing your picture? Oh. Is there anything else you think I should

have asked you or that I should know about research that I haven't asked you about that you can think of? Hm.

S-6. Not that I can think of but, my teachers could.

I. Oh, well thank you very much for your help.

Transcript of Student Interview with Accompanying Written Work

Rough Copy Research

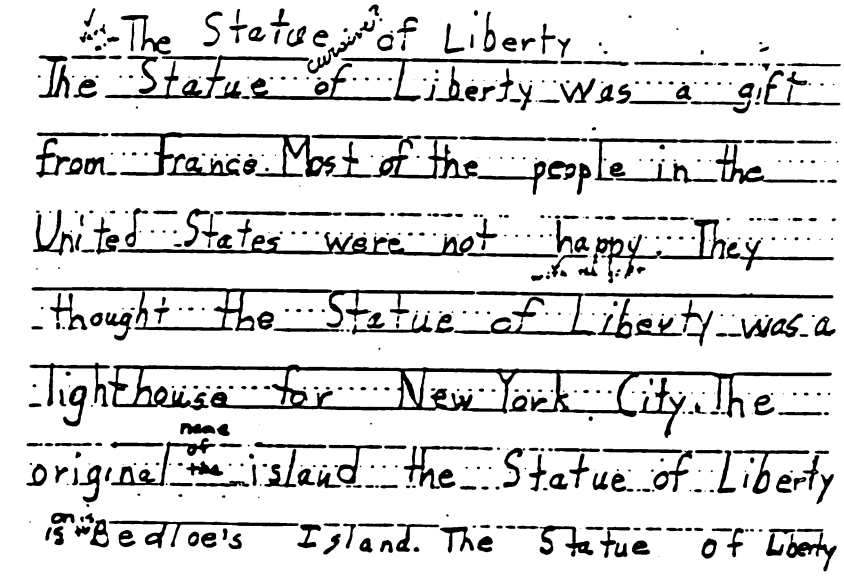


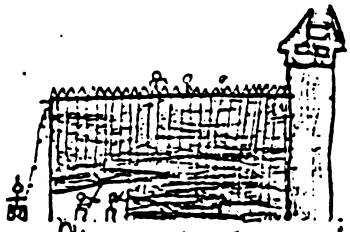
Figure 22: Student Work Discussed During Interview (rough copy)

Transcript of Student Interview with Accompanying Written Work

Final Copy Research



The Statue of Liberty was a gift from France Most of the people in the United States were not happy with the gift. They thought the Statue of Liberty was a lighthouse for New York City. the original name of the Island the Statue Liberty is on is Bedloe's Island. The Statue is 151 feet tall. She means freedom for the whole world.

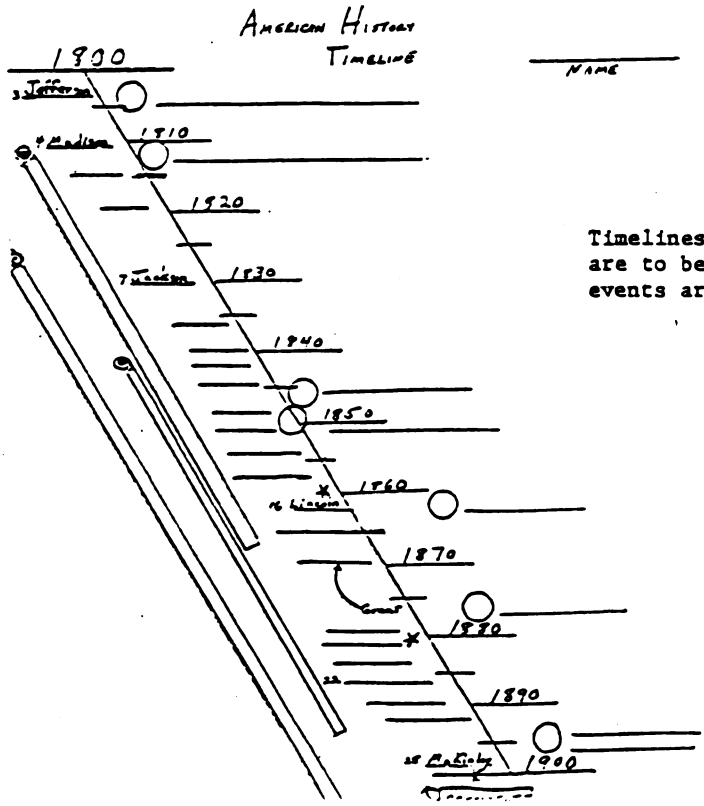


My Biography is about Black Hawk. He lived in the Ceramic age. Black Hawk was a good Indian boy. Black Hawk lived east of the Mississippi river. He had to give up his land.

Figure 23: Student Work Discussed During Interview (Final Copy)

APPENDIX D: American History Unit Worksheets

American History Unit Worksheets



Timelines where blanks are to be filled in as events are discussed

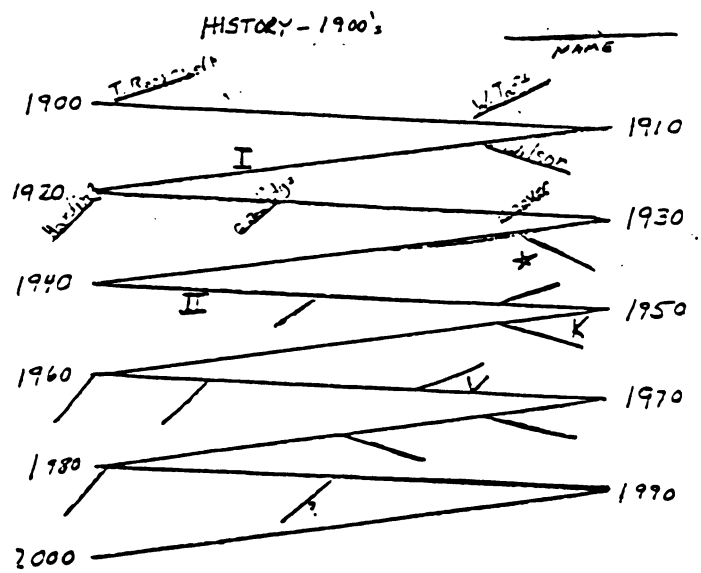
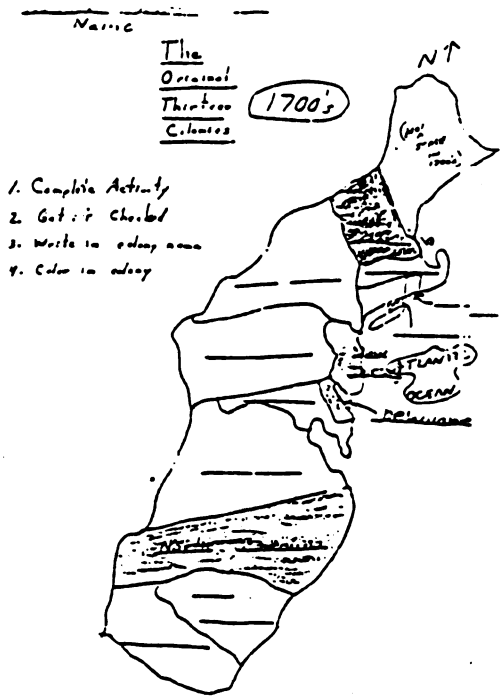
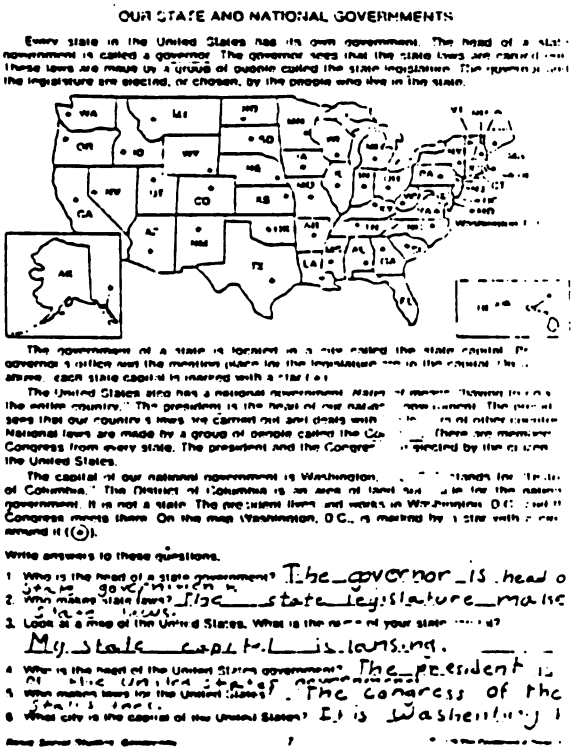


Figure 24: History Timeline Worksheets

American History Unit Worksheets





OUR STATE AND NATIONAL GOVERNMENTS

Every state in the United States has its own government. The head of a state government is called a governor. The governor sees that the state laws are carried out. These laws are made by a group of people called the state legislature. The members of the legislature are elected, or chosen, by the people who live in the state.

The government of a state is located in a city called the state capital. The governor's office and the meeting place for the legislature are in the capital city of each state. Each state capital is marked with a star ( ).

The United States also has a national government. Many of people around the entire country. The president is the head of our nation's government. The president sees that our country's laws are carried out and deals with countries. National laws are made by a group of people called the Congress. There are members of Congress from every state. The president and the Congress are elected by the citizens of the United States.

The capital of our national government is Washington, D.C. D.C. stands for the District of Columbia. The District of Columbia is an area of land set aside for the nation's government. It is not a state. The president lives and works in Washington, D.C. and the Congress meets there. On the map Washington, D.C. is marked by a star with a ring around it ((◎)).

Write answers to these questions.

1. Who is the head of a state government? The governor is head o state government
2. Who makes state laws? The state legislature make state laws.
3. Look at a map of the United States. What is the name of your state capital?
My state capital is lansing.
4. Who is the head of the United States government? The president is of the United States.
5. Who makes laws for the United States? The Congress of the United States
6. What city is the capital of the United States? It is Washington D

Figure 25: Worksheets on the States

American History Unit Worksheets

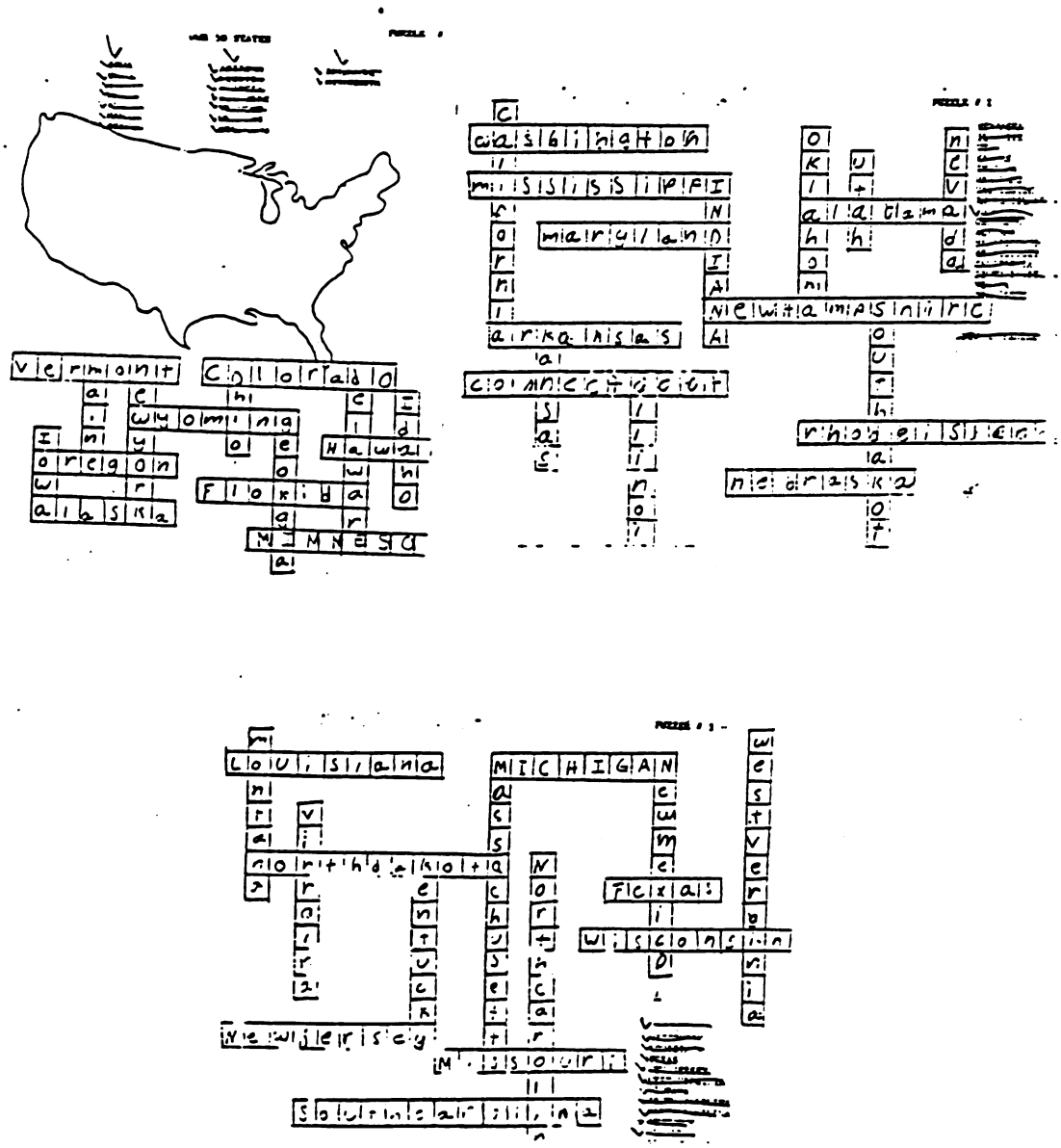
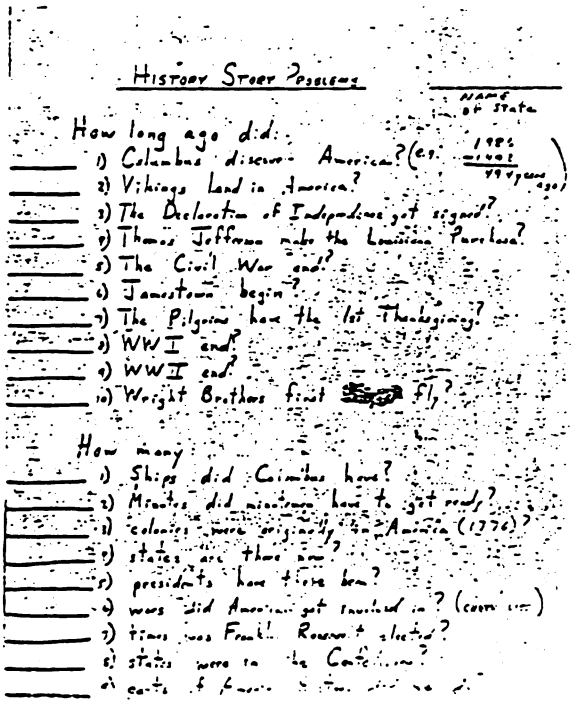


Figure 26: Crossword Puzzles

American History Unit Worksheets



History Story Problems

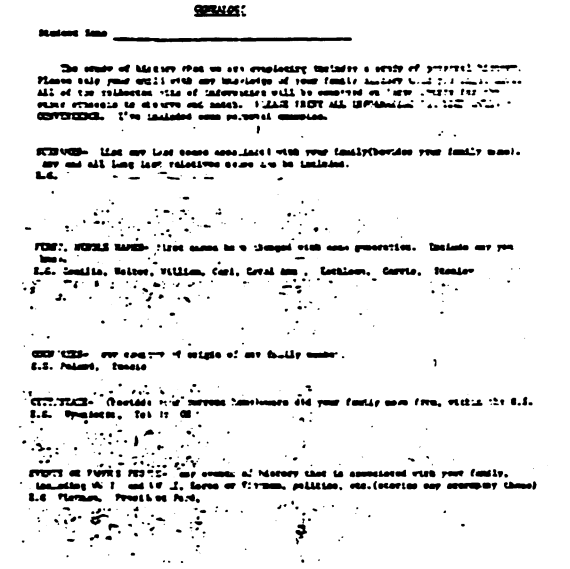
Name of State

How long ago did:

1) Columbus discover America? (e.g. 1984 - 1492 = 492 years ago)
2) Vikings land in America?
3) The Declaration of Independence get signed?
4) Thomas Jefferson make the Louisiana Purchase?
5) The Civil War end?
6) Jamestown begin?
7) The Pilgrims have the 1st Thanksgiving?
8) WW I end?
9) WW II end?
10) Wright Brothers first [illegible] fly?

How many:

1) Ships did Columbus have?
2) Months did minutemen have to get ready?
3) colonies were originally in America (1776)?
4) states are there now?
5) presidents have there been?
6) wars did America get involved in? (count 'em)
7) times was Frank Roosevelt elected?
8) states were in the Confederacy?
9) cents [illegible]



GENEALOGY:

Student Name _____

The study of history that we are emphasizing includes a study of [illegible]. Please help your child with any interviews of your family history [illegible]. All of the information that is discovered on these sheets for [illegible] interviews to discuss and assess. PLEASE PRINT ALL INFORMATION [illegible] CONFIDENCE. I've included some personal examples.

INTERVIEW- List any blood ancestors with your family(besides your family name). Any and all long lost relatives are to be included.
E.G.

FIRST NAMES- First names to be changed with each generation. Include any you have.
E.G. Camille, Helen, William, Carl, Coral Ann, Kathleen, Carrie, Stanley

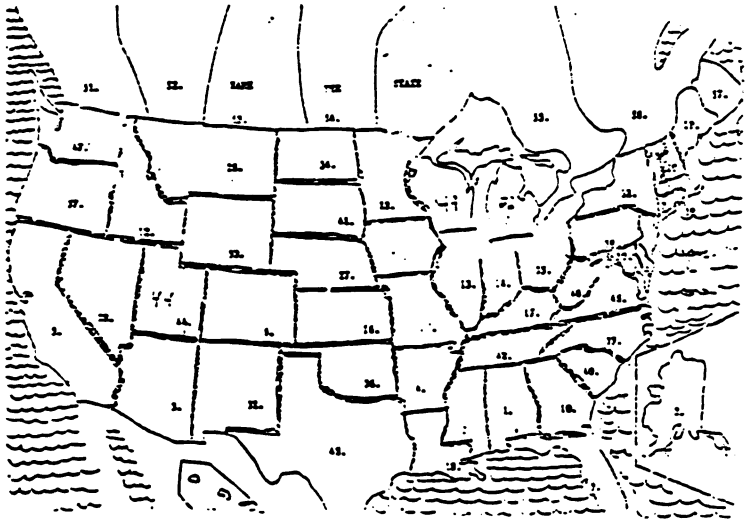
CHECK LIST- any country of origin of any family member.
E.G. Poland, Russia

MIGRATION- Include [illegible] ancestors did your family come from, within the U.S.
E.G. Oklahoma, Got it OK!

EVENTS OF FAMILY HISTORY- any events of history that is associated with your family, including wars and/or U. forces or civilians, politics, etc.(mention any anniversary themes)
E.G Florida, President Polk.

Figure 27: Additional Activities

American History Unit Worksheets



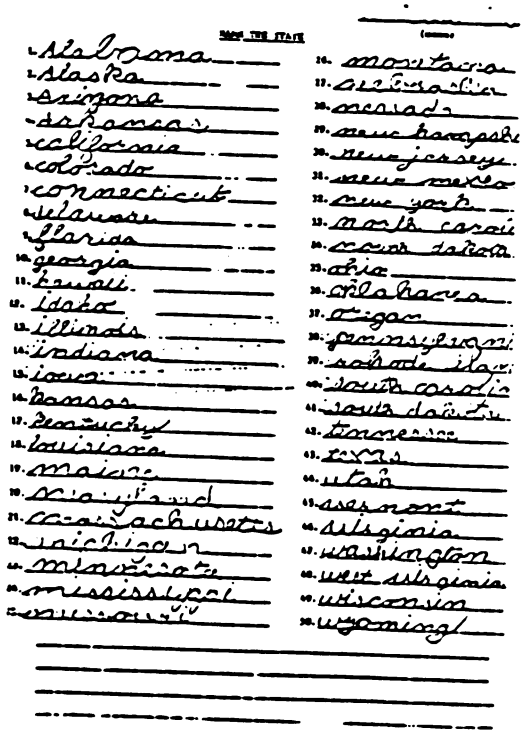


Figure 28: Map Worksheets

APPENDIX E:

Levels of Responsibility Handout
Sent Home to Parents

LEVELS OF RESPONSIBILITY ___(Steve)___

We are informing the students of our expectations and desires through specific levels of responsibility. After the first month of school, we are setting these levels for each student. Students may fluctuate between levels based on behavior in the classroom, academic accomplishments, quality of work and effort, and overall ability to handle responsibility.

LEVEL ONE: These students work on a weekly checklist. Some of the projects can be a month long. They are given the most responsibility and the most opportuni in the classroom. This level is the goal of the students.

LEVEL TWO: These students work on a daily checklist. They are doing the same basic work. They need some guidance in planning their time. The week is broken in segments that allow the students some choice when finished. These students are give less responsibility and have less choice than level one.

LEVEL THREE: These students work on a daily schedule and have structured work times periodically. For instance, Thursday afternoon and Friday morning will be planned and supervised closely for these students in order to complete the work. Students who make poor choices or show an inability to handle their time or work are put at this level.

LEVEL FOUR: These students work in daily structured groups. Their entire week is planned and done in supervised groups. They need much attention in order to complete the work.

LEVEL FIVE: If a student does not do a good job at any of the four levels, then the parents will be notified and a conference will be held with the parents and the student.

These levels do not reflect a change or alteration of our past system. We felt that it would be good for the students and parents to understand our thinking in making good students out of our children.

Your student is at level of responsibility ___1___

(Steve) is doing a good job overall!

Figure 29: Steve's Report on Level of Responsibility

APPENDIX F: Reading Lists for 1800's and 1900's

Reading Lists for 1800's and 1900's

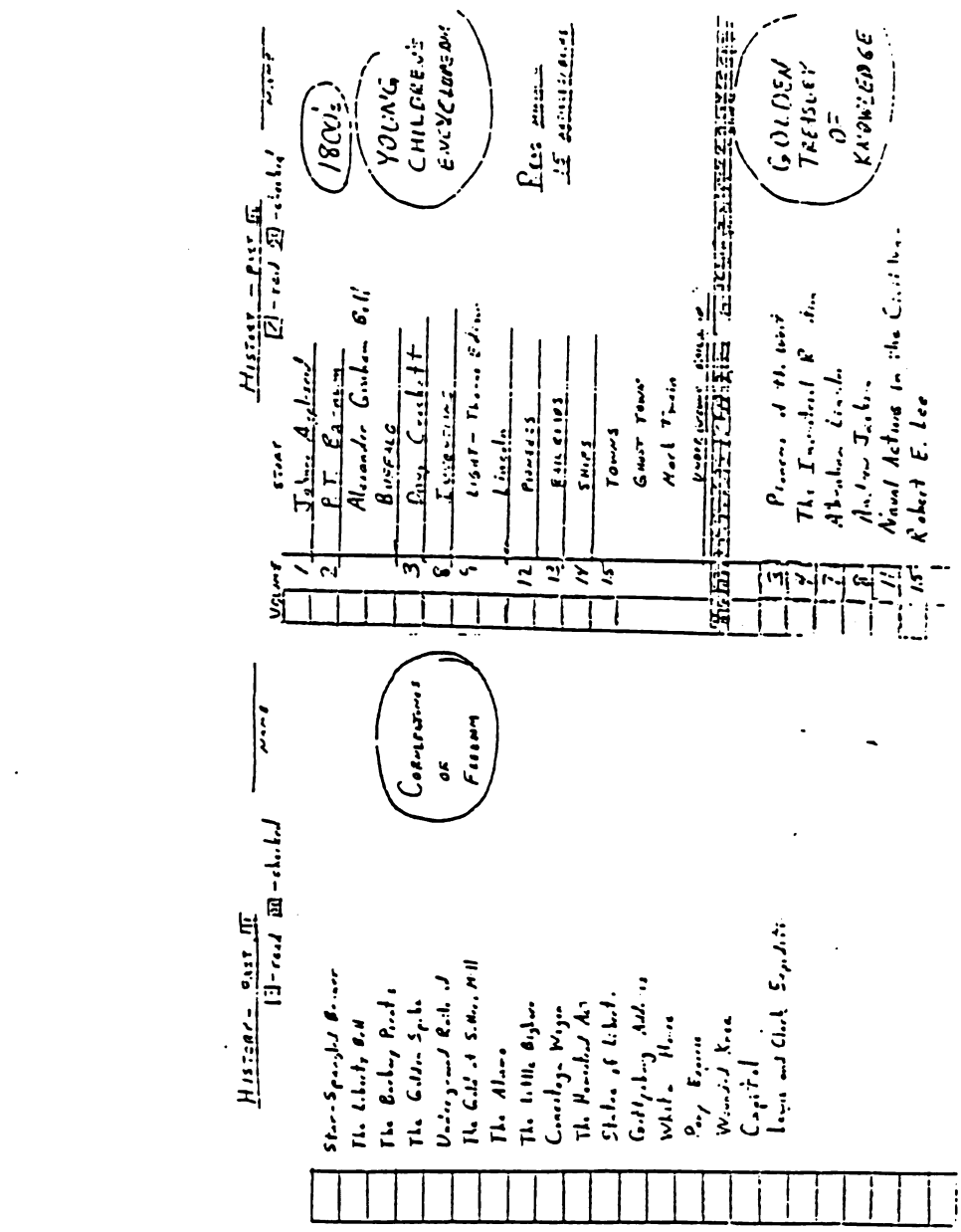


Figure 30: Reading List for 1800's Time Period

Reading Lists for 1800's and 1900's

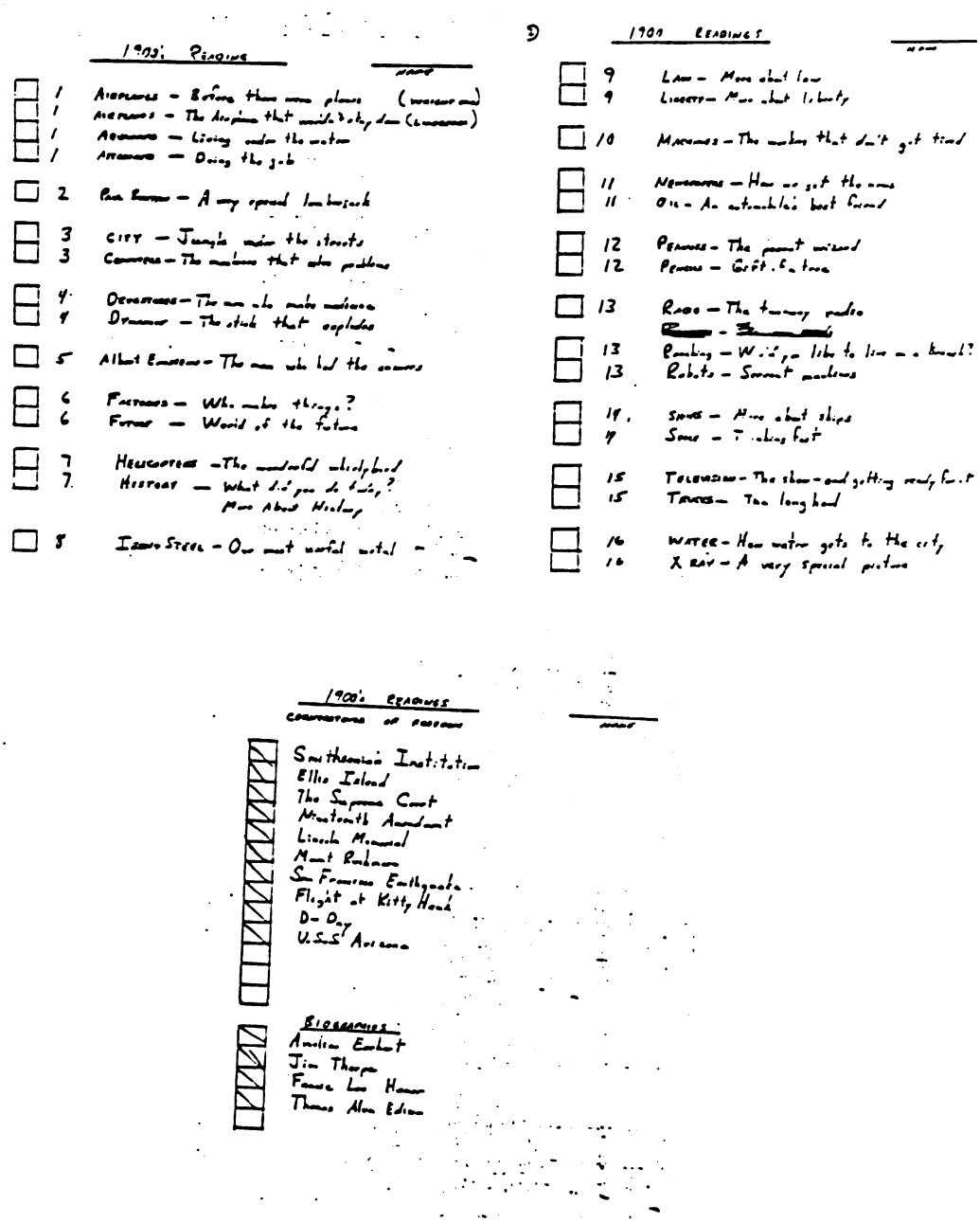


Figure 31: Reading Lists for 1900's Time Period