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WHEN TEACHERS ARE INFORMED BY RESEARCH ON CHILDREN'S THINKING: SOCIAL STUDIES UNIT PLANS FOR THE PRIMARY GRADES

presented by

Carolyn Joan O'Mahony

has been accepted towards fulfillment
of the requirements for

Ph.D degree in Curriculum, Teaching,
and Educational Policy

Jere Brophy
Major professor

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WHEN TEACHERS ARE INFORMED BY RESEARCH ON CHILDREN'S THINKING: SOCIAL STUDIES UNIT PLANS FOR THE PRIMARY GRADES

VOLUME I

By

Carolyn Joan O'Mahony

A DISSERTATION

Submitted to
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ABSTRACT

WHEN TEACHERS ARE INFORMED BY RESEARCH ON CHILDREN'S THINKING: SOCIAL STUDIES UNIT PLANS FOR THE PRIMARY GRADES

By

Carolyn Joan O'Mahony

This study investigates how social studies unit plans on the topic of food are influenced by information that teachers are given about students' thinking before planning. Nine teachers, three in each of grades one, two and three, participated in a conversation around a written description of 96 K-3 students' responses to questions about concepts associated with the production, distribution and consumption of food in individual, structured interviews (Report Group). Three other teachers, one at each grade level, were interviewed using the same questions asked of the children (Interview Group). Group membership was matched in terms of teaching experience, grade level, and teaching contexts. Provided with a framework for planning, and state and national standards for teaching social studies, the participants individually designed social studies unit plans that they could use in their classrooms. Data from the study included: initial interviews about teaching social studies, using a questionnaire as a prompt; conversations around a report on children's thinking or interviews about food using the protocol; informal dialogues, and unit plans. Findings from the study indicate weak differences across the groups but point to intriguing issues

associated with planning and teaching social studies in the early grades. Although only one teacher in each group wrote plans that had characteristics anticipated at the onset of the study, teachers in the Report Group did tend to focus more on content addressed in the Report, especially food production. Instead of focusing on content, teachers in the Interview Group tended to focus on teaching the skills of data collection, analysis, and presentation. Differences in content, activities and assessments across the grade levels extended beyond those that the scope and sequence of the "expanding horizons" curriculum would lead us to expect. Unanticipated findings point to the power of *curricular traditions* within schools to determine what happens in early grades social studies. They also point towards generational differences that favor younger teachers who, when without textbooks, will use standards documents and technology to support their planning and teaching.

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2001

FOR MUM AND DAD, SHANE AND WENDY:

MY BELOVED FIRST TEACHERS

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When teachers are informed by research on children's thinking: Social studies unit plans for the primary grades.

Introduction

This study is an attempt to discover how social studies units on food that are planned by teachers in grades one, two, and three might be influenced by their access to research on how children are thinking about food. As we examine the unit plans of twelve teachers in grades one, two and three in relation to their attention to student thinking, other issues related to subject matter, standards, assessment, resources, management, community and teacher education will arise.

Before proceeding with a presentation of theories that frame the study I will explain how some of my experiences as a teacher educator pointed to planning in social studies as an issue worthy of study. For as John Dewey (1938) wrote regarding the principle of continuity: we see everything through the lens of our past experiences and in turn our present experiences shape how we will perceive of, and act in, the future.

In the Spring semester of 1999 I was teaching elementary social studies methods courses to pre-service teachers. It was depressing. As I had been warned by colleagues, the response from my class of college seniors was close to unanimous – after four weeks in elementary classrooms they had yet to see

social studies being taught. We discussed why this might be so. Perhaps it was something to do with the time of day they went into the school? Perhaps it was the time of year? The students were asked to talk about social studies with their classroom teachers and we would discuss their findings.

One week later the majority of students came back with what were all too familiar responses: social studies was "done" at the beginning of the year when the students focused on rules, or when holidays were celebrated, or was not necessarily obvious to an observer because it was integrated with language arts. Others came back with the response that they had not witnessed social studies being taught because the teacher they observed did not teach social studies, but traded them with another teacher for language or science lessons. A few students reported that their teachers had confessed and in some cases quite defiantly defended their lack of social studies teaching: reading and writing were more important to young children than social studies. Just occasionally a student would proudly report that she had witnessed a social studies lesson or, even more rarely, that she was with a teacher who had social studies at the hub of the classroom curriculum.

So, if these pre-service teachers were not observing social studies teaching in their current classrooms, what could they recall from their own experiences as students in elementary schools of the 1980s? Perhaps if we considered their experiences from the perspective of teachers we would have a good place to

start thinking about meaningful social studies teaching? Students recollected memorizing names, dates, and places in preparation for quizzes. Most recalled at least one memorable field trip, project, or simulation game but usually they remembered reading textbooks and answering the questions at the end of each chapter. These findings too were not unexpected. Brophy and Alleman (1996) wrote of receiving similar responses. A minority of the pre-service teachers had loved social studies as elementary school students. Most students either could not recall many of their experiences or said that they had had little enthusiasm for social studies in school.

Why is it that social studies, the intrinsically fascinating study of how people interact with their social and physical environments, does not seem to be a key subject in the majority of elementary school classrooms? Why are teachers reluctant to teach it? And why, when it is being taught, as the pre-service teachers and Goodlad (1994) described in a large scale study, do K-12 students say that it is dull and boring? Most importantly, what could teacher educators who believed in the importance of education for active citizenship, do about it?

Obviously it was going to be hard to find early elementary teachers to observe teaching social studies yet I was intrigued by what I had heard. Either social studies was not being taught, or it was being taught in ways that were not helping students learn, or enjoy learning. Although the student teachers were being asked to plan lessons and units, they were witnessing neither the lessons being

taught by experienced teachers nor the lesson and unit plans that these same teachers might have written in order to teach.

Perhaps I could venture close to the heart of teaching elementary social studies, and especially teaching that focused on student learning, by studying the planning of early elementary teachers when they were informed about students' thinking on a particular topic. In this way I could get close to the teaching of social studies in the early grades without emphasizing its invisibility. I could share findings that I had from research on children's thinking on food with teachers who could use them to inform their practice. Completing a dissertation study would take time and effort. I decided that I wanted to conduct a study that would not only shed some light on the complexities of teaching social studies in the early grades but also encourage at least some teachers to think carefully about their teaching of social studies.

The following chapter will show how research around teaching, learning and elementary social studies shaped my thinking about the complexities of planning to teach when student thinking about content is highlighted.

The Literature

My research question was: How are social studies units on food that are planned by teachers in grades one, two, and three influenced by teachers' access to research on how children think about food? I anticipated that the plans of teachers who had information on how children were thinking about food, its production, distribution, and consumption, would be different from the plans of teachers who did not have that information. This was my hunch because they were gaining access to knowledge of their students that was different from the types of information to which they normally had access. Delving into previous research would help me to determine exactly how the plans might differ.

It also seemed important to support teachers in the study who, because of the research design, would not be receiving a copy of the report on students' thinking. Rather than being given no support and yet still expected to plan (this is further explained in the design chapter) those teachers would be interviewed using the same protocol as was used with the students in the report. In this way their tacit knowledge of food would be articulated and brought to their awareness. They would be encouraged to think about the content of social studies lessons in the early grades.

Figure 1.0 shows how my research study is located at the intersection of, and therefore is informed by overlapping conversations around elementary social

studies content, children's thinking, and elementary classroom teaching. These conversations are themselves taking place within larger discourse communities that center on knowledge, cognition, and pedagogy. In the following pages I will briefly define each of the larger communities in turn and point to how they inform this study. Then I will explain some of the ways in which conversations around elementary social studies content, elementary classroom teaching, and children's thinking provide a rich and complex context in which to do this type of research.

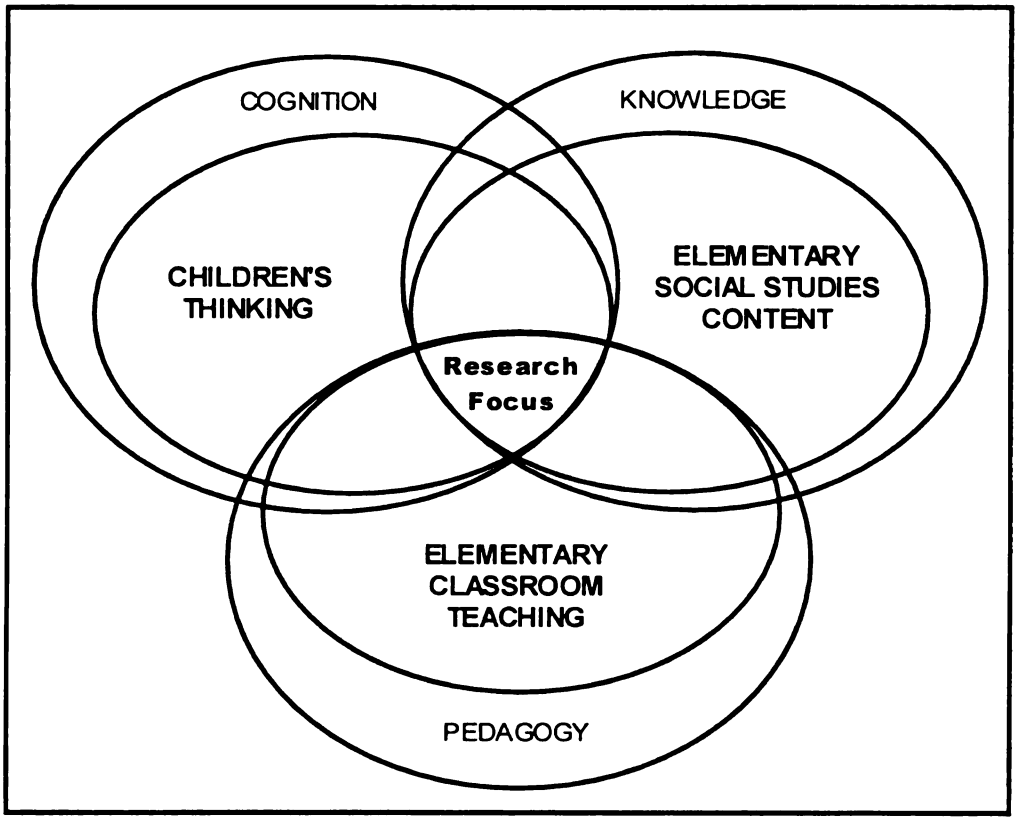


Figure 1.0 Location of research focus

Knowledge needed for citizenship: alternative visions

Discussions around elementary social studies are embedded in the discourse of social studies as a body of content knowledge. People tend to agree that in social studies students should learn or gain knowledge for *citizenship*. However different groups of educators and researchers think it can be best learned through education that emphasizes one of four different goals: 1) social initiation; 2) personal development; 3) social reformation; or 4) academic understanding (Clark & Case, 1997). So, depending upon the definition they are using, teachers can legitimately define social studies as a school subject that helps students understand: 1) how society works; 2) who they are as a member of various groups within society; 3) how to act for change in society; and/or 4) how social, physical and economic systems interact and function and have functioned in the past.

Although in the later grades teachers' approaches to teaching social studies vary widely based on how the teacher is defining the subject, when taught in the early grades, social studies lessons tend to focus on social initiation and personal development. Social studies textbooks in general and teachers in the early grades tend to avoid teaching controversial issues. Content grounded in the disciplines is frequently dismissed as too difficult for young children who cannot write. Ways of thinking about elementary social studies content will be addressed further in this chapter.

Children's cognition

Recent research on children's cognition within subject-specific domains has contested the validity of theories that supported restricting students' exposure to challenging ideas. Studies have been undertaken around elementary school students' learning of subject matter in reading, mathematics and science. Findings suggest that young students can construct domain-specific webs of knowledge that support a much greater capacity for understanding than earlier global theories of learning suggested.

In social studies there are so many contributing disciplines that research efforts on student thinking in social studies are frequently dispersed. Although all publishing in the field of learning in social studies, many well-known researchers have a defined focus that has roots in a university discipline. Carole Hahn (1998), Walter Parker (1999), and Judith Torney-Purta (1999) have examined students' understanding of the political system. Gustav Jahoda (1984), Marilyn Kourilsky (1977), and Mark Schug (1987) have written about young students and economics. Karen Trifonoff (1995) has studied young children's work with maps in geography. Keith Barton (1997) and Linda Levstik (1997) have investigated young students' historical thinking. Although many of these researchers have worked with younger children, researchers in the field of social studies have tended to study the thinking of older students. Like Barton and Levstik, Brophy and Alleman (1997) are known for their research around young children and the elementary level curriculum. Six years ago they started studying young students'

understanding of cultural universals, content that is pan-disciplinary in nature. Their work is integral to this study so cultural universals will be defined and discussed in the section of this chapter that addresses social studies content in the early grades.

Pedagogy

Discussion about elementary social studies teaching is influenced by discourses around pedagogy which can be thought of as having four slightly different focuses: 1) teacher action; 2) teacher thinking; 3) teacher expertise; and 4) teacher knowledge. Many teachers and teacher educators have been influenced by writings that have focused on teacher action such as the writings on useful teaching routines by Madeline Hunter (1994), and Good and Brophy's (2000) collection of research-supported successful teaching strategies. Chris Clark and Penelope Peterson (1986) have written about teacher thinking and reviewed the work of many other researchers. In terms of teacher expertise, David Berliner (1986) has written about teachers' habits of mind and the nature of expertise in teaching. Lee Shulman and others have investigated the notion of teacher knowledge (Wilson, Shulman, & Richert, 1987). Shulman (1987) listed various types of knowledge that competent teachers possess: knowledge of students, subject matter, pedagogy, pedagogical content knowledge, curriculum, and resources. Subsequently researchers have investigated the concept of pedagogical content knowledge, the idea that effective teachers present content in ways that make it meaningful to their students.

This study draws upon the literature on teacher thinking in relation to planning. From his observations Jackson (1968) theorized that teaching has pre-active, inter-active, and post-active phases. This notion was used by Clark and Peterson (1986) who posited that teachers' curricular decisions can be categorized in a similar way. Teachers make pre-active decisions before teaching. They make inter-active decisions while teaching. After they have taught they make post-active decisions. The pre-active decisions that teachers make determine the curriculum. When teachers make pre-active decisions, i.e. plan, they transform and interpret knowledge, and formulate intentions to act. In their classrooms they act from that knowledge and those planned intentions within the constraints of the moment.

Conceptions of planning have evolved since educational researchers started writing about it in the 1950s. Current research on planning has investigated it as an ecological conception: instruction and planning are difficult to separate because so many classroom interactions are unpredictable (Yinger,1995). Despite that, when teachers contemplate teaching their students they start planning outside the classroom. While acknowledging that teachers make many decisions as lessons progress, this study focuses on the initial pre-classroom piece of the planning process.

In their study of expertise in teaching Dunn and Shriner (1999) pointed to the importance of planning in the professional repertoire of teachers and how it is an element of their practice upon which expert (rather than simply experienced) teachers focus.

Although teachers tend to focus on the content they will teach rather than the instructional strategies they will use when they plan, (Zahorik, 1975), their plans and decisions have been linked to students' learning. Teachers' plans have been associated with both instruction that students receive and student performance on reading tests (Lalik & Niles, 1990).

Schön (1987) wrote of *reflection on action* and *reflection in action* as being essential parts of the practices of lawyers, engineers and other professional people. Some teacher educators read his text with prospective teachers. I would suggest that *reflection for action*, where the focus is on future goals, is equally important, especially in the professional practice of teaching where the ends may be clear but the means may not. It is perhaps especially important in situations such as in elementary social studies where, to date, few exemplars of expert practice have been made public. This study will focus on reflection for action, i.e. the plans that people make for teaching. However, the plans are for teaching elementary social studies content. The next section will consider what that content should be.

Elementary Social Studies Content

For much of my time at Michigan State University I have worked with Jere Brophy and Janet Alleman who have been building up a data base of children's thinking around social studies ideas.

Elementary social studies is a fascinating subject area to work in for a number of reasons: 1) The subject, social studies, is defined broadly. 2) Social studies is supposed to prepare children to live in society so it concerns the values of society. 3) Historically it has been overshadowed by emphases on reading, writing, and arithmetic. 4) Few elementary teachers have academic backgrounds that include study of more than one or two of the contributing disciplines. 5) Textbooks tend to focus on received knowledge while methods texts tend to promote inquiry methods. 6) Early developmental research posited that young children were incapable of sophisticated thinking. 7) Legitimized content is often narrow and unrelated to both students' lives and other schoolwork.

There are problems associated with teaching inappropriate content in social studies. The first is that inappropriate content does not challenge children to think. The second is that if children are taught inappropriate content they will not display a good understanding of disciplinary knowledge when tested using standardized tests such as the Michigan Educational Assessment Program (MEAP).

If prior knowledge and extensive experience in a particular domain are major influences on knowledge restructuring and theory building in younger children, then teachers need to be thinking carefully about how to facilitate the interaction between student and subject matter. Most important is the decision about what should be taught as that subject matter.

Rather than focusing on separate disciplines Jere Brophy (2000) posited that young children should be taught the pan-disciplinary school subject known as social studies. He suggested that the categories in the expanding communities sequence, which is the usual grade-related sequence of study in US schools, refer principally to the levels of analysis at which content is addressed, not to the content itself. That is, although there is some material on families in first grade, on neighborhoods in second grade, and on communities in third grade, the topics of most instructional units tend to be the human social activities located within families, neighborhoods, and communities. These activities tend to be structured around cultural universals – basic human needs and social experiences found in all societies, past and present (Payne & Gay, 1997).

Cultural universals can be identified as the simple elements of people's lives that are found everywhere, regardless of where or how people live. They include activities related to meeting the basic needs of food, clothing, and shelter, as well as family structures, government, communication, transportation, money or other forms of economic exchange, religion, education, occupations, recreation etc.

The term implies that activities relating to each cultural universal can be identified in all societies. It does not mean that these activities necessarily have the same form or meaning in each society (e.g. all people eat food but what they eat and how they prepare and eat it differ within and across societies).

Because they are basic to the human condition, studying cultural universals can provide children with a solid basis for developing fundamental social understandings. All of our lives share these characteristics so children can use what they talk about in school to help them identify and observe the forms of cultural universals that are found in their own situation. Also, children have direct personal experiences with most cultural universals from the time they are born, so when they arrive at school they have considerable amounts of knowledge and experience to draw upon. Without a lot of effort they are able to begin constructing understandings of social education concepts and principles in a formal way. As children develop an understanding of the motivations and cause-effect explanations that underlie activities related to cultural universals, they can start to make sense of the previously mysterious behavior of their parents and other significant people.

Children's thinking and elementary social studies content

I have helped Jere Brophy and Janet Alleman conduct hundreds of interviews with individual students in K-3 to examine their knowledge and thinking about cultural universals such as clothing, shelter, food, communication, transport,

families, and government. These interviews have yielded a great deal of information about accurate prior knowledge that most students are likely to possess as they begin each unit, as well as about important knowledge gaps and common naïve ideas or misconceptions that will need to be addressed during instruction. The findings are important because some proponents of alternative curricula such as Diane Ravitch (1987) have claimed that there is no need to teach about cultural universals in the primary grades because children learn all that they need to know about them through everyday experiences. However these claims have been made in the absence of relevant research.

There is a growing body of research on young children's thinking about their social world (Berti 1994; Branchereau, 1998; Brophy & Alleman, 1997; Delval, 1994; Moore, Lare and Wagner,1985; Schug, 1987). Although focussing on children's thinking about different topics such as work, money, shelter or government, each of these studies illustrates a finding made by Jahoda (1984). Jahoda proposed that children have peripheral contact with society so their knowledge is dependent on cobbling together pieces of initially unconnected information that has been filtered through sources such as the media and people who are more worldly. This is a useful way of explaining why, despite their thinking being internally logical, children do not always respond to questions or grasp new ideas the way adults might expect.

Through research we have found, like the other researchers who have examined children's thinking about their social world, that children's knowledge about cultural universals tends to be limited, disconnected, and difficult for them to articulate. Student responses also revealed many naïve ideas and misconceptions. Systematic teaching about cultural universals in social studies would help address these ideas and misconceptions and would thereby help students make sense of their world and the possible roles they can play in it.

Elementary classroom teaching

Up until now I have characterized early elementary social studies instruction as either invisible or not existing, which helps to explain why there is scant research literature on it. Research on elementary social studies has been published recently but it tends to focus on fourth or fifth grade classrooms and curricular issues such as children's understanding of human rights (Wade,1994); global politics (Bickmore, 1999); issues centered education (Chilcoat & Ligon, 1999); or historical thinking (Foster & Hoge, 1999; MacCurtain et. al., 2001) rather than teaching in grades one, two and three. The studies that have been done have not focused on planning in the early grades but classroom teaching and student thinking.

A study that involved interviewing elementary social studies teachers (Houser, 1995) concluded that teachers accept that time for social studies instruction is

often sacrificed to instruction in reading and mathematics because of pressures outside the classroom for students to be successful in these subject areas.

However, the current climate in Michigan is strongly encouraging teachers in the early grades to teach more social studies, in large part because of the recently adopted state-wide tests in social studies that students take in the Fall of their fourth grade year. This increased attention to social studies has resulted in social studies being taught more, however whether or not it is being taught effectively has yet to be addressed.

There are only a few descriptions of instructional practices in elementary social studies classrooms. Here are descriptions of four such studies and their conclusions.

The first piece of research on early elementary classrooms is a recent study of the Engle-Ochoa Decision Making Model as it was being implemented by three elementary teachers in grades one, three and five by Ochoa-Becker, Morton, Autry, et. al. (2001). The researchers concluded that although they had opportunities to do so, and even though the third grade students proved that they were capable of dealing with hypothetical dilemmas and identifying and defending their choice of solution, the early grade teachers avoided addressing controversial issues with their students.

Levstik (1993) noted that students in the first grade classroom she described engaged extensively in cross-peer, student-to-teacher and student-to-adult discussions. They talked about history, especially in relation to content-related artifacts, non-fiction materials, and literature. The teacher used whole-language strategies to help her students relate to books. She also expected the students to write quite extensively in social studies, generally informational writing. [Routman (1994) explains that having a whole language approach involves integrating the language processes of reading, writing, speaking and listening in order to focus on making meaning]. Levstik suggested that by engaging her students in high energy activities such as talking, constructing, researching, reading, dancing, singing, and engaging in dramatic presentations the teacher was able to maintain control of a group of physical and assertive boys who came from low socioeconomic backgrounds.

Levstik concluded that first graders can be interested in social studies topics, especially when they are exposed to high quality non-fiction. Secondly, she determined that students need to make personal connections to what they are taught in social studies or history if they are to sustain an enduring interest in it as a subject. Her third point was that a teacher's perception of the purposes of social studies will influence choices of content, instructional discourse, and methodologies. Her fourth conclusion was that history is interesting to children when it focuses on human relationships. It only becomes lifeless (as reported in Goodlad, 1984) when the sense of personal connection is lost. Her final point

was that charismatic teachers with a sense of mission have the power to bring hope to children through the study of history because they can provide information on the possibility of changing the status quo.

White & Rumsey (1993) focused on teaching for understanding in a third grade geography lesson. Rumsey, a relatively inexperienced but academically knowledgeable teacher, taught about the fall line to a class of third graders through discussion. The students were very responsive to the teacher even though initially they contributed little to the discussion and when they did their contributions tended to convey misconceptions or address issues tangential to the teacher's purpose. White suggested that powerful instruction happens when classroom teachers use students' prior knowledge to both shape discussion and sequence their presentation of information. In this way, she proposed, they enable students to see patterns in the aspects of the human and physical world they are studying and to explain phenomena through cause-and-effect relationships.

An interesting aspect of this study was that the first time Rumsey taught the lesson it was to fourth grade students who had more relevant knowledge to bring to the discussion than the third graders who were her students when this lesson was video-taped and later analyzed. Evidently this changed the pace and nature of the lesson considerably from what Rumsey had anticipated.

Levstik and Smith (1996) wrote about a year of doing historical inquiry with a third grade level class of "gifted and talented" students. What they found was that although students were able to do research as it is defined in schools, they struggled initially with generating questions of historical significance, acquiring information from sources other than books, and moving beyond simple accumulation of information to analysis. The students, suggested Levstik and Smith, entered the class assuming that research was largely a matter of collecting and verifying facts, not providing explanations. The teachers needed to address these misconceptions about the goals and processes of inquiry before the students were able to engage in the work in substantive ways. Once these issues were addressed however the third graders were capable of meeting the challenges set by their teachers.

Hilda Taba and her colleagues undertook a study that stressed the role teacher education in elementary social studies in improving student thinking (Taba, Levine, & Elzey, 1964, as reported in Nelson, 1991). They gave teachers in-service training during the summer and throughout the year to support them in thinking about and using teaching strategies to support student learning.

Another, more recent study on teachers' education, which focused on the relationship between first graders' mathematics learning and their teachers' knowledge of their thinking, was undertaken by Carpenter, Fennema, Peterson, Chiang and Loef (1989). It was an experimental study that involved recruiting 20

teachers to participate in summer workshops where they would learn about children's thinking on mathematics. These teachers became the treatment group while 20 teachers who participated in two 2-hour workshops in September and February become the control group. The Cognitively Guided Instruction (CGI) workshops held for 80 hours over the first four weeks of the summer vacation familiarized first grade teachers with research on children's solutions of addition and subtraction problems so they could become aware of how children develop understanding of these concepts. The workshops also provided teachers with opportunities to explore how they might use that knowledge for instruction. They were also made aware of curricular materials that were available for instruction.

The researchers found that participation in the CGI workshops helped teachers to comprehend that their classroom instruction should both facilitate children's construction of knowledge and focus on the relationships between skills and problem solving. They also ascertained that teachers who participated in the CGI workshops were more likely than the teachers in the control group to listen to students and to offer instruction that built on students' existing knowledge. In the school year after the workshops these teachers tended to assess students' thinking more frequently in that they posed more problems to the students, they listened to their students more, and they encouraged the use of multiple strategies more often than teachers in the control group.

The researchers concluded that one effective approach for using the results of research on children's thinking to improve classroom instruction is to help teachers understand the principal findings of the research. They can use this knowledge to evaluate more effectively their students' knowledge and make more informed instructional decisions.

The work by the researchers outlined above helped me to design my study. Levstik's work made me realize that there are teachers in schools who are teaching in ways that make social studies interesting to first graders by helping them to make connections between the content matter and their lives. The work by Taba et. al. and Carpenter et. al. pointed to the fact that teacher educators can facilitate student learning by encouraging classroom teachers to listen more to their students. Carpenter et.al. posited that helping teachers to focus on student learning can be done by sharing research on what children at this age tend to know and the ways they might approach a particular academic activity.

Teaching using children's thinking on elementary social studies content

An extensive body of research and literature on the scientific and mathematical thinking of children compiled in the 1980s led to the advocacy of teaching for understanding and teaching with a focus on conceptual change in the 1990s (Ball, 1993; Roth, 1996; Driver et.al., 1994). Concurring with findings from the studies of student learning in sciences and mathematics, prior knowledge and

misconceptions also shape student understanding in social studies (McKeown & Beck, 1990; Wade, 1994).

Teachers who are aware of common misconceptions can plan instruction to address these directly. This involves helping students to recognize differences between their current beliefs and the target understandings, and to see the need to shift from the former to the latter. Such instruction is often called conceptual change teaching. Students' prior knowledge about topics sometimes includes naïve ideas or misconceptions that can cause them to distort or miss the implications of new information that conflicts with their existing ideas. Addressing these issues directly should enhance students' sense-making.

Experienced teachers often elicit their students' prior knowledge of a topic by asking them questions or undertaking some other form of diagnostic assessment as part of their ongoing system of student evaluation. The "K-W-L" method (Ogle, 1986) for assessing content area literacy became very well known in elementary school circles during the 1990s.

However diagnostic assessment as it is usually conceptualized involves an individual teacher talking to his or her own students. Many classroom teachers find this extremely time consuming and in any case are not sure what to do once they find out where their students are. So what might be gained if teachers were given data from multiple sources, such as the responses from numerous children

of the same age but from a number of different classrooms, on a specific topic, that had been collected and analyzed? I have already described one such study, undertaken by Carpenter, Fennema et. al. (1989).

By encouraging the teachers to interact with the subject matter themselves, and to consider how their students might be thinking about problem solving, the researchers supported teacher thinking about student learning. If, as Thornton (1991) suggested, teachers are "curricular gate-keepers" and, McCutcheon (1981) suggested, teacher interests influence curricular decision-making, then it behooves us as teacher educators to make student learning as interesting as possible for teachers.

Yet, how can we get this research-generated knowledge about children to the teachers who are best positioned to use it? And how do we ensure that it is used to inform their teaching? Some researchers write articles in journals such as Social Education and The Social Studies to share with teachers what they have learned about student thinking. Unfortunately, few early elementary teachers are members of NCSS so they do not receive or read Social Education. Even if they did, there is no guarantee that the research would be thought about in ways that would promote student learning. Perhaps the most effective way to use research with teachers is to give the research findings to them directly and then to support them in their use of them.

Teachers planning using student thinking on social studies content

If planning does influence classroom teaching and student learning as Lalik and Niles (1990) suggested, then prior to planning a unit is the most appropriate time to help teachers address issues of student thinking about content. The purpose of this study is to investigate the effects on unit plans of using findings from research to inform and support experienced teachers' planning of social studies units.

I compiled findings from interviews with 96 children in kindergarten, grade one, grade two and grade three that examined their thinking about food into a document entitled Children on Bread: Responses from Students in the Early Grades to Questions about Food Consumption and Production. I intended to give half of the participants in the study this report. I anticipated that with this knowledge they would be well placed to plan a social studies unit for their students. As noted earlier, the other teachers would be interviewed before they started planning, using the same protocol as the 96 children.

Given that they had received different treatments I proposed that the teachers' plans across the two groups of teachers would likely be different across a number of characteristics. I posited that each of the treatments would sensitize the teachers involved to think about planning a unit on food in a particular way. I returned to the literature about social studies classrooms and thought carefully about what I might expect to find in the unit plans.

For instance, Goodlad (1984) classified as *progressive* a positive view of student's independent thought and belief in student participation in planning classroom activities. Given the results of the studies cited earlier we might expect to find that teachers who were encouraged to consider student thinking in their planning might design lessons and units that tended to call upon and encourage independent student thinking and action in the classroom.

From research on conceptual change teaching we can deduce some characteristics of classrooms where teaching is focused on student thinking and understanding. For instance, in the literature advocating teaching for understanding and teaching with a focus on conceptual change in the 1990s, descriptions of classroom practices regularly included extensive large group discussions. These discussions often depicted teachers listening intently to students and probing individual students' responses (Ball, 1993). The studies described teachers using a range of diagnostic assessment activities such as large group brainstorming and individual responses to writing cues. Students were encouraged to write and draw in journals, in the belief that writing or drawing their ideas would aid student understanding of the concept and serve as a formative assessment activity. In addition to examining students' written work, teachers and researchers interviewed students to determine what they had learned (Ginsburg et.al., 1998).

Carpenter, Fennema, Peterson, Chiang, and Loef (1989) found in their investigation that students' achievement was influenced by teachers' use of knowledge from research on children's mathematical thinking, and that experimental teachers taught problem solving more and number facts less than the control teachers. The control teachers emphasized the content of instruction more and assessed students' thinking less often than the teachers who had participated in the workshops.

To be interviewed is a treatment therefore we can anticipate that the plans of teachers who were interviewed, like the plans of teachers who read the Report, will be influenced by participation in the study, albeit in different ways. Ginsburg (1997) proposed that interviewing is not only beneficial for the interviewer but for the interviewee as well. He suggested that the clinical interview (i.e. interview that begins with a protocol but is then determined somewhat by the direction taken by the interviewee) can stimulate introspection and possibly lead to the interviewee conceptualizing an issue never before considered. It may also place the interviewee in a position of disequilibrium (to use a Piagetian term) which in turn can lead to new insights and modes of thinking.

So teachers who are interviewed might be expected to be motivated to think more deeply about the production, distribution and consumption of food. They might become more knowledgeable. Goodlad (1984) classified as *traditional* a belief in strong teacher discipline and control and in the teacher's dominant role

in teaching and presenting information to students. The traditional teacher shares knowledge with students by presenting it to them in ways that help them remember it. The emphasis is on student comprehension and replication of teacher-generated knowledge. Because of the thinking on food done by teachers in the Interview Group relative to what their students will have done, we might reasonably expect their planned classroom practices to be similar to the traditional model.

In the next section I will outline what might be expected to characterize the plans of the two groups of teachers. The characteristics that I will focus on are ones that arise constantly in the literature on planning: A) the planning process, B) content, C) resources, D) activities, and E) assessment.

A PLANNING PROCESS

Report Group

Because the teachers in the Report Group have knowledge of what might intrigue the students, they will be searching for activities to make the most of students' curiosity or confusions. This will be time consuming. They will be focused on finding activities to meet the learning needs of students so they will be student-centered in their thinking. In short, they will be oriented to how children think about food rather than to any formalized knowledge of food (e.g., as held by nutritionists or economists). I predict that:

1 Teachers in the Report Group might find the process of planning difficult because they will be trying to find activities that either build upon student thinking or address directly the ideas with which students struggle.

2 Their thinking about food will be noticeably child-oriented.

Interview Group

The teachers in the Interview Group will have found issues that arose in the interview that resonated with *them,* so they will be searching for information to address their own curiosity. They will have thought more deeply about food, its production, distribution, and consumption so they will probably have strong opinions about the aspects of it they want to teach. Because of what they have thought about, they will be motivated to impart the knowledge to students. They will plan the unit with a mature orientation, (e.g., although they will probably continue to use children's literature because it is modal practice in the early grades, they are unlikely to emphasize fanciful literature). I predict that:

3 For the teachers in the Interview Group planning might also be problematic because, assuming that their interest has been piqued, they will read adult literature to learn more about the topic.

4 They will adopt an adult orientation towards thinking about the unit.

B CONTENT

Report Group

Because the report would have focused their attention on the wide range of experiences, beliefs, and misconceptions that children, if asked, will share, and

because the Report *sensitizes* them to the relationship between curricular content and students' lives I predict:

1 A number of their lessons will be based on teacher solicitation of student experiences.

2 A number of lessons will address directly the student misconceptions raised in the Report.

3 A number of lessons will address ideas raised in the Report that have easily discernible connections to the children's lives such as:1) the characteristics of food; 2) how many of our staple foods are made; 3) farming now and in the past; and 4) people who work to provide us with food.

Interview Group

Because the teachers are committed to their students and motivated for their own professional development they will become intellectually engaged in the interview as a way to develop their own understandings of social studies ideas around food. As they discover interesting ideas they will want to explore them with the students so I predict that:

4 A number of lessons planned by teachers in the Interview Group will address ideas that the *teacher* spent time exploring in the food interview.

5 A number of lessons will address intellectually complex ideas that the teacher finds intriguing.

6 The ideas that teachers are likely to address are the more abstract notions addressed in the interview such as the multiple reasons for people's

actions. These in turn lead to studying geographical and economic concepts that are not easily grounded in the lives of the students.

C RESOURCES

Report Group

Because the Report is the teachers' guide in terms of content it stands to reason that they will also draw on it as a guide for determining which resources to use. Therefore I predict that:

1 These teachers will use resources that focus on ideas raised in the Report.

Interview Group

Because the interview was a conversation between adults about issues of teaching I predict that :

2 Teachers in the Interview Group will use more adult oriented resources as well as children's literature and non-fiction materials.

D ACTIVITIES

Report Group

The Report's power is in its demonstration of how children's thinking is often based in their concrete experiences. Given that, I predict that:

1 Teachers in the Report Group will choose hands-on activities rather than teacher led lectures or discussions.

2 Their students will be encouraged to keep journals or learning logs.

Interview Group

Because teachers who are in the Interview Group will have thought a lot about food and its multiple connections across curricular areas, they might consider it more important than other topics – so I predict:

3 They will allocate more time to studying it.

4 They will decide to teach the topic of food as an integrated unit, with attention paid to the goals of science or language arts as well as social studies.

5 They will lecture and present a lot of information to the students.

E ASSESSMENT

Report Group

Because the Report will have piqued their interest in how children think, and because it demonstrates a means of finding out how a child is thinking without formal testing I predict that:

1 Teachers will question the children to see if they have responses that are similar to the ones given in the report.

2 They will use the individual interview format for some type of assessment (diagnostic, formative, or summative) during the unit.

3 Children's production of artifacts will be taken as evidence of understanding.

Interview Group

By extension, from their own increased experience with articulating their own implicit understandings, as a consequence of the interview process I predict:

4 Teachers will expect students to articulate their knowledge and understanding.

However, given their mature orientation to the topic, teachers may well assess student learning using strategies more common to higher grades. Therefore I predict:

5 Students will be assessed using traditional testing methods rather than by activities and "authentic assessment."

To conclude and to commence

My teaching and supervisory experiences within the teacher preparation program at MSU support the conclusions of Parker (1991) and Houser (1994) and confirm Goodlad's (1984) findings of a decade earlier: social studies is not being taught or is being taught in unfocussed ways.

Reluctance to teach social studies has been attributed to teacher uncertainty about the nature of social studies, inadequate resources, and little external pressure to teach social studies. However, the current political climate in Michigan supports the teaching of social studies so this seems like the ideal time to work with teachers in thinking about what they are teaching in social studies and how research can inform them and teacher educators can assist them. When

surveyed, elementary school teachers who were members of NCSS overwhelmingly responded that they wanted more support in their practice (Haas & Laughlin, 1998).

Hopefully, the findings from this study will provide a way of thinking about how researchers and teacher educators might support thoughtful teaching of social studies in the early grades.

The following chapter will describe the design of the study. Next, descriptions of the teachers' plans will provide a sense of what the teachers did with the information they received about students' thinking about food. In the final chapters of the dissertation I will compare the unit plans of teachers who had access to the information on student thinking and those who were interviewed and outline the implications of the findings for research and teacher education in social studies.

Research Design and Method

Introduction

In addition to being a description of the study in terms of how the data were collected and analyzed, this chapter is also an account of how my initial research design was influenced by issues of context.

Research on teaching and learning that is situated in schools, during the school year, is untidy and imperfect but a necessity if educational researchers are to have a real sense of school as a context. I learned that the realities of our society and educational system will shape my work with teachers and students, regardless of how structured I might like my research to be, or plan for in my initial research design.

Initial design

The intention of the study was to examine the ways in which providing teachers with information about children's thinking might influence their social studies unit plans in the early grades. Studies of teacher planning have tended to focus on the act of planning (Yinger and Clark, 1982) or on the relationship between teachers' plans and their actual instruction (McCutcheon, 1981). I was interested in seeing the unit plans that individual teachers would produce by themselves, while still involved in the everyday tasks of teaching. Despite the numerous reports of teachers relying solely on textbooks to teach social studies or, in the

early grades, not teaching it at all, I was optimistic that there were teachers in schools who were designing their own units. From my experiences as a classroom teacher I was fairly sure that they probably would be working on their own so it would be a case of seeking them out.

To find patterns in the unit plans and to be able to compare the lesson plans of teachers who had information on children's thinking around the topic and those who did not I would need to work with a large number of teachers. The study was envisioned as a quasi-experiment (see Figure 2.0). I intended to focus on the planning of social studies units by working with twenty-four people who were experienced teachers of students in grades one, two, or three. They would be separated into two groups, a Report Group, and an Interview Group. As much as possible the two groups would be balanced in membership regarding teaching experience, grade level, and teaching context.

I would work with each of the teachers individually, meeting around her or his teaching commitments. All participants would have a number of common experiences such as being interviewed individually about their current social studies practices, and talking about planning a unit and lessons around food. In the "tools" section of this chapter I will explain why I chose to use food as the topic about which to plan.

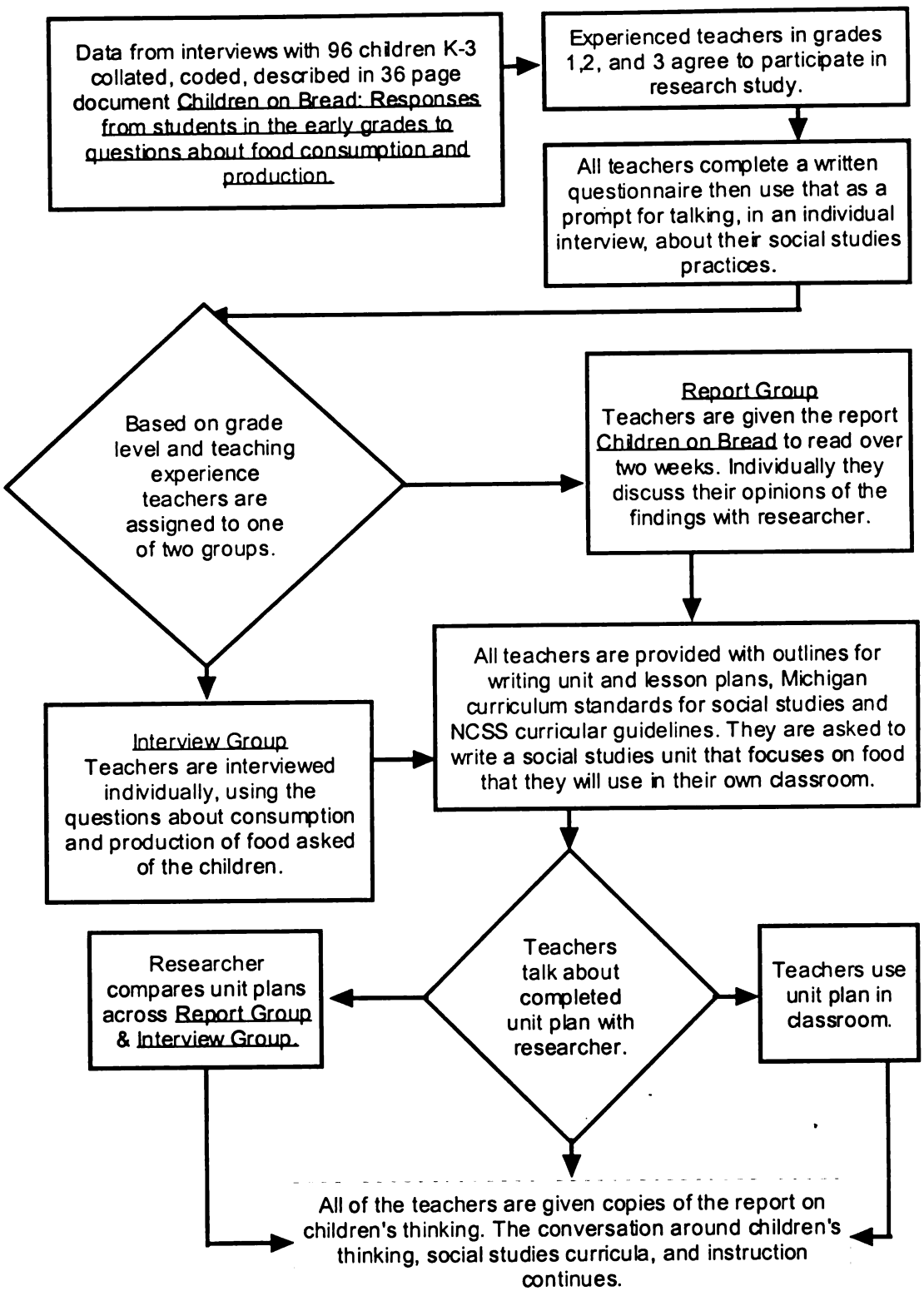


FIGURE 2.0 Dissertation research design

Using a common set of questions, twelve teachers would be interviewed on their own thinking about concepts associated with food – as a social studies topic (Appendix A). The other twelve teachers would be given a report that synthesized the responses of 96 students in grades K-3 to the same interview questions (Appendix B) and then at a later date we would have a conversation around children's thinking about food that was based on their reading.

During the initial designing of the study I decided that there would not be a treatment control group. Having a control group that did not receive any support in planning and did not participate in any conversations about social studies but was still expected to plan a unit seemed pointless in terms of the goals of the study, unrealistic in terms of recruitment, and problematic ethically. Being involved in the project voluntarily already differentiated the participants from the general population of elementary school teachers.

I had greatly underestimated the difficulties of recruitment. The final number of participants in the study was twelve. Four teachers from each of the grade levels stayed with the study. One teacher in each grade level was in the Interview Group.

Getting permission to undertake research in the districts

Going through the administration system of each of the seven school districts that surrounded the university in order to get permission to do research took varying amounts of time and effort on my part. In the instance of small districts with two or three elementary schools it took a few days, a few telephone calls, and a letter or two. In districts that had multiple networks of collaboration with different units within the university it took weeks. In a district that governs numerous schools and struggles with issues commonly associated with urban poverty, the process of getting permission to talk with teachers stretched over months of completing forms, writing letters, uncovering the secrets of the labyrinth that is the district's telephone system, and having conversations with different members of the administration. However, the struggle was worth the effort. Once permission was granted, teachers and administrators in this district were particularly welcoming and friendly.

Recruiting participants

In the Spring of 2000, five months after defending my research proposal, I finally had permission to enter all of the schools within a twenty mile radius of the university so it was time to start recruiting. This is an account of the first, second, third, and fourth attempts at recruiting participants.

In my first attempt at recruiting I made sure that I had administrative permission at the district level, then I visited all thirty of the elementary schools and talked

with the building principals, giving them copies of an introductory letter to distribute to teachers in grades one, two, and three. At four schools I spoke at the biweekly staff meetings. Although not particularly productive in terms of recruiting participants to the study (three teachers contacted me as a consequence of reading the introductory letter), visiting the schools gave me a better understanding of the range of educational experiences and resources to which local children had access.

At the same time I presented my ideas at LATTICE (Linking All Types of Teachers In Cross-Cultural Education). LATTICE is a program that brings K-12 teachers from the local area together with international graduate students from the university one afternoon each month, to share and discuss their perspectives on the world. Three teachers from the LATTICE group agreed to be a part of the study.

My second attempt at recruiting was based on my reasoning that the few responses from the public school teachers might be because they felt constrained by district guidelines and official expectations placed on teachers. I had met many thoughtful teachers while working in independent schools overseas so I thought that teachers in the local private schools might be more inclined and in better positions to take part in the study. I delivered letters to more than a dozen independent schools in the locality and I had interesting conversations with numerous principals and administrators. Not a single teacher

contacted me. What I discovered was that in many instances the curriculum in independent schools may be even more tightly bound to decisions made outside each individual classroom than in the public schools.

In my third attempt at recruiting I approached teachers through the university's master's programs. I talked for five minutes in five different classes with around twenty teachers in each group. However, most of these teachers did not teach students in the early grades. When I did receive a telephone call from a student from the master's program to whom I had presented my study, it was to suggest that I could work with the fifth grade teachers in her district. They were getting pressure for their students to perform well on the newly instituted standardized tests and if I were offering free help they would take it!

I asked teachers in the master's classes that I taught over the summer semester to contact me, once the courses were over, if they were interested in participating in the study. One of the teachers who was working with second graders pointed out that although the study sounded interesting and she thought that she would benefit from participating, her graduate work absorbed any time outside the classroom that she might otherwise have used to take part in the study. She pointed out that concerns about salary and professional certification had to take precedence at this point in her career. None of the students in the classes I had addressed had contacted me by Labor Day weekend so it was time to try a different strategy.

The fourth attempt was more strategic, and informed by the profiles of the teachers who had already become involved in the study. The participants tended to be teachers who were somewhat older, who enjoyed teaching, and who were involved, or had been involved in other curricular projects, often to do with literacy.

I contacted the director of curriculum in the large school district where I lived. After a lengthy discussion about the needs of the teachers and students in this particular district and confirmation that I did have permission to do research, she gave me the names of three teachers who had been involved in social studies curriculum development in the past. One of these people was a veteran teacher and winner of a number of teaching awards over the years. She was particularly supportive and excited that social studies in the early grades was the focus of my research so she gave me a list of twelve teachers' names, with school and home telephone numbers, from schools around the district. One of the names she provided me with was a person who was not only interested in social studies, but reading and literacy issues. She knew my adviser at the university. She had worked with a number of New Zealanders in the Reading Recovery program and had a sense of how the elementary school curriculum in New Zealand promoted content area literacy. In this instance my nationality worked in my favor -- she felt comfortable in supplying me with the names of more than forty other teachers who had been involved in the literacy workshops.

Contacting people I did not know was stressful; however, being able to refer to her recommendation made the conversation get off to a good start. And while not everybody was interested in meeting to talk a little more about the study, at least nobody hung up the telephone straight away. As I grew in confidence at speaking with teachers in this manner I found that many people were happy to give me names of colleagues who they thought might be interested. Contacting teachers in this manner enabled me to locate people who agreed to participate in the study.

Retention

By early October twelve teachers were recruited to the study. The numbers continued to fluctuate with new people replacing teachers who found themselves overwhelmed by newly bestowed administrative and curricular responsibilities, or unanticipated personal situations. I could begin to collect data, six months later than initially anticipated, but with a far greater appreciation for the effort it takes to do research with teachers in schools.

Topic and tools

The social studies curricula in grades one, two and three tend to focus on the activities of people living in homes, neighborhoods and communities. There is instructional focus on the features of everyday life that cross social, cultural and geographical boundaries. These features of everyday life, or cultural universals,

include how people eat, clothe themselves, find shelter, communicate, organize themselves, make sense of the physical world, and use time when not having to meet basic needs. Because these activities are what we spend our lives doing, studying cultural universals in the early grades helps students develop a solid base for understanding human societies. By the time children are of school age they have had years of direct personal experiences with most cultural universals so they have a lot of knowledge to call upon, especially when it comes to thinking about food and eating.

> *In the changing history of the world, the need for food, and for certain observances bound up with its consumption, has been one of the most constant, major elements in human life. As moral attitudes have altered, whole structures of religious, economic, social, and sexual behaviour have changed with them. Food, like sleep, however, has remained a basic, daily human requirement: more necessary in most climates than clothing or shelter, more immediately assuaging to personal needs than (say) family life, religion, love, or sex. From Homeric times onwards, most social gatherings of any importance have revolved round the dispensation of food and its often required accompaniment or substitute, alcoholic drink. Most religions include or have included some form of ritual sacrament or sacrifice involving food, many of these meant as a direct thanksgiving for present supplies and a propitiation of the forces controlling supplies for the future. The deprivation of food, by means of famine, war, poverty, or neglect, is as terrible an experience today in Africa and other, disturbed parts of the world as it was for the tribesmen of Palestine and Egypt in the last chapters of the Book of Genesis, or for the poor in rural England and Ireland at the time of the corn shortage and potato blight of the 1840s. (Allen, 1995, page vii).*

As a topic food is wonderful to focus on in the early grades because it is essential to all life and arguably the most fundamental of human activities yet there is no clearly bounded body of knowledge about food that is legitimized by the academy. The study of food and how it is produced, distributed, and consumed

can provide an entry into all of the disciplinary areas of the social sciences, yet people cannot be awarded credentials for studying food as they can for studying in the disciplines. People tend to admit expert knowledge only when they have credentials so it is not surprising that teachers in the study could say neither that they had a deep knowledge, nor that they were completely ignorant of the characteristics of food and how it was produced, distributed, or consumed. While understanding that there will always be variations in people's understanding of the world, for the purposes of the study we can assume a common lack of legitimized subject matter knowledge across all participants.

Among the findings of the report were five key points that I did not articulate to the teachers but that the majority deduced for themselves. 1) Young students do not think about any relationship between what people eat and their environment. 2) They oversimplify food preparation (e.g., to make bread you grind wheat and cook it, to make apple sauce you mush apples). 3) They have little historical understanding: more people were farmers long ago because there were no stores. 4) As anticipated, older children who were interviewed tended to know more, and few gender differences were found. 5) Also, items that were addressed in curriculum (e.g. food groups), did show a jump in student understanding across grade levels. The thirty page report: Children on Bread: Responses from students in the early grades to questions about food consumption and production can be found in Appendix B.

Classroom teaching is shaped by teachers' beliefs about the purpose of teaching the subject, the roles of teachers and students in the classroom, the choices that they make in using particular resources or allowing students to participate in particular activities, and by how they plan. It seemed important to get a sense of the teachers' thinking about social studies teaching before asking them to read a report on students thinking in social studies, or interviewing them using the same questions that had been used in the interviews with students, and before giving them too much information on my expectations in terms of their planning. Acknowledging that a number of the participants had volunteered to participate so that they could think more deeply about their instruction, it also seemed important to give them some resources for thinking about social studies teaching.

I constructed a questionnaire to inquire into the instructional issues described above (see Appendix C). The questionnaire drew upon the conceptual framework of Clark & Case (1997) in terms of thinking about the role of social studies and the teacher. In the questionnaire I summarized and listed suggestions made in several elementary methods texts (Chapin & Messick, 1999; Ellis,1998; Hoge, 1996; Parker & Jarolimek, 1996; Nelson, 1998; Savage & Armstrong, 1992; Sunal, 1990; Turner, 1999) as possible ways of approaching social studies instruction. I was hoping that the teachers would see their interaction around the questionnaire as a learning experience as well as a means of helping them to recognize and articulate aspects of their own practice. It turned out that they saw the questionnaire itself as a resource, as much, if not more so, than our

interaction around it. In a comment that was similar to those made by other teachers nearing the end of our conversation around the questionnaire, one of the participants said

> *"I don't know what else to say about this. It's very rich. I'd really like to keep a copy of these activities, to use to kind of refresh myself. I'd like to take a copy of that and just kind of have it in my lesson plans so I could be thinking—"Now, wait, have I done much of this?" " (Crystal Glover, interview, July 30, 2000).*

Every participant in the study took 15-20 minutes to complete the questionnaire and then used it as a prompt for telling me about social studies teaching and learning in his or her classroom. At the end of the interview we scheduled our next meeting. The teachers who received the report on students' thinking about food and its production, and consumption generally wanted three-four weeks to read it before we would meet and talk about their impressions. When we did meet I asked the teachers to talk their way through the report with me, raising issues and students' responses that had piqued their interest as they had read it. Teachers in the group who were interviewed around food, using the same protocol as the students, generally wanted to schedule another meeting soon after the interview around the questionnaire.

The third time I met with participants was to give them each a common framework for the writing of the unit and lesson plans. At this time we discussed

how state and national standards can provide legitimacy for thoughtful work in the classroom, especially if one moves beyond the boundaries of local guidelines (Alleman & Brophy, 1993). Each teacher was given a copy of the section relevant to social studies education from the Michigan Curriculum Framework (Michigan Department of Education, 1996) and materials on national curriculum standards for the social studies (NCSS, 1994). I left each of these interviews with the teacher having given me an approximate date for completing the unit plan.

After the third meeting teachers were for the most part left alone to design a unit around food that had been informed by either the report on students thinking or our conversations and that would meet the needs of the students in their classroom. I tried to telephone each participant regularly (every two weeks or so). I soon discovered that most of the teachers were often unavailable to talk or return calls and did not necessarily appreciate being contacted. None of them told me outright that it was more of an annoyance than anything else; however, as time passed, I realized that some of the teachers were starting to sound defensive because they had not written up their unit, so I stopped calling them. By early December, when some of the deadlines for unit completion had been passed, I determined that the next calls I would need to make would be to arrange a date for unit completion. The interviews had been undertaken between August and November, with the majority in October. In mid March I was still waiting on two units promised to me, having received most of the others in late February.

Final design

The twelve teachers in the study can be grouped according to the grade level of the students they teach as well as categorized by their membership in either the group that read the report on student thinking or in the group that was questioned about their ideas about food. Although this study ended up with uneven numbers of participants in the groups determined by the research design, I am fortunate that the teachers who did plan units were quite evenly distributed across the three grade levels. Kate Williams, Denise Moore, and Rosemary Mansfield, the three teachers who worked in multi-age settings, had primary responsibility for the students in the grade level they have been described with here.

Table 2.0 Teacher Characteristics

Grade	Group	Name	Exper.	Context	Talk	Plan
1	R	Brian Eliot	5 years	Suburban	2	ii
1	R	Amanda Lawrence	4	Small town	2	ii
1	R	Kate Williams	19	Urban/ mixed	3	ii
1	I	Denise Moore	28	urban	1	ii
2	R	Felicity Stevenson	32	suburban	1	i*
2	R	Helene Garcia	1	suburban	3	iii
2	R	Glenda Hughes	11	suburban	1	ii
2	I	Emily Blake	5	Small town	2	ii
3	R	Rosemary Mansfield	6	Small town	2	iii
3	R	Colette Thomas	20	Small town	3	Iii*
3	R	Sharon Baxter	28	suburban	2	i
3	I	Crystal Glover	16	urban	3	i

As well as illustrating characteristics of the participants such as their years of teaching experience and their teaching context, Table 2.0 shows the variation in time spent talking with each teacher. In this column 1= adequate: at least one meeting less than 45 minutes in duration; 2 = extensive: all meetings between 45

and 90 minutes, 3= prolonged: at least one meeting more than 90 minutes. It demonstrates the unanticipated consequences of: 1) using an open-ended interview format that built on what each individual said or identified as worth talking about regarding the biographical questionnaire or the Report; and 2) meeting around individual teachers' schedules. The length of conversations and data collected varied across individual teachers. Conversations with Denise, Felicity, and Glenda were around forty minutes long for each of the times we met whereas other teachers such as Kate, Helene, Colette Crystal took more than ninety minutes to discuss their ideas each time we met. Some of the variation was due to what the teachers identified as important to talk about, e.g. Helene Garcia wanted to speak to much of what had been written in the Report whereas Felicity Stevenson did not. Some variation could be attributed to individual conversational styles, e.g. Rosemary Mansfield spoke very quickly so even though we met during the school day we covered many ideas in a short time whereas Sharon Baxter spoke more slowly. Some variation in time was directly related to when teachers met with me. It was convenient for Denise and Glenda to meet at the beginning of the school day so our time to talk was limited. Kate and Crystal met with me during the summer vacation and Colette met after the school day was over so they were able to talk for much longer.

Participants in the study interpreted the guidelines in different ways and so there was a considerable difference in the amount of written materials they gave me. The final column in Table 2.0 illustrates this variation in written unit plan length.

Although most teachers wrote unit plans of around 10-15 pages (categorized as ii in the table), three teachers, Felicity Stevenson, Sharon Baxter and Crystal Glover wrote much shorter outlines of their lessons (categorized as i). Felicity included numerous worksheets, without explanation, with her plan. Three other teachers, Helene Garcia, Rosemary Mansfield and Colette Thomas wrote extensive plans (categorized as iii). Colette went well beyond the study of food to constructing a course outline for teaching local history that would take a year to teach.

Explanation of the tables used to summarize teachers' unit plans

In the guidelines for writing the unit and lessons teachers were asked to write the objectives that they had for their lessons. Their responses were much more varied than I had anticipated. Some teachers used behavioral objectives, some used learning objectives, some referred to Michigan Curriculum Framework standards, and some did not list any objectives at all. Comparison of the unit plans across objectives was going to be difficult.

In order to characterize succinctly what it was they were focusing on teaching I decided to list the big idea of each lesson. "Big ideas" are generalizations that we can make using the information we have. Big ideas are true over time and space. They broaden students' understanding of their physical or social worlds. They can generate other ideas.

I determined the big idea of each lesson by analyzing each teacher's stated objectives for the lesson, the rest of the lesson plan, and in some instances by going back to my notes on what they had told me in interviews and conversations. This was necessary because, as Zahorik, (1975) noted, teachers tend not to write down their plans. Samples of original lesson plans produced by each teacher can be found in Appendix E.

The next four chapters that present the data from this study will be organized as follows. In Chapter Three the context of the first grade will be introduced then the unit plans of Amanda Lawrence, Brian Eliot, Kate Williams, and Denise Moore will be described and critiqued in terms of their relationship to student thinking and to the practices of others who plan for teaching at that grade level. Chapter Four will consider the context of teaching in the second grade, then present the plans of Felicity Stevenson, Helene Garcia, Glenda Hughes and Emily Blake. In Chapter Five we will consider the plans of Rosemary Mansfield, Colette Thomas, Sharon Baxter and Crystal Glover.

In the sixth chapter I will analyze the patterns and common characteristics found in the unit plans of the teachers who read the report on students' thinking about food. I will compare these with the unit plans of Denise Moore, Emily Blake and Crystal Glover, the teachers who were questioned using the same interview protocol as the students.

The seventh and concluding chapter will consider the findings of this study in terms of how they might help us reflect upon planning in elementary social studies as it relates to research on students' thinking, classroom teaching, research, and teacher education.

Planning to Teach Social Studies in the First Grade

This chapter will describe and analyze how four teachers of first grade students have planned to teach a social studies unit on food. However in order to provide a sense of what teachers deal with when teaching first grade the chapter will begin with a brief consideration of the context of the first grade.

Many children enter first grade unable to read or write. Some of their classmates have elementary skills but are still unable to receive or communicate sophisticated ideas through writing. In the first grade they learn decoding strategies and how to print messages such that other people can understand them. In social studies they tend to learn about how their basic human needs are met by members of their family and people in their immediate environment. No doubt in part because of the pre-literate nature of most first graders, discussion is reportedly a widespread activity in first grade social studies. This makes modal social studies lessons at this level somewhat different from the textbook focused recitation commonly cited as typical of social studies lessons in the upper grades (National Commission on Social Studies in the Schools, 1991).

In this chapter you will be introduced to the four first grade teachers: Brian Eliot, Amanda Lawrence, Kate Williams, and Denise Moore. Brian and Amanda are in their mid twenties, each has around five years of teaching experience, and they

both teach straight first grade classrooms. Kate and Denise are more than twenty years older than Brian and Amanda. They have been teaching for nineteen and twenty-eight years respectively, and are now working in multi-age classrooms. Kate teaches kindergarten students as well as first graders while Denise works with principally first graders -- and a handful of second graders. All four teachers have been involved in the literacy programs offered by their respective school districts, and like the teacher Levstik (1993) described, believe in the power of using whole language methods to teach young children.

The school context in which each teacher works will be briefly described for each of the teachers and then their unit plans will be considered. The first three teachers, Brian Eliot, Amanda Lawrence, Kate Williams, read and discussed the report on students' thinking about food before writing their unit plans. Each teacher's reactions to the report will be described followed by a chronology of planned activities and assessments. Before designing her unit Denise Moore was interviewed with the same protocol as was used with the students in the report. So her notable responses to the interview protocol will be shared before we look at her unit plan.

Rather than including copies of the seven to twenty-two page unit plans that each teacher created, I have drawn up a table for each teacher that summarizes the lesson plans in terms of big ideas and key activities. (An example of one original lesson plan from each first grade teacher can be found in Appendix E). After

offering each table of lessons, I will describe the various patterns that I found within the unit it summarized. After describing each teacher's plans in turn I will discuss my impressions across all of the plans, what they reveal about teachers' attention to student thinking, and possible implications for teaching social studies in the first grade.

Teachers who Read the Report on Children's Thinking

Brian Eliot

Brian Eliot teaches first graders in a suburban school that caters for children who live in diverse neighborhoods. Some of his students live in lavish riverfront houses while others catch the school bus outside their trailer-park homes. The majority of his students live in modest single family homes in a number of well-established subdivisions that surround the school.

Although his first year of teaching was spent with fifth and sixth graders, for the past five years Brian has been teaching first graders and becoming increasingly interested in the ways children learn to read. After earning a bachelor's degree in mathematics and environmental science he started studying for a graduate degree in literacy. As well as taking graduate classes he has been involved in the school district's efforts to bolster levels of literacy and teachers' awareness of whole language strategies that they can use across the curriculum. These interests are apparent in the unit he has planned.

Reaction to the Report

Brian Eliot started our conversation around the report on children's thinking with an anecdote. He spoke of how, on a recent field trip to a farm, a child in his class had informed him that we get chocolate milk from brown cows. He suggested that the child had seemed quite serious but that it wasn't so surprising given that five and six year old children quite often have trouble deciphering fiction from fact. He pointed out that the media could have had a role in creating this misconception.

> *"The way the media portrays things – like if you look at commercials and stuff, a lot of them will use like humor. Like they'll show like a cartoon, though in that sense, a brown cow giving chocolate milk…I really wonder if it contributes to some of the misconceptions because of the way advertisers lead people".*

He had enjoyed reading the report because he felt that it provided him with some guidance in thinking about substantive social studies ideas, as well as validating his beliefs about teaching from where the students are.

> *"What's important, in my opinion, when you approach something like this explaining, is letting the children know ahead of time, finding out what their conceptions of food but also specifying why it's needed, where it comes from, how does it differ for people who live in different areas. So, I'm trying to figure out what are some big ideas that we're doing and when I look at some of these questions. These are some of the questions that I would like to guide the kids on in finding out what it is they know about foods".*

Planning and Content

Brian found it intriguing to look into the state content standards, even those that didn't relate to the first graders as it was the first time that he had done a serious investigation of social studies beyond the guidelines and recommendations of his school district. Moving beyond the regular guidelines meant that many of the resources that were suggested and available to him within the district no longer met his needs. He decided to browse the Internet for suggestions and found numerous "really neat" sites for children. These became key to his unit design. He pointed out that the several lessons outlined here are only some of the lessons he would teach in the unit.

Activities and Assessments

In the written introduction to his unit plan Brian explains that he is thinking about teaching his unit "How Do We Get Our Food?" in a *constructivist* manner. Although he does not define constructivism directly, as we examine the lessons he has planned, we can see how he construes constructivism as a process of learning through discussions. The desks in his room are clustered into three "tribes" to facilitate discussions within small groups of students. Despite believing that he has important ideas to share with the students he is reluctant to give them the information directly, without involving them in substantive conversations.

However, this constant focus on discussion, especially when he is involved in it, does concern Brian when he reflects upon his assessment methods. In a conversation about his unit he told me that finding a range of assessment strategies was "tough". We will revisit this issue of assessment in the discussion around his unit.

In keeping with this notion of learning through discussion, Brian intends to introduce the unit by asking students what they know about food: it's origins, production and distribution. He will ask the students "Where does food come from?" and then he will ask subsequent questions that clarify the students' responses or press them to talk about particular foods. He will write their responses on chart paper. Brian anticipates that in this discussion he will discover many of the students' misconceptions. These will provide him with leads to follow as he mentally scripts discussions for the rest of the unit.

Like many of the teachers in this study, Brian anticipates using resources published as part of the Michigan Health Model to support his teaching. He drew his second lesson, which focuses on learning how foods are classified by the Food and Drug Administration, from the lesson plans that come with the early years program.

In his third lesson, Brian intends to help students recognize that foods in each of the food groups have different origins. Some foods can be easily recognized as

coming from animals, others come from plants, and still others are synthetic compounds invented by people. He will bring in examples of common foods for the children to think about, discuss, and categorize. Some of the food items will be of mixed origin so that the children will be encouraged to read the labels and packaging.

The fourth lesson in Brian's unit will involve tracing the origins of various foods that begin as wheat. He will start by asking them where bread comes from. He intends to increase their vocabularies by introducing words associated with economics such as producer, distribution and consumed, in a discussion around the picture book If it Weren't for Farmers (Fowler, 1994). After this discussion he intends to have them follow a slide show on a 4H Club web-site that demonstrates how wheat is produced. The students will either write an explanation or draw a map of the stages to demonstrate their understanding of the stages of bread production.

Brian intends to take his students on a field trip of Michigan State University's dairy unit for the fifth lesson in his unit. On the field trip they will be able to observe first hand the process by which milk is taken from cows and made into various products such as cheese and ice cream. He will ask the students what they know about where milk comes from before the field trip so that they can compose questions to ask while at the dairy. Then he plans to draw upon the expertise of the university personnel who work with hundreds of groups of

children each year to answer these questions. Students' learning will be assessed by how well they participate in discussions and in follow-up activities such as writing thank you letters, mapping the process, and addressing new questions that have arisen in response to the field trip.

Another lesson that Brian describes will involve taking the students on a virtual field trip of the Hershey chocolate factory. Building upon what the students have learned about milk, Brian intends to increase their awareness of how a number of *raw materials* are needed to *manufacture* a single product they might eat – and introduce these words to the students' vocabularies.

Brian suggests that prior to this lesson he might have taken them to a web-site hosted by the Michigan Department of Agriculture (MDA) that illustrates how sugar is produced from sugar beets. However in this lesson he will bring in a bar of chocolate, talk about the ingredients listed on the label then direct the children to a web-site hosted by the Hershey Foods Corporation that will take them inside the factory. At the end of the virtual tour he plans to distribute samples of real chocolate to the students.

Table 3.1 Summaries of Brian's Lesson Plans on Food

	Big Idea	Activities
1	▪ Foods have different origins and are produced and distributed in many ways.	Teacher elicits responses from students to assess prior knowledge. Class discussion.
2	▪ Foods can be categorized.	Teacher introduces food groups poster and justifies classifications. Students place models of food on correct group. Students practice naming and classifying foods.
3	▪ Foods can be of animal or plant origin.	Teacher presents food items to the students. Students classify examples of different foods by origin. Teacher notes responses on chart.
4	▪ Wheat is produced to prepare different foods we eat.	Teacher brings a bag of bread to the classroom. Students determine its ingredients. They read If It Weren't for Farmers. Discussion. Teacher leads students in exploration of website: http://www.ext.vt.edu/resources/4h/virtualfarm/main.html Students participate in a discussion about the virtual farm slide show. Students write or draw map of production process.
5	▪ Dairy products come from milk.	Students share prior knowledge of process. Class visits dairy of local agricultural college. Students draw map of production process of a particular dairy product e.g. ice cream, cheese.
6	▪ Many raw materials are needed to manufacture chocolate. ▪ New products are developed by combining raw materials in different ways.	Teacher reads ingredients of a Hershey bar and asks students how they think the candy was made, using prior knowledge about milk and sugar. Teacher guides students through slide show on web-site: http://www.hersheys.com/kidztown/index.html Students answer questions on web-site.
7	▪ Food in our community comes from many places. ▪ Places where food is produced can be located on maps.	Review of visit by supermarket manager. Teacher shows students where origin of food is printed on food packaging. Index cards showing food origins are placed on maps of U.S. and MI. Teacher guides class through web-site: http://www.mda.state.mi.us/kids/. For homework students will find out the origin of ten foods in their kitchen then add this information to classroom display.

Brian intends to finish the unit with a lesson that makes students aware of the geographic origins of familiar foods. In his plans he explains that he would have invited a representative from the nearby supermarket to visit his class to explain the distribution process. In this lesson he will bring in foods from his home and help the students read the labels to find out the states or countries in which they were produced or raised. Then they will locate these on maps of the US and of Michigan. They will revisit the MDA web-site, this time to find out information on other products of Michigan. Their homework will involve investigating the foods they find at home in order to return to school with a list of ten foods and their geographic origin. In school they will write each of these foodstuffs on individual index cards and then place them in appropriate places on either of the maps. Assessment will be based on the successful completion of the homework assignment.

Commentary

Brian clearly calls upon the ideas in the report on students' thinking when deciding what content to teach. Food groups, the land-to-hand processes of making bread, and dairy products, and the notion that food comes to us from many places are all ideas discussed in the report. He introduces them to the notion of manufactured foods by using examples of food that he knows they enjoy eating, such as chocolate.

In his conversations Brian explained that there were very few informational texts that are written for students who read at the first grade level so he decided to plan this unit with less of a focus on literature and printed text and more of an emphasis on technology. What is clear in Brian's unit is his determination to use the Internet with his students, even though he acknowledges three issues he will need to address when teaching the unit. First of all, many of the students will not be able to navigate the sites independently because they cannot read. Secondly, the current physical organization of the computer suite does not make teaching with the computers easy. And the third issue is that the school's networking system within the classrooms is very slow. Assuming that they can get access to the Internet it then takes a long time to download data from the web-sites. Despite anticipating these technical difficulties, Brian remains excited about his discoveries.

> *"What was neat about doing the unit is the fact that actually I found more out there than I knew was out there. The Hershey's one was really cool. I stayed on there for quite a while. I learned a lot by looking at. By doing those types. Looking at some of those different sites."*

The field trip that Brian decided to take the students on as part of this unit was to the dairy educational unit on the campus of MSU. As an undergraduate Brian had accompanied a group of urban students through the unit and had been impressed by their reactions to the presentations. Brian had told me that his class rarely goes on field trips, about one per term, because of the cost, so as a

teacher it is always a case of making sure that the site that you intend to visit will really meet your curricular objectives. Yet he feels that field trips are extremely educational so he is very enthusiastic about being able to do virtual tours if his students can't do the real thing.

He used the Michigan Curriculum Framework (1996) to shape his unit plan, choosing the social studies standards that describe interactions between humans and their environment and explaining family and business choices. Some of Brian's overall goals for the unit were not addressed in the lessons he chose to share in the unit plan. For instance he wanted the students to realize that they and their families were consumers and we could say that this might happen through discussion during the final lesson. However, he also talked about how in this unit he wanted students to begin identifying the different roles of people in the community who deal directly with the production, distribution and consumption of food. Most of the lessons he described examine the production or distribution of food rather than the choices consumers make as to how and why they eat as they do.

Determining how to assess the students' learning was the most difficult part of the planning process said Brian as he talked about his unit. When talking about what students should know he emphasized their need to focus on why things are they way they are, not just know what the things are like. He wanted to have the children interacting with him and each other through discussions in large and

small groups. However, when he had to put his ideas on paper he had to admit, as the teacher who was leading the lesson, that it was difficult to assess what the students knew or what they had learned through discussion without adding a written or drawn component to the activity.

This dilemma is one that many teachers must address when they take graduate classes. When they try to apply theories of learning to their classrooms they find that the context of the classroom makes good ideas very difficult if not impossible to implement. Although in theory it might seem possible to have a purely constructivist approach to teaching, observing student participation in the process of learning the information (i.e. discussion) may not necessarily help the teacher understand what each of the twenty four students has learned. Also, not everything that students learn in schools needs to be considered in multiple ways to be useful. For instance, Brian intends to provide students with a lot of information that is not open to interpretation e.g. the stages wheat goes through to be made into bread -- and he will be expecting the students to show what they have learned through a drawing or a written explanation.

If Brian has the only copy of a text, whether it is a book or a computer screen, he is still the purveyor of legitimized knowledge, even if he sends the students into groups to answer questions he has designed to draw upon what they know. It is his skill in helping the students make connections between what they discover they already know and what he is bringing to them that is the craft of teaching.

To conclude, Brian intends to use technology and talking to make the students in his class more aware of where the food they eat comes from and how it is made. His goal is to make the students better communicators with each other and better at researching for information from their immediate environment such as food containers. He intends to expose the students to resources such as maps and Internet sites and in so doing provide them with the tools and confidence to use these resources in the future.

Unlike Brian, who speaks of constructivism, the next teacher whose unit plans we shall consider, Amanda, does not align herself with any particular theoretical stance. Amanda states that because of their reading abilities students in the first grade are very much in need of a teacher who is the source of knowledge, especially at the beginning of the year. Later in the year, when they can read more themselves, she teaches them ways to find information by modeling the use of reference materials, much as Brian suggests.

Teachers who Read the Report on Children's Thinking

Amanda Lawrence

Amanda Lawrence teaches first grade in a small town school that is extremely well supported. In the past few years referenda to raise funds for the schools have been passed regularly, and in part account for the large influx of new

residents who choose to commute to the nearby city in order for their children to benefit from living in a more rural environment. The modern school buildings and the school system with its reputation of academic rigor both attract families to the district. The interior décor of the buildings is plush and color coordinated. Classrooms are large and comfortable. Computers in the classroom are well maintained and are connected to the Internet. Having previously taught in a school that was not as well funded and where parents were not as actively involved in their children's education, Amanda considers herself to be very lucky to be teaching in her current school.

Reaction to the Report

Unlike Brian, in our conversations Amanda spoke more to the practical than the theoretical aspects of teaching young children. Her undergraduate degree was earned in elementary education and since then she has spent four years teaching first and second graders. Amanda found the report on students' thinking about food production, distribution and consumption interesting because she was surprised at how it revealed aspects of society she hadn't thought about very much. She had not thought deeply about how different the children's experiences were from her own childhood. For instance, when talking about the students' responses to the questions regarding the preservation of food she shared that her father had cultivated a large vegetable garden so each summer her mother would can foods to eat during the rest of the year. Amanda also shared that when she was a child her father went to work and her mother was a housewife.

Both parents work in all but one of her current students' families. These characteristics of the family structure, she believes, have shaped her students' understanding of the world.

> *"You definitely get the feeling, just even from reading this, how much this reflects on our society, and the push for fast food, and how kids think. You know. That we eat out much more as a society than I even remember as a child but just the idea of. You know at the restaurants they understand that you're paying for the goods and the services there and that's why you pay. But at home you don't have to pay. Because you know I thought that was a very interesting answer to think about. They understand the exchange at a restaurant and the market and every thing that is going on there but not at home so much. So it was interesting to me just to see where our society is at with fast food and eating out and food preparation in general. I don't think they probably see many cooked meals as much any more. I would imagine that they're. Even with being more two-career families now you know that the meals have become much different from what was served about 20 years ago. Where there was someone who kind of would spend. You know, the old stereotype of spending a couple of hours in the kitchen getting dinner together and then. In my family it did. I had a stay at home mother who -- that was her "job." I say that with quotation marks but yeah."*

As Amanda was reading the report she was thinking about how she would have responded because, although she knew the answers to questions such as what is the difference between food and things that are not food, they would be difficult to explain. She was also wondering about where some of the common responses came from because they were not taught in school. She pointed out that the majority of children thought that what distinguished the diet of people in the United States from people living elsewhere was the amount of junk food they ate.

> *"So to think about – where does that come from? Where do they? Cause I wouldn't imagine that they are taught that. So I wonder where that comes from. It's kind of. Some things kept coming to my mind. Where are these*

ideas? Where are they getting them from? It's something that they're seeing and observing in everyday life that's different—."

She was not surprised that the children had trouble answering the questions about what people ate in other countries. She estimated that at least half of her students do not understand the difference between a continent, a country, and a state – even with all of the discussions they have in class. Amanda enjoys talking with the students about different places. She started traveling overseas when she was a college student and now does a social studies unit that continues throughout the year with her students called "Travel Around the World". The students have their own passports and they role-play being on an airplane to travel between different countries that they then study. Amanda spoke of how excited the students were when news of the Olympic Games was on their televisions at home and they were in the middle of their visit to Australia.

What the report also brought to Amanda's attention was an aspect of her teaching upon which she had not previously reflected. She realized that often she has helped her students observe the differences between the lifestyles and situations of people in different countries when they have studied other places in class, without helping them notice how many aspects of living are similar across cultures.

Planning and Content

Amanda originally planned on writing a unit on food that was based in Zimbabwe so that she could make the unit part of her ongoing world study but she found that she did not have enough resources to support teaching six to ten separate lessons. Instead she decided to create a social studies unit that would draw upon the ideas in the report on children's thinking in relation to the annual field trip that first graders take to the local cider mill.

As she explained in her introduction to her unit, the social studies curriculum has been fairly weak in the first grade. They had visited the cider mill and read about Johnny Appleseed each year but they rarely made connections to social studies concepts. *"My intentions in this unit were to take something already done and use it to dig deeper"* (unit plan overview). She was eager to find ways of putting into practice what she had learned the previous summer in a course on teaching economics to first graders. Amanda was very conscious of the Michigan Curriculum Framework when she designed her lessons and was very proud that each lesson addressed at least two and in many cases three of the curriculum standards for social studies in the early grades.

Activities and Assessments

To introduce her "Apples" unit Amanda intends to show the students an apple to generate conversation around the different products we can make from apples. She will challenge the students to offer suggestions that she will note on a chart.

Then the students will vote on their favorite apple product, such as apple pie or apple sauce and together they will graph the results on a graph. She will assess the students on their participation and ability to choose a product then place their pictogram in the appropriate column. The introductory activity is similar to the structure of questions that were described in the report on children's thinking: "What do we get from chickens?" and "What do we get from cows" were questions asked of the children in the research.

Amanda intends to start the second lesson with a review of the lesson on apple products then read a book about Johnny Appleseed with the students. In this lesson she will focus on how his acts helped other people as well as introduce the students to how an apple tree grows. Amanda hopes to heighten their awareness of the geography of the US helping them identify places he visited on a map. As an assessment activity students will be expected to write about how Johnny Appleseed helped the communities he visited.

The third lesson will build upon the previous one in that students will review the trail of Johnny Appleseed but then look at the climate in these areas. They will compare the states of Washington, Michigan and New York with states such as Arizona and Florida to discover that the apple-growing states differ from the others in that they have four very distinct seasons. They will visit a web-site that provides a lot of information about apple trees and how they grow

(http://www.nyapplecountry.com). The students will illustrate the four seasons of an apple tree as a learning assessment.

In the next lesson Amanda will bring in different types of apples and the students will consider their visible attributes such as size and color. They will taste a slice of each apple and describe the taste. As in the first lesson, they will make a class graph of their favorite varieties of apples. After they have determined their favorite apples Amanda will share some data about apple consumption that she found on the Internet. They will compare their results with the national data. Amanda will tell them that farmers are planting apples that are not the national favorites and ask them to consider why that might be. Then Amanda intends to show them a table of apple usage (http://www.bestapples.com) and ask them questions about information in the table.

After reviewing what Johnny Appleseed had to do to grow apple trees Amanda will discuss the word "harvest" and read Apple Picking Time (Benoit, 1994) with the students. She will point out examples of goods, services, products and ask the students to use those words from economics. She intends to discuss the history of harvesting with the students so that they will acknowledge that it has changed over time. After reading the story together they will summarize the steps taken in harvesting and write them onto sentence strips. As a class they will place the sentence strips in the correct order and then put them in the reading center. She might also have them complete a teacher made worksheet on the

steps taken in harvesting apples. To finish the lesson Amanda will announce their upcoming field trip telling the students that she will be wanting them to identify the examples of goods, services and products that they see at the orchard.

In Amanda's sixth lesson the notions of goods and services will be revisited. Then Amanda will compile a list of the goods and services the students can identify in their school. She will send each small group of students (with an adult) around the school to photograph digitally people as they provide a good or service. While the small groups are being sent one at a time the other students will complete individual (commercially produced) worksheets on goods and services. When all of the groups are completed they will share what they found.

The seventh lesson will focus on goods and services in the home. After reviewing their class graph of favorite apple products and the ideas of goods and services, Amanda will lead the students so that they can explain that someone is making a good when raw materials are made into products at home. They will make applesauce over a hot plate in the classroom and eat it. Then they will restate the recipe as a class writing project. Amanda will assess their understanding by checking if students can identify the goods and services involved in the process of making applesauce.

In preparing for the fieldtrip Amanda will have explained that the money students bring will be spent on a snack from the orchard store. Students will be reminded to look for examples of goods and services. During the trip they are to tell the adults when a digital photograph of a good or service should be taken. Upon their return to the classroom they will compile a class book of the goods and services they saw. Amanda will ask students if they understand what their money is buying.

The ninth and final lesson in Amanda's "Apples" unit will be an extension of the field trip. The students will produce individual books about the cider making process. She will be noting to see if students note the sequence for making an apple product such as cider and getting it into homes to drink.

Table 3.2. Summaries of Amanda's Lesson Plans on Food

	Big Ideas	Activities
1	▪ Apples can be made into a variety of products.	Teacher generates class discussion on ways we can eat apples. Students suggest apple products. Teacher lists products. Students vote on favorite apple product. Votes are graphed. Class discussion of graph. Individual assessment will be to see if student is able to make product choice and add vote to the chart appropriately.
2	▪ People, like Johnny Appleseed, can	Review apple products. Read book about Johnny Appleseed.

	demonstrate good character and personal virtue. ▪ People use the environment to meet their needs and wants.	While reading trace his path across the US on a map. Discuss how he was a good citizen and what he needed to do to make the plants grow. Students draw or write how Johnny was a good citizen.
3	▪ Each geographical region has particular characteristics. ▪ Different plants grow best in different areas. Apple trees grow best in temperate areas.	Review the path Johnny Appleseed took to plant trees. Determine which part of the country he spent most time in. Talk about MI, WA, NY as temperate areas. Compare with FL, AZ. Review notion of four seasons. Visit website: http://www.nyapplecountry.com Students show four seasons of an apple tree.
4	▪ Varieties of apples have different attributes. ▪ Information can be organized into tables and graphs. ▪ Information informs the decisions that businesses make.	Teacher holds up different types of apples. Students note attributes (size, color, etc.) Slices of each apple are distributed. Students describe taste. Make a class graph of favorite varieties of apples. Teacher shares that Red Delicious, Golden Delicious and Granny Smith are most popular varieties nationally. Do their results reflect that? Discuss nature of statistics, sample size. Teacher shares that farmers are planting more Gala and Fuji. Discuss reasons. Students read table of apple usage from http://www.bestapples.com Teacher questions from table.
5	▪ Apples can be processed to make a variety of products.	Review what Johnny Appleseed had to do to grow apple trees. Discuss the word "harvest." Read Apple Picking Time. Teacher points out examples of goods, services, products. Discuss history of harvesting, changes over time. Summarize steps taken onto sentence strips. Place in order as a class. Preview field trip to orchard. Put strips in reading center.
6	▪ Resources are needed to produce a good or a service. ▪ People are providing goods and services to us every day.	Teacher introduces notion of good by asking students how textbook was produced. Contrasts with services provided by adults in school and community. Class compiles lists of goods and services. Students photograph people in school as they provide a service, and the good they are producing. Students complete worksheets on goods and services. They discuss the digital photographs.

7	▪ Families produce and consume goods and services. ▪ Apple sauce is a product.	Review apple products. Making apple sauce is producing a good and providing a service. Discuss making apple products at home. Students prepare apples. Teacher boils apples and water on hotplate. Students mash softened apples then add sugar and cinnamon to taste. Students eat finished product. Restate recipe as class writing.
8	▪ Students participate in economic exchanges in their everyday lives. ▪ People are both producers and consumers. ▪ We can acquire information by observing the local environment.	Teacher explains what the money students bring for the field trip to orchard and cider mill will pay for (snacks at the orchard). Review goods and services and prepare students to look for producers and consumers on the field trip. Parent volunteers will be asked to photograph these to make a class book.
9	▪ Resources are used to provide a particular service or make a particular good. ▪ We can acquire information by observing the local environment.	Discuss the field trip in terms of how an apple product such as cider gets from the tree to the cup. Students make individual books showing the sequence of events.

Commentary

What was interesting about Amanda's unit plan is how she intends to make the students aware of the world around them. She will present complex ideas in ways that the students can understand. Starting with a simple apple she will get the students thinking about where they have seen apples before, either raw or processed. Then she will get them thinking about the characteristics of different apples. Through literature she will expose them to the notion that at one time people did not have ready access to apples and that people can and do change their environment in order to have better lives. She will help them understand the relationship between climate and agriculture. She will help them to understand

that many people are involved in the processes that allow us to live as we do. And that we see them working all around us every day.

By building on activities that she has already done with students, Amanda is the position of being able to mine these activities for the big ideas that are imbedded within them. However elementary teachers know that they are not, and realistically cannot be expected to be experts in all disciplines. Having the curriculum standards for social studies at her fingertips gave Amanda the support she needed to feel comfortable with moving beyond the familiarity of her earlier social studies unit on apples.

In order to make the content of the unit more substantial Amanda went to the Internet. Like Brian, she intends to visit the sites with her students however she has already determined that there is particular information that she can print off from the sites to use, such as the table on apple usage, without concerning herself about connections on a particular day.

Amanda's comments on the report on student thinking indicated that she felt that her students were missing out on some of the things that she had experienced growing up and that it was revealed in their answers to the questions on food production and consumption. By facilitating students having at least a taste of these experiences she will enrich some of the curricular traditions entrenched within her school – namely, the first graders' annual trip to the cider mill. Amanda

spoke of watching her father work in the garden and her mother cook meals for the family. In the unit Amanda will get the students to think about how an apple tree grows and how apple products are made. She intends to make observing adults at work part of the curriculum. Amanda also commented at length about how students in the report did not seem to understand that food at home still required someone to do the work of making it therefore this became a lesson on goods and services in the home. Students may not necessarily be making the connections between their lives and what goes on in schools. When the teacher articulates the connections between what is happening in school and what students might observe at home or in the community, as Amanda intends to do, students are helped to make these connections.

Amanda intends to provide the students with a better understanding of the larger community through the study of food production and has made the preparation and consumption of food within her classroom a small but integral part of her unit. However the next teacher whose unit plan we will consider, Kate, focused on the production, preparation and consumption of food within the bounds of the school.

Teachers who Read the Report on Children's Thinking

Kate Williams

With an undergraduate degree in early childhood education and recreation, and a graduate degree in curriculum with an emphasis on literacy, Kate Williams has been teaching for nineteen years. Currently she works with K-1 students in a multi-age setting with her teaching partner of eight years, Fiona Milton, at a school located in a rural area just inside the township lines. Although administratively the school is part of an inner city district, the home backgrounds of the students in Kate's class are not typical of the district. Most of the students live in single family homes on spacious township lots, or in mobile homes in either of the flourishing trailer parks that sprawl across acres of land not far from the school. A small but significant group of students are brought from the city out to the school each morning.

Perhaps because of their location, out on the frontier as it were, Kate and her colleagues seem to revel in a sense of being instructional pioneers. They appreciate the leadership that has been provided by the two principals of the school over the past six years, saying that their focus on developmentally appropriate practices has really turned the school around. They state that a shared vision such as theirs was considered radical within their district until the new superintendent arrived last year with plans to reform instruction by creating magnet schools. They laugh about how the novelty of their ideas seem to

impress teachers from other schools in the district when they discuss curricular issues. When Kate approached me about being in the study she wanted reassurance that it was okay that she would be planning with Fiona. We agreed that if that were the case it would make sense to give Fiona a copy of the report and then meet together to discuss the findings. Although similar in age to Kate, Fiona has only been teaching for ten years. Prior to that she was an A.S.L. interpreter in educational settings. Her academic background is in the social sciences so when Kate asked if she would be prepared to be a part of the study she was very agreeable.

Reaction to the Report

Neither Kate nor Fiona was particularly surprised by the contents of the report on children's thinking, attributing this to their experiences in working with young students in a multi-age setting:

> "*The answers are delightful and funny and not necessarily what I would have thought that they would have answered. But on the other hand they are kinda like what I thought they would have answered more often than not because I have so much experience with young people and I know that they think of things differently from us.*"

They also felt that the students in their classrooms would have made similar responses "*Although some of them [the responses] were somewhat surprising, most of them were totally believable* ...[reacting to a student's response] *I think*

he's in my class!" (Fiona, interview, August 21,2000). Later in the conversation Fiona pointed out the pattern of an expected increase in credible answers she saw in the students' responses across grade levels: the kindergarten students didn't know anything; the first graders didn't know but attempted a response; and the second and third graders gave somewhat misguided interpretations.

Throughout our conversation around the report on students' thinking about food Kate and Fiona kept telling stories from their own classrooms that seemed to validate, explain, or challenge the reported student responses. For instance they suggested that urban students would not know how bread is made because they have limited experiences; they are more likely to have only bought bread from a store. They also challenged any notion that young students would know much about the world beyond their own residential area: an area that is substantially smaller than the "community" written of in social studies literature. They pointed out that the low socioeconomic status of many of the students' parents means that they do not travel so an elaborate field trip they organized in which the students visited parts of the community by bus was a popular success.

The conversation was also peppered with references to children's literature that connected to the questions of the report. Fiona pointed out that in Little House in the Big Woods (Ingalls, 1971) they refer to making cheese and that the previous year a teaching intern had done a research project on cheese with the students.

Planning and Content

Kate tends to call upon the opportunities and especially the human resources in the community that are offered. For instance when in the Spring of 2000 a doctoral student in crop and soil sciences, Tammy, approached the school to work with students in the garden as part of her research Kate was enthusiastic about allowing her students to be a part of Tammy's project. The students in Kate and Fiona's rooms worked with Tammy in the Spring on planting what the teachers referred to as their "rainbow garden" – several rows of flowers or vegetables that bloomed in different colors. When Kate read the report on children's thinking about food in the summer she saw connections between what her students were doing in the garden with Tammy and the land-to-hand aspects of the report that asked students to explain how we get familiar foods such as apple sauce and hamburgers. Tammy became an important resource and an integral member of Kate's planning "team."

Kate and her planning team chose to title their unit "Books We've Eaten", highlighting what they see is special and integral to the unit: the connection between children's literature and the foods that their students produced. Despite her eager reception of copies of state and national curricular guidelines, the unit that they planned does not directly address many social studies standards. Perhaps this is because, as they told me, the unit evolved, with the students contributing to discussions about what they should do next. In describing their work with Tammy in spring they wrote:

> *"By design we placed the children in control of the direction of the unit. This was our pre-assessment for how our children connected on any level, to nature. We asked the children "What do you want to do with this land?" Tammy led the children in a discussion, about previous knowledge of gardening in general and growing foods in particular. After much discussion the children decided they would like a rainbow garden." (Unit Introduction, 2001).*

The unit that was given to me was a blend of prescription – what they would do, and description – what they did do; so the following summary is definitely a representation of the original document. However, as much as possible it maintains the sense of Kate and Fiona's writing.

Activities and Assessments

This unit plan differs from the others in the study in many ways, such as it is written for a multi-age setting where Kate and Fiona will work with the same students for two or three years. However most importantly the unit differs because it is as much a reflection of what was done in this particular classroom over the course of 18 months as a plan for future teaching and learning. For instance, decisions to plant particular vegetables and flowers were made in the spring yet the first lesson described here is a lesson that would take place in the early Fall.

In the first lesson of the unit Kate will remind students of the seeds that they planted in the school garden during the spring. She will read The Gigantic Turnip (Tolstoy, Tolstoy & Starkey, 1999) with them and discuss how the people in the story grew and prepared the giant turnip for eating. She will use this opportunity to remind them of the "lifeskills" such as responsibility and cooperation that this story illustrates. Her school has adopted as guidelines for student behavior the "lifeskills" outlined in Susan Kovalik and Karen Olsen's text on Integrated Thematic Instruction (Olsen & Kovalik, 1993). In the school garden students will act out the story. Back in the classroom they will prepare, cook and taste the turnips. Students will be assessed on their cooperative behavior and increased interest in the garden.

The second lesson in the unit, which will take place during Hispanic Heritage month, will start with Kate asking the students what they know about cooking and eating tomatoes. She will ask them what they want to do with the ripe tomatoes in their garden and chances are they will say make salsa to eat with chips. They will read The Hill of Fire (Lewis, 1998) which describes the life of a Mexican farmer.

> *"Teachers will read the story and discuss the chili-tomato-salsa connection with the students, along with a discussion about Mexican framing with primitive technology" (unit plan).*

In small groups they will make salsa with an adult. They will be assessed in terms of their interest in taking greater responsibility for working in the garden

and by understanding that salsa is a food that has been adopted from the Hispanic culture.

The third lesson described in the unit plan concerns popcorn. As part of observing and experiencing the life cycle of the popcorn the students will harvest the popcorn, pull back the husks, and hang them up to dry at the right time for harvesting popcorn Kate. In January they will read The Popcorn Book by Tomie de Paola (1978). They will pop the corn in a popcorn popper. They will discuss how heat changed the popcorn and how important it was for early Americans to have food that they could keep without refrigeration.

Three books involving pumpkins will be read with the students: Pumpkin Pumpkin (1986), Biggest Pumpkin Ever (Kroll, 1985), and Little House in the Big Woods (Ingalls Wilder, 1971). They will make connections between the literature and the pumpkins that they have grown from seed. They will discuss the historical method of storing vegetables, especially pumpkins, then harvest and keep their own pumpkin in the classroom. They will write a book together to describe the life cycle of their pumpkin and speculate on its possible uses. She will assess the students on their ability to tell in detail the life cycle of a pumpkin.

In the fifth lesson the students will revisit the book they wrote about the life of the pumpkin. They will review the chapter on stewing pumpkin in Little House in the Big Woods (Ingalls Wilder, 1971). They will estimate the number of seeds that

are inside the pumpkin that they harvested. Kate will cut open the pumpkin and distribute the seeds for the students to count, using place value charts and counting cups. After counting the seeds, the students will place them to dry on newspaper. The pumpkin flesh will be stewed in a crock pot in the classroom. Students will then participate in the baking and eating of pumpkin cookies. Kate will discuss with students the importance of being able to grow their own pumpkin for use in the winter when fresh produce is not available directly from the garden. Students will be assessed on their increased enthusiasm for growing and utilizing home grown produce and on demonstrating more realistic estimation skills.

Kate will read and discuss The Carrot Seed (Krauss, 1991) with the students. Using the pumpkin seeds saved from the previous lesson Kate will lead a discussion of what to do with them because they will not need to plant all of the seeds in their garden next season. Kate will remind the students of the market that they will have in the spring. This will lead to conversations around how to market and sell the seeds. They will discuss packaging and cost. The students will design and make packets for the seeds. They will sell them then decide what to do with the money they have earned.

Table 3.3. Summaries of Kate's Lesson Plans on Food

	Big Ideas	Activities
1	▪ People work together to accomplish tasks. ▪ The production of food is a process that happens over time.	Returning students tell new students about the turnip seeds they planted in their class garden the previous Spring. Read and discuss The Giant Turnip. Act out the story in the garden. Revisit Kovalik's lifeskills. Cook the turnips.

2	▪ Cultures can be acknowledged by sharing foods commonly eaten by people of those cultures. ▪ Salsa is a food we have adopted from another culture. ▪ The water cycle, soil cycle and photosynthesis are important aspects of food production.	Students plant, maintain and harvest tomatoes. Read and discuss The Hill of Fire, focusing on low technology and connection between chilies, tomatoes, and salsa. Students make salsa with help of adults.
3	▪ The production of popcorn is a process that has multiple stages. ▪ Food that is eaten for a snack now may have been a staple in the diets of people in history. ▪ Food can be stored in many ways. ▪ Matter can change form when heat is applied.	In the Fall students plant, cultivate, and harvest ears of popcorn. They pull back the husks and shell the popcorn. In January read and discuss The Popcorn Book then pop the popcorn. Students will talk about the life cycle of plants and the changes that took place in the popcorn when it was heated. They will discuss the importance of food having food that can be stored without refrigeration.
4	▪ Pumpkins have a life cycle. ▪ People use pumpkins in many ways. ▪ People in the past stored food in many ways.	Students plant pumpkin seeds and mind the plants. Read and discuss The Pumpkin Book, The Biggest Pumpkin Ever, and Little House in the Big Woods. Harvest pumpkin before first frost. Store it in the classroom. Write a book about the pumpkin's growth.
5	▪ Recipes are used by people to make pumpkin into various products. ▪ Pumpkin seeds can be used as math manipulatives. ▪ Carefully storing food enables it to be eaten long after it has been harvested.	In a winter month review chapter from Little House in the Big Woods on stewing pumpkin. Review student authored book on life cycle of pumpkin. Estimate the number of seeds that will be in the pumpkin. Open the pumpkin and count the seeds into groups of ten. Compare count with estimates. Dry seeds on paper. Stew pumpkin using method described in book. Use in cookie recipe. Eat cookies. Discuss value of being able to grow pumpkin to eat when fresh produce is not available locally.
6	▪ Seeds can be planted or sold to other farmers. ▪ Selling products requires making decisions regarding advertising, packaging, pricing and marketing.	Read and discuss The Carrot Seed. Through discussion decide to sell the extra pumpkin seeds. Decide upon how to market the product. Design and make seed packets. Determine price. Sell packets of seeds.

Commentary

This unit planned by Kate, Fiona and Tammy is laudable as an attempt at creating an integrated unit that uses the resources of the community. Kate and Fiona identified Tammy as a resource and brought her into the classroom to enrich their students' lives by giving them experiences in growing plants in meaningful ways. Although bean plants are grown in many elementary classrooms, few students reap the benefits of an operational school garden in the ways described in this unit plan.

Students were involved in hands-on activities throughout the unit in terms of participating in discussions and preparing food in order to eat it. They participated in the writing of class books and making packets for seeds. They helped to cultivate the plants and harvest them at the right time. Participation in of these activities would give them experiences to draw upon in their future when talking about crop cultivation, harvesting, or food preparation and marketing.

Kate decided to participate in this project because her school district had adopted a new textbook series and she wanted some help in thinking about social studies curriculum. She had enjoyed working with university personnel around early literacy instruction and so she was hoping for support in similar ways in social studies. Upon receiving copies of the state standards and national curricular guidelines she shook her head and said with some frustration "*I've never seen*

those. We've probably had access to them but nobody's ever showed them to us. Any of them."

Yet, when she wrote her unit plan some months later, Kate did not indicate that she would use the new social studies textbooks at all. Neither did she refer to any of the curriculum standards for social studies. Perhaps it was because, although she claimed that the unit was an integrated unit of language arts, science, mathematics and social studies very little of what was done addressed the learning of social studies concepts as depicted in the curriculum standards. Indeed, the lesson on counting and estimating that they planned might have met a standard regarding counting. As described it would not have addressed the mathematics standard on estimating because it did not seem as if she would provide the students with a standard, a sense of how many pumpkin seeds would be in a similar type of pumpkin or section of a pumpkin.

The next teacher whose unit plan will be considered, Denise, teaches in the same school district as Kate. Like Kate, she decided to participate in this study because she was trying to work out how to use the new textbook series. Similar to Kate she works in a multi-age setting, however, rather than planning cooperatively she and her teaching partner tend to take turns planning and taking responsibility for leadership of the integrated socials studies / language arts units they teach.

Unit Plans of Teachers who were Interviewed about Food

Denise Moore.

Denise Moore teaches in an urban school, in a classroom with shelves that overflow with games, books, and other educational resources, many of which she has made or purchased herself. When describing her students Denise explains that two thirds of the students in her class walk to school from low-middle income homes. Their parents are very supportive of the school and of her classroom programs. One third of her students are brought to the school by bus from an area of town notorious for its residents' levels of drug use and criminal activity. Denise points out that student achievement in reading and language in her class tends to range from a year below grade level to a year above grade level but that the students who go through the school tend to be coping well at grade level. She is frustrated by the bad publicity and criticism that her school district gets regarding low academic standards because in her experience many of the low achieving students have come into the district from other school systems.

Responses to the Questions

With an undergraduate degree in science and mathematics and a master's degree in reading, Denise spoke confidently to the questions asked in the interview. She raised issues that neither students nor other adults had raised previously in response to the questions such as the notion that we often enjoy

particular foods because of the memories they evoke. She also spoke at length about the food processing industry.

In response to a question that prompted a comparison between what people eat now and what people ate 80 years ago Denise considered the differences, deducing that if people in the past bought their food fresh each day then they were most likely to buy food that was produced locally. From that she inferred that they would have had less variety in their diet.

> *"We have more processed foods than they had back then and basically back then they were grown fresh and you went to the market and bought them fresh. And now a lot of it's canned and processed. Things added to it so it won't spoil as fast and now they're finding out that some of those things are not as good for us as we thought. And one of the reasons they didn't have processed food back then was because everybody bought their food daily ... What I'm thinking is that most of the foods that they ate back then were grown foods that they harvested in that area. The foods that they would eat were the ones that were grown around them and so there wasn't as much world wide variety."*

In response to a later question she speaks to this notion again, with appreciation of the growing range of culinary traditions being introduced to the U.S. by new immigrants. "*I think that people in our country are getting more worldly in how they eat and finding that the diets [of other cultures] are really good.*"

When talking about the foods that people eat in other countries, Denise made connections between geography and food production and consumption. She pointed out the typical American diet of red meat and processed foods is not as healthy as what people commonly eat in other countries. "*Oriental countries* –

rice grows very easily and there are rice paddies and stuff. They are eating what's around them and luckily they came up with a healthier diet than we did." She attributes the frequent use of seafood in traditional Japanese dishes to their situation as an island nation with small amounts of arable land.

When asked about why we might choose to eat vegetables raw Denise continued to muse on the processing of foods and the complex issues raised when we really think about food. *"They taste better raw. We have them in quite big quantities. I'm thinking that most people who use canned foods I would think don't have –"Fresh vegetables and fruit are more expensive I'm thinking."* [This is where she started to realize how complicated the issue might be in terms of the economics of production.]

> *"It would <u>seem</u> like they should be more expensive in the processed part but when you go to the grocery store it seems like they [the fresh produce] are expensive. And you can buy a can of green beans for <u>nothing</u>."* [She returned to the taste issue.] *"But they don't taste anywhere near as good."*

Later in the interview she spoke again about fruits and vegetables and how they contribute to good health because of their antioxidants.

After making a brief statement about healthy foods, Denise made a long commentary on junk foods. Almost everyone else who has been interviewed has suggested that junk foods are bad for you because they contain high levels of sugar or fat. Because of her family members' ill health, Denise is very aware of the high amounts of sodium in many foods, and the dangerous combination of fat and sodium found in junk foods.

"Sodium ups your blood pressure – in all people really – and that's a silent disease. You should always watch the amount of sodium you take in. And there's too much fat in them. A lot of the things that are high in sodium are also high in fat. And the amount of fat that you take into your body – you're supposed to limit that, mainly because we have a problem with obesity in our country too. And it's because of the types of foods that we have that are junk foods. Junk foods are bad, basically, to healthy lives."

When the interview turned to a description of food production Denise talked of the problems of bread being made from refined flour that has had many of its natural vitamins and nutrients removed. She pointed out that if you ever watched hamburger being made you would probably not eat it because of all of the fat and grease in it. She spoke of chickens with passion.

> *"Chicken is a very big industry and a lot of people get upset with how they raise chickens because they keep them in one spot and just feed 'em and feed 'em. Get them fat enough, and bid enough. Then kill them and eat them. And they don't have a life."*

In talking about historical differences in food production Denise returned to the notion that she had made early in the interview, that these days food is transported over great distances. People are not just buying locally produced foodstuffs. This also means that a few farmers on extremely large farms in the Midwest, "breadbasket of the world" are able to ship massive amounts of produce elsewhere. And these levels of production have been made possible by the invention of big agricultural machines that she can't identify specifically.

During the interview Denise made connections to her classroom curriculum, both in terms of what she had done, such as drying apples or reading children's

literature and in terms of what she might explore with the students, e.g. inquiring into how cheese is processed.

When talking about how people stored food in the days before electrical refrigeration she spoke of an activity she did with her students when studying apples each Fall that helped them relate to the lives of earlier peoples.

"They dried apple to eat in the winter. Things like that. So when we did our unit on apples we dried apples so the kids could see what it would be like from the old times when they ate dried apples. We cut 'em up and I tied a thing and I strung it and we just had it and the kids would watch them getting harder. And the moisture would come out of them. I didn't make the kids eat them cause I wasn't sure, you know, how sanitary that was. But I wanted them to see, to see that in the pioneer days that's what they really did. And they had to dry apples because they wouldn't last, they'd start getting rotten. But if they dried them and took the moisture out of them. And we have a lot of dried fruit that we eat. Raisins and all that kind of stuff."

Denise said that making bread had been addressed when she had paired a retelling of a traditional story The Little Red Hen (Garner & Messenger, 1987) with a story written more recently called Little Yellow Chicken (Cowley & Fuller, 1989). Using both books enabled her to talk about different perspectives on good will (or the ethics of food distribution) with her students also. In the modern version the chicken, against the advice of his grandmother, the little red hen, lets his friends join the party – and they promise to help out next time he plans a celebration.

When asked how cheese was made Denise posited that mold was added to fat that was somehow skimmed from the top of milk but she wasn't quite sure. She knew cheese was a milk product but she was not certain of how it was made.

> *"I know it's got something to do with milk but I'm not positive. That would be an interesting one to look into and find out because we have a lot –. And like Wisconsin is one of the biggest cheese states around. So that would be a good one to check into further."*

Denise concluded the interview by staying that our conversation had made her realize that she should know a little bit more about some of the issues raised so that her responses to the students' questions could be more sophisticated.

> *"Some of it, I thought about, I should be knowing a little more about some of these things. When we do that kind of thing with the kids we can spend more time giving them more information instead of just a pat single answer. It does make you stop and think about things. Awareness."*

Activities and Assessments

Denise plans to rely heavily on the newly acquired textbooks as well as trade books and videos she has collected over the years to provide her students with information from which she can build the rest of each lesson. She will start each social studies lesson by providing the students with a text then she anticipates that they will progress from there, generally by having a series of discussions.

Denise decided that this would be a good unit to teach in the Fall so in her first lesson she will have a historical focus, reading extracts from the textbooks with the students that tell how Native Americans shared their medicinal and nutritional knowledge of plants with the Early Settlers. They will look at a timeline to get a

sense of the time that elapsed between the interactions of Columbus with the Native Americans and the early English settlements. Students will be expected to be able to list the foods that native Americans introduced to the new settlers. This will help them understand the significance of Thanksgiving as a holiday.

In her second lesson Denise plans to emphasize the relationship between people and the land and how they cultivate land to meet their families' needs. They will discuss food and food storage long ago and today. She will show and discuss a video called The Ox Cart Man (Hall, 1983), read three short extracts from the textbook, and examine two of the posters that came with the new textbooks. The posters illustrate people working on the land, now, and in the past as a family group. Students will be expected to name a way that land has changed and a way that families work together.

Trading is the focus of the third lesson Denise has planned. This lesson will help students to understand the economic concepts of goods, services, producers, consumers and trade. They will read and discuss Rolling Store (1997) which is a story of how people met their needs long ago. After reading two extracts from the textbook that explain what a general store was the students will complete a worksheet on goods and services that accompanies the textbook.

Denise will help the students understand the processes of manufacturing dairy products and be able to use words such as produced, processed, delivered, and factory in the fourth lesson she has planned. This lesson will start with her showing a Reading Rainbow video entitled The Milk Makers (Gibbons, 1987). She and her students will discuss this, along with two extracts from the textbook that are articles on a cheese factory and dairy products. Then they will create a class graph showing their favorite dairy products.

In the fifth lesson of the unit Denise will read and discuss a big book called Bread is for Eating (Gershator & Shaw-Smith, 1998) with her students. They will also read The Little Red Hen (Garner & Messenger, 1987) and discuss a photograph from the textbook that shows a combine harvester at work. To assess the students she will see if they can retell how bread is made from wheat.

Denise will help the students become aware of how some of the vegetables they eat are produced, processed and delivered to their plates in the sixth lesson. They will look at a poster that shows the life cycle of apples and extracts from the textbook that are about buying and selling apples and making apple pie. They will follow a flow chart in their textbook that illustrates how tomatoes are processed. They will read about how oranges are squeezed in order to make frozen orange juice and how we get canned corn. The students will write their own accordion books to show how corn is processed.

The seventh lesson in Denise's unit will center on making healthy choices. The students will watch and discuss the Reading Rainbow video Gregory the Terrible Eater (Sharmat, 1980). Denise will then explain, using posters that came with the new textbooks that food can be categorized and that we can use the food pyramid to help us think about healthy food choices. The students will complete individual daily food guides. They will be assessed on how they fill up a food pyramid with healthy foods.

Denise intends to discuss the relationship between geography and the types of food that are produced in the eighth lesson she has planned. She will use a book called One Afternoon (Heo, 1998) and a video of Robert Munch's Something Good (1990) to review and reinforce the message of the previous lesson about the importance of eating a healthy diet. Then she will examine a chart with the students that has pictures of food products and the states that produce them. The students will be encouraged to consider how climate influences the types of farming that is done in an area. The students will be expected to be able to draw lines from the products to their leading producer states.

In the ninth lesson Denise will discuss how people around the world share a need to eat food even though they live in different places. They will read and discuss a big book called Somewhere in the World Right Now (Schuett, 1997)

and a trade book entitled How My Parents Learned to Eat (1991). The students will locate the places named in the story on a map of the world.

The big idea in the final lesson of Denise's unit deals with the issue of interconnectedness. Night Becomes Day (McGuire, 1997) is the title of one of the big books that she and the students will read together. The other title is Web of Life (Berger, 1994). She will also read and discuss a poster that illustrates how we trade with people around the world. Students will make a flow chart of how we get apple juice to demonstrate how fruit is shipped from one country to another to meet people's needs.

Table 3.4. Summaries of Denise's Lesson Plans on Food

	Big Ideas	Activities
1	▪ Long ago, Native Americans helped Early Settlers with food.	Read and discuss The Native Americans Told Us So (Berger, 1994). Identify Native Americans as first farmers and doctors. Read and discuss textbook extracts on Thanksgiving story, Columbus, American Indians. Use table from textbook to discuss food. Visit and discuss timeline poster. List foods introduced to settlers by Native Americans.
2	▪ People depend on the land. ▪ People adapt and change their environment to meet needs.	Show Ox Cart Man video and discuss. Read and discuss textbook extracts on people changing the land to produce food, and food storage today and long ago. Discuss two posters: on changing the land, and families working together. Name a way land has changed. Name a way families work together.
3	▪ Today and in the past people have met their needs by trading.	Read and discuss Rolling Store. Read poem about a general store together. Read textbooks, discussing issues arising from reading articles about an old time general store and trade. Complete accompanying test sheet.

4	▪ Dairy products are produced through a manufacturing process.	Watch and discuss The Milk Makers video. Read and discuss extracts from the textbook on dairy products and a cheese factory. As a class make a graph of dairy products students eat.
5	▪ Bread is produced through a process.	Read and discuss big book Bread is for Eating. Read and discuss The Little Red Hen. Retell the story of how bread is made from wheat.
6	▪ Apples, tomatoes and corn are produced through a process.	Show and discuss textbook poster on life cycle of apples. Read and discuss Apple Pie (Wellington, 1979) and textbook extracts on buying and selling apples, and producing tomato sauce, frozen orange juice and canned corn. Make an accordion book of how we get canned corn.
7	▪ The food pyramid can guide us in making healthy food choices.	Watch and discuss Gregory the Terrible Eater video. Discuss poster on the food pyramid and healthy food choices. Discuss answers to textbook questions. Complete daily food guide materials in workbook: fill in food pyramid with foods to build a better diet.
8	▪ Climate influences the types of foods we grow.	Watch and discuss Something Good to reinforce food pyramid and healthy diet. Read and discuss big book One Afternoon to reinforce healthy diet. Use wall chart to match pictures of food to states that are its leading producers.
	▪ People everywhere have the same basic need for food.	Read and discuss Somewhere in the World Right Now. Read and discuss How My Parents Learned to Eat. Show locations of the stories on the globe.
9	▪ People are connected by trade.	Read and discuss big books Night Becomes Day and Web of Life. Read and discuss textbook posters about trading goods around the world and the production of apple juice. Answer associated textbook questions. Make a flow chart of how we get apple juice.

Commentary

When we spoke about the unit Denise told me that she was excited how things had worked out because in the past she would not have had the resources to have taught this unit.

The wealth of new social studies materials that had arrived in Denise's classroom in the spring was so overwhelming that prior to this study she had decided just to work through the textbook for a year until she had become better acquainted with the content of the new resources. Participation in this study motivated her to delve into the materials in ways that she would have not done otherwise.

However, this is Denise's eighth year of teaching thematic units. For instance she was one of the only teachers in the study who had been using individual lesson plan sheets regularly. So, once she had a sense of what a unit on food might look like in terms of content – and this is what the interview provided her with – she was ready to put together a unit.

Denise has planned a unit that provides students with a lot of information upon which to draw in discussions. She has a straight-forward routine of providing the students with a text and then giving them time to talk about it. The lessons are centered on intellectual activities within the classroom. She does not depend upon connections to the community or to technology such as the Internet. However she does make extensive use of videos that she buys through the Book Club. She also requests the school librarian to record "Reading Rainbow," a children's magazine program. She keeps particular shows that support her curriculum and uses them frequently (as we can see from her unit plan) to take her students outside the classroom virtually if not in reality.

What is impressive about Denise's plan is that we get a sense that she is treating her students from low socioeconomic backgrounds with intellectual respect. She is anticipating that they will be able to handle the material she thrusts at them at a rapid pace. Her assessments tend to be simple and to the point.

In her plans we see how she helps students understand their world through the extensive use of children's literature and informational texts. Denise is a pragmatist. Her goal in social studies is to make her students aware of the world around them. She is not going to abstain from using textbooks as a matter of principle. Instead she is prepared to use whatever resources she has to help students understand the big ideas she is trying to teach.

Discussion of the first grade teachers' unit plans

From the descriptions of their unit plans we can see that the four first grade teachers made very different decisions as to what to teach and how to teach it.

Use of report on children's thinking

Kate used the notion of land-to-hand processes as being a legitimate topic of conversation in early grade social studies to help her think about her unit plan. She used it to provide authority to her stance that gardening with students was a worthwhile activity. Which is interesting given the low status of social studies in the curriculum. There were connections to the report on children's thinking in the

lessons on food storage and in the lesson on farming tomatoes in Mexico (people in other countries eat differently from us).

Amanda found that the report on students' thinking made her reflect upon what she had thought her students knew or did not know. It made her realize that they were not experiencing childhood in ways that she had taken for granted. This gave her the impetus to revisit and intellectually enrich some of the curricular traditions she had inherited when she started teaching first grade in her current school. She took the traditions of reading Johnny Appleseed around the anniversary in September and visiting the local cider mill and wove them into a series of social studies lessons that connected the students to a number of important big ideas.

The decisions made about in content in both Brian and Denise's unit plans were very clearly influenced by the content of the report on student thinking in Brian's case and by the nature of the interview questions in the instance of Denise. The notable difference was in the way that they planned on interacting with the students. Whereas Brian seemed to allow more time for discussion and interaction around the ideas, Denise planned on offering the students more information. Brian anticipated that the students would be sharing information from their own lives, such as what they found by looking at the origins of foods in their homes. If she had been given the report on student thinking might Denise have

planned to use more time in her lessons eliciting ideas and misconceptions from the students – as the other first grade teachers had planned?

Her evolving understanding of the purpose and substance of social studies is making Amanda realize that she can be creative and purposeful at the same time. Her concluding response to the questionnaire on her thinking about social studies and how to teach it:

> *"It's always just been social studies is such, again, it comes across as being the conflict management, the, just touchy-feely emotion kind of stuff, and I've never really been asked or challenged to think about how do you teach ... I mean I don't think I ever really. It's. The focus has been literacy and math. And I don't feel like I've ever really been asked to think out of the box. And so for the first time I do fool like I'm kind of – just getting on the fringe. So a lot of these I kinds go – oh, I would like to do more of that. It's exciting. Until you really step out of the social studies box you don't really think about all of that."*

Resources

It is interesting to note that the two teachers who are in their mid-twenties went to the Internet to inform their unit planning whereas Kate and Denise, who are twenty years older, did not. Brian decided that he would work directly on the Internet with the students despite a number of circumstances that would seem to predicate management "issues." Amanda, on the other hand, used the Internet primarily as a source of information that she would re-present to the class, keeping open the option of visiting particular web sites but really making them secondary to the activities of the classroom.

The two younger teachers also seemed more at ease with using the curriculum standards for social studies. Neither of the more experienced teachers referred to them in their unit plans at all yet all of the participants in the study had been given copies of state and national guidelines.

None of the first grade teachers talked about trying to find out more about food by seeking out material on the topic written at an adult level. However, much of the material that Amanda and Brian found on the Internet was written for adults so they found that they were learning a lot about apples and the processes involved in manufacturing different foods. Denise used videos rather than Internet links and Kate based her unit on children's literature so neither of them experienced the incidental learning that Brian and Amanda experienced.

Attention to children's thinking in activities or assessments

All of the teachers spoke of the dominance of large group discussion in their classrooms which is something that we expected given the previous research. Brian said that he encouraged a lot of talking in smaller groups but the other teachers were not as articulate about the perceived need for plenty of small group discussions. He admitted that it is difficult to assess verbal and large group work in the classroom. Amanda dealt with the issue of assessing individuals in large groups by having them participate one-by-one in producing a product from the discussion. In this way she had specific evidence of individual understanding.

Kate shared that her unit plan had evolved in response to student comments. However the students' comments seemed to trigger the generation of ideas for classroom activities rather than the generation of big ideas and how to teach to them. Appropriate social behavior and participation in classroom activities seemed to overshadow the learning of big ideas in Kate's lessons, which made assessment based on understanding the big ideas difficult.

Whereas Kate seemed to focus her plans around social interaction with less of a emphasis on big ideas, Denise seemed to focus on students' learning of big ideas with little acknowledgement of the students' social interaction. What is fascinating about this is that they are teaching students from similar backgrounds in the same district. Perhaps this difference is a reflection of their differing perspectives on learning social studies: Kate comes from an intellectual tradition that emphasizes developmental approaches to learning while Denise believes in the power of disciplinary knowledge to help us understand the world.

Planning to Teach Social Studies in the Second Grade

In this chapter we will examine how teachers think about planning for teaching a social studies unit with slightly older students. Second grade is when the majority of children really grasp the fundamentals of reading and writing. In social studies they generally tend to learn about how basic human needs are met by the groups with whom they interact in their immediate neighborhoods.

The four teachers described in this chapter are of different ages, have different levels of teaching experience and teach in different schools. What they have in common is their enthusiasm for teaching and for talking about their work. As in the chapter on planning to teach in grade one, the contexts in which the teachers work will be briefly described then the plans of each teacher will be considered. The first three teachers, Felicity Stevenson, Helene Garcia, and Glenda Hughes read and discussed the report on students' thinking about food before writing their unit plans. Before putting her unit together Emily Blake was interviewed with the same protocol as was used with the students in the report. After describing each teacher's plans I will discuss my impressions across all of the plans and possible implications for teaching social studies in the second grade.

Teachers who Read the Report on Children's Thinking

Felicity Stevenson

Felicity Stevenson has an undergraduate degree in elementary education with a minor in social studies and a graduate degree in reading instruction. She is proud to point out that she has been teaching for thirty-two years and does not plan on retiring any time soon because she has so much fun with her students. After 17 years at the same location Felicity is somewhat of an institution at her suburban school with its shining floors and brightly colored bulletin boards, frequently teaching the offspring of her earlier students.

The school is within a large, diverse school district so the declining number of families with elementary-aged students in the affluent neighborhood surrounding the school has led to children being brought by several buses from inner city areas where schools have been closed. Felicity points out that many of these children tend to need more help with their language skills because they live in English as a second language environments or have less access to books than her students in the past. However, she enjoys teaching them because of the range of ideas that they bring to discussions. Along with the children who travel by bus to school are more than seventy students whose parents drive them across town each day under the "schools of choice" option.

Reaction to the Report on Student Thinking

Felicity Stevenson enjoyed reading the report and commented on some of the more sophisticated responses that were given: "*I was amazed at how much these children know and how – some of them were just so knowledgeable and expressive.*" She was especially interested in the child who responded that haggis was something we got from sheep. Felicity was surprised that a child knew this. [Haggis, "the national dish of Scotland" according to Larousse Gastronomique (Montagné, 1981) is made from sheep's offal. To make a haggis you combine ground heart, liver and lungs, with oatmeal, suet, herbs and onions together, stuff them into the stomach of a sheep and then boil everything until they bind together]. Felicity is familiar with haggis because she and her Scottish husband participate in annual Robbie Burns celebrations where poetry is read and haggis is served to a bagpipe accompaniment. She did not expect a young child to be aware of its origins.

Planning and Content

Reading the Report did not seem to have had an impact on Felicity's planning. She used the resources that she had already and what she had found "worked" when she had taught about food in the past. Four of her seven planned lessons supported teaching ideas that children in the report already understood such as we get eggs from hens and milk from cows. We might have anticipated this because these topics have easily discernible connections to the students' lives. Other lessons covered more complicated concepts from the report such as the

notion that food provides us with energy and energy is necessary for movement and growth.

Felicity did not design a unit of six to ten lessons. Instead she provided me with a collection of papers that included introductory pages and resource lists for an apple unit, a farm unit, a food and nutrition unit, and a letter for parents. She also gave me samples of worksheets, generally of mathematics and word-search type activities, from the National Dairy Council and The Michigan Apple Growers' Association. Several lessons were outlined using different formats, indicating that they were written at different times.

She has taught for 17 of 32 teaching years in her current position so when planning to teach Felicity draws upon the substantial collection of teaching materials that she has collected during that time. Her system of planning entails perusing multiple resources to find numerous suggestions of activities that the students can do, as evidenced in the range of materials she provided me with in this study. She uses activities that prove to be particularly effective or popular with the students and parents in consecutive years; others are discarded.

Felicity explains that there is a history of sharing teaching resources at her grade level. She describes her excitement at finding new materials that directly inform her teaching. Although there is little evidence in the lessons that she provided for

this study that Felicity uses the textbooks, she said that she does refer to them when planning.

> *"I do expand the textbook units. We do that with an accumulation of materials -- and you know we're always going to the teachers' store and buying more materials – you know how that is. We share. All the second – we have grade level meetings and then we share. And we take turns at the material we feel needs to be shared with each other then we'll run it off- or get the material to that person."*

The section of the report that described students' understanding of land to hand processes, such as the making of apple sauce, resonated with Felicity because for the last few years she has been using apples as a theme each Fall. However, the detailed lesson plans she provided for this study do not include lessons on apples.

> *"I sent for this apple unit and I wasn't sure what it was going to be. It was only $4.00. Well, it was a video that lasted 10 minutes that was about Michigan apples and <u>then</u> there was a notebook with all this <u>valuable</u> material on apples and how you can incorporate this unit across the board. It's math, it's geography, it's everything. It's right there. $4.00. Michigan Apple Committee, Dewitt. Michigan Apple Educational Kit. It has wonderful ideas in there. Even talking about fractions – which is something we don't talk about until the end of the year – oh my golly – it just worked into this unit beautifully."*

Activities and Assessments

The seven lessons submitted for this study (see summary in Table 4.1) all begin with the students participating in a large group discussion then moving onto doing individual tasks. For instance, the first lesson on classifying food will entail talking about foods and their characteristics, and helping the students to come to recognize the commonly used food categorizations of milk, meat, fruit-vegetable, and grain. The students will then complete individual worksheets (which becomes the individual assessment component of the lesson) and then they will find pictures from magazines and newspapers to paste in appropriate places onto a "Food Groups" poster.

In the report on students' thinking, few children said that food provides us with energy. To review the notion of energy (which will have been introduced on the worksheets about food groups) in the second lesson Felicity intends to ask the students to stretch, then she will explain that to stretch or move requires energy. She will probe their understanding of the word "energy" before guiding them to consider the idea that we get our energy from food. She can remind students that the food groups worksheets have easy to read commentaries on the top of each page, e.g. "*These foods are in the Milk Group. They come from animals. They give me energy*" (National Dairy Council, 1987) This lesson will not have a written assessment component.

Felicity plans to use questions such as "Where does milk come from?" and "Where does the store get the milk from?" to open discussions on the processes by which we get common foods such as milk and eggs. Worksheets from the National Dairy Council will provide the students with a mixed up set of illustrations of four steps in the production of milk, eggs, orange juice and bread so Felicity will use these to assess student understanding. Not a part of the discussions of milk and egg production, geography will be the focus of Felicity's discussion around the production of orange juice when she talks with students about the effect of climate and location on orange trees.

Felicity will read a traditional morality tale with students, The Little Red Hen (Garner & Messenger, 1987) as a way of sharing the essential process of getting from wheat to bread. Children in the report on student thinking demonstrated a very patchy understanding of how bread was made even though they eat it daily. Reading The Little Red Hen (Garner & Messenger, 1987) will also provide Felicity with an opportunity to compare a piece of literature depicting small scale production of bread with the realities of bread production on a large scale. Assessment will be based on rearranging pictures of the modern production process into the right order.

Children's literature will also feature in the seventh lesson Felicity has planned. Eric Carle's Pancakes! Pancakes! (1975) will be used to introduce the idea of using a recipe to prepare food. After Felicity has read the story to the students

they will discuss what a recipe is and then in small groups make pancake batter and cook it.

Table 4.1 Summaries of Felicity's Lesson Plans on Food

	Big Idea	Activities
1	▪ Food can be classified into four food groups.	Discussion. Worksheet: placing foods into food groups. Cut magazine pictures for bulletin board.
2	▪ Energy is used to move the body. ▪ Food gives the body energy.	Class Discussion.
3	▪ Milk is produced: farm, factory, store, home.	Discussion. Ordering picture cards.
4	▪ Eggs are produced: farm, factory, store, home.	Discussion. Ordering picture cards. Place in food groups.
5	▪ Orange juice is produced: farm, factory, store, home.	Discussion on climatic needs. Ordering picture cards. Place in food groups.
6	▪ Bread is produced: farm, factory, store, home.	Read The Little Red Hen. Discuss modern process. Order picture cards. Place in food groups.
7	▪ Recipes help us to prepare food. ▪ We can prepare and eat apple pancakes.	Read Pancakes, Pancakes! Discuss recipe. Make batter in groups.

Commentary

In the seven lessons outlined above Felicity will rely on her own knowledge of mass production of food, along with instructional materials provided by the National Dairy Council. She will use two examples of children's literature and objects commonly found in the home: magazines, cooking utensils, and the ingredients used in the preparation of pancakes. In addition, her resource lists for the food and nutrition and farm units included suggestions as to poems,

children's literature, books written by classes of students in the school, songs, videos, topics for learning centers, field trips or special events, and focus questions for journal writing. So although they have not been utilized in the social studies lessons just described, she has the resources to create a classroom where the topic of food permeates language arts, music and art.

What is immediately noticeable in Felicity's lesson plans is that the big ideas have more connections with the literature on science teaching than the literature on social studies teaching. She does not refer to social studies standards that might her help shape lessons towards thinking about how people interact with the social and physical world around them. Her lessons do help the students understand how they get foods that they actually do eat each day.

There is a distinct rhythm to the lessons Felicity plans: a large group discussion that she leads is followed by students completing some form of written work individually, generally taking the form of worksheets. This rhythm corresponds to her beliefs about second graders and what they need in a classroom.

Helene Garcia, whose unit plans we will examine next, also believes in the need for routines in the classroom. Unlike Felicity, Helene has just started teaching so she is still experimenting to find out what works best for her and her second grade students in terms of material and instructional strategies.

Teachers who Read the Report on Children's Thinking

Helene Garcia

Helene Garcia is enjoying having her own class of students, after earning an undergraduate degree in elementary education with minors in history and political science and then completing a year-long teaching internship where she worked with a colleague teaching third graders. Helene teaches in the same district as Felicity, albeit in an older school building with darker halls and fewer windows.

The school is located in a community that has many children living in traditionally structured (i.e. two parent) albeit less affluent families, who are very supportive of the teachers' initiatives. Most students walk to school. Helene is eager to talk about her first year of teaching. She is excited about teaching in a school whose students can be characterized by their ethnic and linguistic diversity. Bilingual in English and Spanish herself, Helene appreciates the pleasure students can derive from being able to communicate in multiple languages.

Reaction to the Report

The enthusiasm that Helene Garcia has for teaching bubbled over into her commentary on the report on students' thinking. She discussed the report item by item, quoting particular student's responses, often considering aloud the reasoning behind children's responses to the questions and relating them to her observations of popular culture and what she had heard students say in class.

For instance she suggested that children might focus on the shape and packaging of cheese because so many of them eat cheese slices that have individual wrappings. Similarly she suggested that they might deduce that cheese comes from milk because of the animated cows in Kraft's cheese advertisements.

Planning and Content

Helene told me that she regularly makes quite extensive written plans for her daily lessons and keeps them on her desk in the classroom. She uses a computer template of a page at the top of which are three paragraphs labeled objectives, materials and preparation. The rest of the page is divided into three columns. The first column notes time and task. In the second column Helene scripts the lesson with the key questions she will ask and their purpose. In the third column she anticipates student responses and writes the occasional management note.

When Helene talks about planning she speaks with admiration of Madeline Hunter. A reflection of this admiration is found in her usual lesson plan sequence that starts with an anticipatory set followed by presentation of material in the context of an interactive discussion.

> *"Having a classroom discussion is important. Usually I introduce a topic or theme. I discuss it for a few minutes then we have a discussion from there*

and then I assess on something that we might do creatively or some questions that I might have them answer."

Helene later points out that her assessment of student learning is based on student success in these activities as well as in their participation in discussions and achievements in separate written tests.

The previous year, when she was an intern teacher in the same district, Helene designed a social studies unit that focused on the local area and used the Michigan curriculum framework so she is excited to add another customized unit to her professional toolkit. *"I think food is a great way to do social studies"* announced Helene as we discussed what she had found thought-provoking in the report on students' thinking. *"I would be kind of nervous to teach it because I wouldn't know where to start. That's where I'm gonna get help from you! I loved this"* [the report]. Although her established lesson plan format provides evidence that she commonly attends to student comments and questions, her reliance on the report in terms of content matter is evident in the specific questions she plans to ask her students and the responses she anticipates from them.

Activities and Assessments

The unit of ten lessons that Helene planned for this study is based around a central question that she struggled to formulate and eventually wrote as: "Food is a basic need in every society and culture. Changes in history, location and economic status dictate what people grow, purchase, and eat. If you live in China

you may eat different foods compared to the United States." Helene noted that the lessons she planned would address five standards listed in each of the geographic and economic perspectives of the Michigan Curriculum Framework as well as two standards relating to civics and three relating to history. Helene demonstrated an understanding of the curriculum standards in her introduction to the unit. She acknowledged this understanding and put it into context even more clearly when she talked about her unit plan by telling me casually that other colleagues she had observed in social studies Michigan Educational Assessment Program workshops etc. seemed to struggle with using standards to guide their teaching. *"The Michigan Curriculum Framework doesn't use the language of children. Teachers have problems translating the language of frameworks into a form suitable for grade one and grade two students."*

Helene plans to begin the unit with a discussion around the students' favorite foods. She will ask them to identify their favorite food, to tell her where it comes from (if they can), and to determine if people need to eat it in order to survive. After recording their responses on the chalkboard she will ask the students if it matters what type of food people eat. She anticipates that students will only know vague answers to these questions but that their interest will be piqued so that they will be ready to engage in making a K-W-L chart for the class. [K-W-L charts are found in many early elementary classrooms where teachers have taken courses in content area literacy. In upper elementary classes individual students are often asked to write their lists but teachers of young students or beginning

writers tend to do this activity with the whole class. A K-W-L chart is a list of what people in the group already know, a brainstormed list of questions they want answered, and then the final section is where they record what they have learned at the end of the unit.] Helene will create the K-W-L chart with the students. After this, individual students will be expected to draw their favorite food on a sheet of paper and write responses to questions as to how good it is for them, where it came from, and if they need to eat it in order to survive.

In the second lesson Helene will revisit the notion of eating food, using some of the questions from the report on student thinking: "People all over the world eat food. Is that because they like to, or do they need to eat food? What does food do for us?" After discussing this, predicting that (as she read in the report) some students will say that food supports different bodily functions, she intends to introduce them to the notion of food groups, utilizing the food groups poster that is part of the materials that belong with the Michigan Health Model. As a large group the class will categorize many of the foods they eat. Finally, students will be expected to write a response to the focus question in a new "social studies journal" that she will have given them.

Helene plans to cover many big ideas with the students during the 45 minutes of the third lesson in the unit, which will focus on food choices in the past. In this lesson Helene intends to introduce the lesson by asking her students questions from the report on student thinking: "Do we have foods today that they did not

have in the 1920s?" "Why didn't they have certain foods back then?" "How were different foods brought to the US?" "How was food stored in the 1920s?" After discussing their responses she will read a description by a local author of how families lived on farms in nineteenth century Michigan, Saw Mills and Sleigh Bells: Stories of Mid-Michigan Settlers (Peckham & Heuft, 1999). Using a timeline of US history and a chart that depicts Native American communities she will relate the information about settlers to what is written about how the local Native American people of the time were living. Then she plans to return to the 1920s in order to address how people stored their food in the past. Finally the students will be asked to write in their journals – to explain why some foods need to be refrigerated or canned and to describe what happens to foods when they are not refrigerated.

Continuing with an emphasis on history, the fifth lesson will focus on the lives of early settlers in America. Helene intends to start by reviewing the previous lesson and its reference to Native Americans before concentrating attention on the early European settlers. She will ask students if they know where Europe is and spend some time locating European countries on the large world map as well as having the students use their individual desk maps. Before having the students read the text she will ask them why they think America might have seemed attractive to the settlers. After reading the textbook selection they will discuss how the settlers farmed the land and how they stored their food. In small groups they will consider how their lives are different from the lives of the settlers based on questions such

as: "Could the early American settlers eat what you eat? Why? Why not?" If time permits she will finish the lesson by reading The Tortilla Factory (Paulsen & Paulsen, 1998) with the students.

Helene will start the fifth lesson by asking students if there are places in the world where people eat different foods from people in the U.S. (another question from the report on student thinking). From this discussion she intends to make the point that people in the past depended upon the land where they lived to provide them with food, building materials and clothing. The students will read a three-page textbook excerpt entitled "Using the Land" and they will examine as a class the black and white photographs of farmers at work in their wheat fields. Helene intends to discuss how farmers change the land to meet their needs. She will discuss with the students how the seasons and climate influenced farmers' work in the past. She will encourage students to consider how farming today is both similar and different from farming in the past. The assessment activity will consist of asking students to imagine that they are farmers and then ask them to explain how they would change heavily forested land in order to farm it.

The sixth lesson Helene planned begins with her asking the students if some of the foods they eat come from other countries. If they say that they do, she will ask them to identify those countries of origin. This discussion will prompt a review of the previous lesson and the notion that climate, land, and resources shape what people produce in different places. Helene will read a textbook excerpt

"Foods from Far and Near" aloud to the students as the prompt for a discussion. She will ask students to compare what they think people in Japan eat with what they eat in Michigan. In their journals students will write about at least one country outside the US that produces a food not produced here.

In the seventh lesson planned, Helene will use a jar of applesauce to introduce the idea of processing food. She will ask the students how applesauce is made then bring the focus back to their lives. She will ask them what they like to eat for breakfast. She will point out that many people are involved in getting the foods that they take for granted each day to them. Using the textbook she will read with the students a flow chart that illustrates how tomato juice is made. Students will talk about what they see in the illustrations of the tomato cannery and think about what foods might come from a cannery. They will think about how some of the things they like to eat or drink are made. They will complete a flow chart on a worksheet that shows how orange juice comes from oranges. Helene will read a big book about oranges with them.

In the eighth lesson of the unit Helene will revisit the idea that people living in different places on Earth have access to different resources. She will instruct the students to identify resources as she reads them How to Make an Apple Pie and See the World (Priceman, 1994). In the discussion after reading the story, Helene will guide the students towards thinking about international trade of foods.

Students will be chosen to narrate the story while others play the parts of the girl and the people she meets on her journey around the world.

Economics is the disciplinary area that shapes the ninth lesson. Helene will ask students why some foods cost more than others as a way of introducing them to the idea that farmers earn their income from raising animals or growing foods and that people who provide us with food are paid for their work. Helene plans to introduce the terms producers and consumers in relation to the farmers but also in relation to the students own actions such as buying popcorn at the movies or popping and selling popcorn as a fund-raiser at school. She will ask students why it costs more to eat a meal in a restaurant than at home. Students' understanding will be assessed through their completion of a worksheet on which they are to draw something that they have bought or used recently along with an explanatory paragraph as to where it was produced, how it was produced, and who produced it.

Helene's final lesson in this unit is designed to help students understand the economic concepts of scarcity and choice. Helene will ask the students what their favorite snack foods at the movies are then inquire as to the prices of these snacks. Helene will discuss bartering with the students, asking them what sorts of items might have been bartered and why. She will tell them about early settlers bartering for the goods they wanted. They will learn that in 1785 Thomas Jefferson suggested that US currency should be based on a decimal system.

Next the students will read an excerpt from the textbook about a boy who had a cookie sale in order to earn money to buy something he wanted. On a worksheet they will determine which items are needs and which items are wants. As a final assessment they will be given a budget of twenty dollars and a shopping guide and asked to list what they would buy to provide their family with either breakfast, lunch or dinner. They will discuss their decisions with other students.

There is pressure on teachers to prepare students to do well on the state-wide standardized tests. Helene believes that it is important to use the language of the Michigan Educational Assessment Program with her students so to conclude the unit, students will be required to take a written test of multiple choice, true /false and short answer questions.

Commentary

In the ten lessons outlined in Table 4.2 Helene intends to rely on her own knowledge of mass production and distribution of food to answer students' questions. She will use numerous questions taken from the report on students' thinking as prompts for the discussions in her classroom. This is evidence of her belief that the students in her class will have ideas similar to those of the children whose responses to these questions were described in the research report provided as part of this study.

Table 4.2. Summaries of Helene's Lesson Plans on Food

	Big Ideas	Activities
1	▪ We arrive in the classroom with different understandings and beliefs about food.	Class discussion. Create K-W-L chart: what do they want to know about food. Students draw pictures of their favorite foods.
2	▪ People need to eat food. ▪ Foods can be categorized.	Class discussion on the role of food. Examine poster of food groups. Discuss. Students write responses to "Why do people need food?" in individual journals.
3	▪ In other times people may have eaten differently from us. ▪ Changing technologies have enabled us to eat differently from people of earlier times.	Read Saw-mills & Sleigh-bells ch.3. Discuss. Examine Native American Community chart and US timeline. Class discussion. Students write in journals: "Why do foods need to be refrigerated or canned?"
4	▪ Early settlers in America lived differently from us. ▪ Community life was different for early settlers. ▪ Early settlers stored food in different ways from us.	Read textbook on the notion of changes. Class discussion. Small group discussions to respond to questions on note cards e.g. "How is your life different from early settlers?" Read aloud The Tortilla Factory (1998).
5	▪ People depend on land. ▪ People adapt to and change land to meet their needs. ▪ Seasonal changes affect land and land use.	Read big book on using the land. Class discussion. Students draw pictures to show how they would change forested land so that they could farm it.
6	▪ Some foods are brought to America from other countries. ▪ Climate, landforms and resources influence where foods are grown. ▪ Food is traded between countries.	Read textbook extract: "Foods from Far and Near". Class discussion. Students use maps and books to help them write about somewhere outside the US that produces a food that is not produced here.
7	▪ Many people work to provide us with food.	Teacher uses a jar of apple sauce to introduce idea of food processing. Read textbook excerpt on food processing. Class discussion. Together read big book on oranges. Students complete orange to juice flow chart in activity book.

8	▪ People depend on natural resources.	Read How to make an Apple Pie and See the World (1994). Discussion. Some students read story aloud while others act it out. Locate places girl in story visits on a map. Write these place names in journal. Revisit K-W-L chart.
9	▪ Scarcity and choice influence the management of personal resources and shape consumer decisions regarding the purchase, use and disposal of food.	Class discussion on farmers as producers, themselves as producers. Class discussion on restaurants. Teacher demonstration: activity sheet that identifies something they have bought and describes who produced it, where and how. Students complete individual activity sheets.
10	▪ People have unlimited wants but limited resources when buying foods. ▪ Competition in business creates choices for consumers.	Discussion on food bought at the movies. Teacher presentation: early US currency taking the place of barter. Read textbook: "cookie sale". Discuss. Students identify wants and needs on activity sheets. With a budget of $20 students select items from a shopping guide to make breakfast, lunch or dinner. Discuss. Revisit K-W-L. Students do pre-test from textbook.

Four pieces of children's literature are featured in the unit. Helene will also use carefully chosen extracts from the newly adopted district textbooks that she will discuss with the second graders: *"We do not read it word for word in the text. That can be boring to a lot of the students."* She intends to make use of commercially produced maps, photographs, timelines, and posters, as well as activity sheets that are supplied with the new social studies textbooks. She will cross subject area boundaries to draw in resources such as the charts that depict different types of foods and the food pyramid.

One of ten children in her family, Helene decided at an early age that she wanted to be an elementary school teacher. Now that she has her own classroom to organize she is very committed to learning anything that might help her improve her teaching and the students' learning. In her introduction to the unit Helene lists a number of texts that have informed her thinking about social studies instruction, including Levstik and Barton's Doing History (1997) and Brophy and Alleman's Powerful Social Studies for Elementary Students (1996).

The idea of using questions that would yield complex answers such as the ones that were used in our interviews of students both fascinated her in terms of what they said and appealed to her as a teaching strategy.

> *"I told my boyfriend. I was reading pieces [of the report] to him. I was like oh you've gotta hear... How kids think. It's funny then it's like wow – if you really think about it. Think about you being a second grader and what knowledge you had and what things you have and you're tying things together of what you've heard or what you've seen – and making a connection to answer a question".*

The twenty students in Helene's class will spend a lot of time in large group discussions if these lesson plans are followed. This is congruent with Helene's opinions about school. She loves social studies and believes that there should be more time devoted to it as a curriculum area because children need to know what is going on in the world. In the majority of the lessons in this unit, even the ones

that focus on history, children are expected to be able to relate what they learn back to their own lives, in their social studies journals.

Helene's favorite classes when she was a student were ones in which she and other students were allowed to speak. She suggests that large group conversations generate a sense of community. They allow people to express how they feel. She also points out that a lot of students tend to tune out because social studies in the second grade at her school is scheduled to be taught at 2:30 in the afternoon. Many students do not want to read the textbook at that time of the day. For these reasons Helene believes that it is important to arrange for students to have hands-on activities in social studies.

Glenda Hughes, another teacher of second graders, also believes that young children should be given opportunities to be active in social studies. We will consider her unit plans next.

Teachers who Read the Report on Children's Thinking

Glenda Hughes

Less than a ten-minute drive from Helene's school and a brisk ten-minute walk from a major car assembly plant, the small school in which Glenda Hughes teaches, in a different school district, can be characterized by unexpectedly spectacular views from the classroom windows. Built in the 1960s and utilizing

the contours of the softly rolling land, from large classroom windows one can look across an expanse of playing fields to a river that creates the school's northeastern boundary. The clouds of the morning sky create dramatic panoramas over green hills that constitute the eastern horizon. Glenda speaks with appreciation of the school's outlook. She has been teaching for 11 years, the last eight of them at the same location, moving from teaching fifth graders to second graders in order to stay in the building when her school district administrators reorganized the grade-level composition of the schools. Although she acknowledges what the children bring to the class from their diverse backgrounds, in conversations Glenda tends to focus upon their learning in the classroom.

Reaction to the Report

Glenda Hughes mused over the lack of logical reasoning in the children's responses and wondered aloud where their ideas had come from. She said that as a child she probably would have made similar seemingly illogical responses. When the children were asked how food was stored before refrigeration and many of them talked of placing it in running water Glenda suggested that their knowledge most likely came from movies or from going camping.

Raised in metropolitan New York, as a child Glenda had had no experience of farming life and knew little of the processes involved in bringing food to the city. She was surprised that applesauce needed to be cooked: like the children

described in the report she had thought that you simply use a blender to grind the apples into sauce. Coming from the city, she said, she had never thought about it. This led to her thinking about how America has changed in terms of preparing meals, even since she was a child in the 1970s. She pointed out that technology has made preparing meals so quick and easy that people no longer want to spend the time making meals from scratch. She spoke somewhat poignantly of how she used to make apple pies, including the pie crusts, with her grandmother, and how raising her own children far from extended family members means that her two daughters do not have that opportunity to bake pies with their grandmother. *"If I don't teach it, that will be it. It is probably something that will leave with me".*

Although she has taught second graders for a number of years now Glenda enjoyed teaching upper elementary students in the past. She finds herself comparing attributes that seem common within the two age groups. She was impressed by how the children described in the report had so many of the same attributes as her current class of second graders. She observed that age makes a difference in the extent to which children will offer up ideas without censoring themselves before they speak.

> *"Their thinking is interesting to me. How they piece stuff together based on what they think they know. And how willing they are to share that too. I taught fifth grade and by fifth grade they start to censor themselves a bit more about whether they feel like they don't know something they won't*

say it whereas as little kids like – Phh – Whatever. As they get older they lose that and like censor what they say and what they're willing to risk saying".

Planning and Content

The unit plan that Glenda provided for this project includes: a list of second grade economics vocabulary that come from the benchmarks, a list of economics concepts that come from the Michigan Curriculum Framework, a page of background information for teachers, and examples of worksheets. This is in addition to several lesson plans.

In our conversations Glenda debated the value of the curriculum development process in her district where teachers are provided with standards and guidelines and then expected to put together their own units, such as this one. Glenda admits it does ensure that teachers think about how they are going to use the resources and how they will help students meet the objectives and she does enjoy that part of it. However, she points out that such planning is time consuming and seems wasteful because the teachers at each grade level who are in different buildings do not have opportunities to share their ideas with each other. Creating a database of lesson ideas would be very useful she says and that probably this will happen when they have all been planning individually for a few years and have units of work to share. In the meantime she works on her own and with the other second grade teacher in the building.

As will be seen in the lesson plans and resources used in this unit on food, Glenda believes in the value of using lesson plans that others have written and adapting them to meet the needs of her students. She also attests to the value of sharing these planning ideas with other teachers.

> *"You can't just take it off the shelf – okay I'm gonna teach this now. It has to be – you have to make it your own. You have to get through it and say oh boy that really didn't work! I'll never do <u>that</u> again! There are several things that I will never do again. When I write it on my lesson "This went <u>really</u> badly. Don't <u>do</u> this. I think of better ways to do -get part way through its like – wow, I wish I'd thought about. Or, I've done something and then [my colleague] might talk about how she's done it and its oh— why didn't I think of that? You figure how many people are not having the opportunity to share that with. Just like it seems it would be very useful for us all to get together and work on it [the social studies curriculum]".*

The social studies unit on food designed by Glenda has a strong emphasis on economics however it has a substantial science component also. This is particularly evident in the first three lessons that focus on the needs and structures of plants. In addition, Glenda intends to meet a number of objectives from her mathematics and language arts programs in teaching this unit. As she writes in her introduction to the lessons *"I believe that all of these [content] areas are intertwined in our world and children should be taught in that fashion".*

Activities and Assessments

The unit begins with three lessons on plants. In the first one which is typically done at this grade level students will plant bean plants under different conditions to determine what plants need to survive. Over the course of the unit (four weeks) they will measure the plants' growth, graph the results and draw conclusions from their data. In the second lesson students will identify and draw different plants and read How a Seed Grows (1992). In the third lesson, which Glenda says is to be taught in three parts, the students will identify the common characteristics of plants, learn the definition of a plant through the discussion and watching a video, and then make a model of a plant showing the seeds, stem and roots. In this lesson the students' models will be assessed using a teacher-made rubric. As well as for illustrating them, students will earn points for labeling and describing the parts of a plant correctly.

In the fourth lesson Glenda intends to guide the students from thinking about what plants need to thrive to what people need by reviewing what plants need with them as a class then getting the students to work in pairs to write down what people need. She predicts that most of what they will list as needs will be able to be categorized as food, clothes, or homes. They will create a chart of their responses as a class then students will complete an activity sheet that has them cut out pictures of items such as sandwiches and jeans and paste them in columns labeled food, clothes, homes. Assessment will consist of the successful completion of the activity sheet and observation of their conversations.

Both of the fifth and sixth lessons use children's literature to inform class discussion around economic concepts. In the fifth lesson Glenda will discuss bartering with the students then she will read A New Coat for Anna (Ziefert & Lobel, 1988) to them. After that the students will complete a worksheet where they cut out the puzzle pieces that make up a coat. Each puzzle piece has the name of something that Anna's mother bartered in order to make a coat for Anna. The sixth lesson will focus on buying and selling in order meet our needs. Glenda will introduce this concept to the students by reading and discussing The Ox Cart Man (Hall, 1983) with them.

The seventh lesson in the unit focuses on goods and services. After Glenda has introduced the vocabulary she will lead a discussion of goods and services the students know. In small groups the students will list goods and services they use daily. Then they will share their ideas with the class before making individual collages of goods and services by cutting out pictures from magazines. These collages as well as discussion participation will be used to assess student learning.

Glenda will ask students to bring in apples for the eighth lesson. In this lesson they will be introduced to the idea that many people are involved in the process of getting the simple apple into their hands. Then they will be introduced to the notion of a recipe. First of all Glenda will make a class graph of the different

types of apples they provide. She will ask them from where they got their apple. While Glenda works with the majority of students, another adult will be working with a group of students, using a peeling machine to prepare the apples students had brought in to make caramel apple slices.

After reading and discussing The Apple Pie Tree (Hall, 1996) which is about a family that picks apples from their own tree, the students will determine that a recipe helps people share their gastronomic experience with someone else. They will decide for whom they want to write up their recipe for caramel apple slices then as a class write up the materials and the steps that are needed to produce caramel apple slices. Of course, they then eat the caramel apple slices they have made.

The ninth lesson will begin with Glenda reviewing where apples come from in a class discussion then reading Farm to Market (Cooper, 1997) and Applesauce (Kurz & Benner, 1999) In a class discussion Glenda will compare the process of producing fresh apples with the production of applesauce. The students will be divided into two groups. In the computer lab and with the assistance of the technology teacher, the students will use Kid Pix software either to create a slide show that demonstrates how we get apples or to create a slide show demonstrating the process of getting applesauce. If the computer lab is not available each group of students will make a chart that illustrates one or other of the processes.

The final lesson in the unit (if one discounts a possible trip to an apple orchard) will focus on the cost to consumers of processed and unprocessed foods. Glenda will ask students to check the prices of apples and apple sauce at their local stores. This data will be collected, graphed, and analyzed by the class as a large group. Glenda expects issues concerning the reliability of their data to arise. She anticipates that questions will arise concerning types of apples and brand names. She also believes that the students will discover that apple sauce will cost more than fresh apples.

Table 4.3. Summaries of Glenda's Lesson Plans on Food

	Big Ideas	Activities
1	▪ Some conditions are more conducive to plant growth than others.	Class discussion around what happens when we don't give a plant light, soil, or water. Students grow beans under different conditions. They record data about plant growth in log. They create bar graphs to show data and draw conclusions about the needs of the bean plant. Class discussion on the reliability of the inquiry.
2	▪ Plants need certain conditions to live.	Class discussion: students identify plants they have seen in their environment. Teacher writes plant names on chart, introduces different types of plants if students don't say them. Each student draws one plant. Drawings are shared and kept. Class discussion: what plants need to live. Read How a Seed Grows. Use thumbs up, thumbs down in response to statements about plants' needs.
3	▪ Plants have different parts (a).	In small groups students examine plant drawings from previous lesson. Identify common characteristics. Class discussion from small group feedback. Teacher lists parts on chart.
	▪ Plants have different parts (b).	In pairs students determine the jobs each part of the plant does. Students share ideas with class and teacher who writes ideas on chart. Class decides upon function of each part. Watch video on defining a plant.

		Compare class definitions with those on video. Teacher demonstrates a model of a plant showing roots, stem and seeds represented by yarn, a straw, and birdseed glued to the plant's flowers.
	▪ Plants have different parts (c).	Review plant parts and functions. Each student draws a plant, attaches yarn, straw and seed, and labels and describes the function of each part. Student understanding is assessed by analysis of each model using a rubric.
4	▪ People have needs.	Class discussion: review needs of plants. In pairs students write things that people need. Pairs report to teacher who lists on chart paper, grouping similar ideas. Discussion: needs and wants. Students complete worksheet cutting and pasting pictures of items into columns labeled food, clothes, homes
5	▪ People meet their needs in different ways: bartering.	Class discussion: trading. Read A New Coat for Anna. Class discussion of what Anna's mother traded. Students cut out puzzle pieces from worksheet to make models of coat. Discussion of vocabulary words.
6	▪ People meet their needs in different ways: buying and selling.	Teacher introduces vocabulary. Read The Ox Cart Man. Class discussion.
7	▪ We all use goods and services.	Teacher introduces vocabulary. Class discussion on goods and services. In small groups students identify goods and services they use daily. Share ideas with class. Students cut pictures from magazines etc to make individual collages of goods and services. Correct identification of illustrations as goods or service is assessment.
8	▪ Apples can meet one of our needs.	Students each bring an apple to school. Write name of apple on index card. Place cards on graph. Discuss. Class discussion: where apples come from. Read The Apple Pie Tree. Class discussion. Students observe adult helper using peeling machine and slicing up graphed apples to make caramel apple slices. [Write up procedure for language arts lesson].
9	▪ Apples can be processed.	Review where apples come from. Discuss how they get to our house. Read Apples from Farm to Market. Discuss. Read and discuss Applesauce. Half of class draws

		route taken by fresh produce while other half draws route taken by applesauce. Alternative assessment: use Kid Pix program to make a slide show demonstrating route from tree to me.
10	▪ Processed foods cost more to produce than unprocessed foods.	Discussion on food costs comparing apples and apple sauce. Introduce inquiry project: which costs more? Students collect prices from local stores. Class organizes then analyzes data. Discussion on reliability of information and issues that arise e.g. differences in price due to brand names, apple types etc.

Commentary

Glenda used a number of materials written for teachers in designing this unit. The plans for lessons five and six that use children's literature to teach about bartering and trading come from a publication by Scholastic Books. Glenda found the plan for lesson eight on the Internet: (www.richmond.edu/~ed344/webunits/economics/goodsandservices.html).

She also found materials that can be used directly with the students such as the activity sheets that are to be used in the lesson when students classify wants and needs. Glenda found these in an activity book that accompanied an old second grade social studies textbook. Her science lessons involved analyzing a book, How a Seed Grows (Jordan, 1992) and a video that defined plants with the students.

A Coat for Anna (Ziefert & Lobel, 1988), The Ox Cart Man (Hall, 1983) and The Apple Pie Tree (Hall, 1996) are in the school library so it is likely that some of the children will have already read them. This means that these children will be in a

good position to reflect upon the books in terms of the economic concepts that underlie each story rather than just as entertainment. Applesauce (Kurz & Benner, 1999) and Farm to Market (Cooper, 1997) seem to be particularly appropriate resources for the lesson Glenda has designed to examine getting apples and apple products from the land to the hand.

Glenda suggests that she will call upon other adults to work with the students during the unit, in particular when they prepare caramel apple slices and when they use the drawing program, KidPix, to create a slide show of the process of getting apples to the table. She will also be involving parents in the unit because she wants the students to bring in apples. She also wants students to find out the prices of apples and apple sauce in stores where their families regularly buy food.

Time seems to be a key element in Glenda's thinking about her classroom. She is frustrated that more time is not provided for teachers in her district to plan collaboratively because planning units individually is so time-consuming. Lessons tend to be separated into sections so that there is time to do the sorts of activities that she believes will help students meet learning objectives.

Glenda has designed her food unit for use over a four week period so that students will be able to collect data for the two inquiry projects that she wants to do with them. One investigation is the planting and nurturing of bean plants and

the second investigation involves collecting data about the prices of apples and apple sauce. She realizes that if students are to participate in the classroom conversations about their experiences outside the classroom parents will need time to actually visit their local stores with the purpose of checking prices.

Having worked with older students and seen how they silence themselves because of their sense that they do not have something worthwhile to offer Glenda is sensitive to the need to make sure that students in the second grade don't label themselves as underachievers.

> *"I try really hard to not have anyone give the image that they are anything as second graders. You're a learner – just like everybody else is a learner. You might learn at different paces but it doesn't mean you're less of or more of a learner than anyone else. It's too bad that even little ones – you can see that they get that idea, that notion, that "I'm not so smart." They get in that mode and don't even think about it".*

Perhaps it is because of this awareness of the way that people label themselves based on the reactions of others to their comments that Glenda's lessons promote student interaction in small groups where children can try out their spoken ideas before sharing them with the class. Similarly, assessment seems low-key and tends to involve observing students at work and using rubrics that are shared with the students to grade products of their everyday activity.

Whereas Glenda's lessons tended to help the students learn concepts from science and economics, the next teacher, Emily Blake, has provided her students with opportunities to think about the processes of historical inquiry.

Unit Plans of Teachers who Responded to Questions on Food

Emily Blake

Emily Blake has five years of experience in her own classroom after spending her teaching internship year in a Professional Development School. She is currently one of seven third grade teachers in the single elementary school of Wedgwood, a small town that is growing rapidly. Constructed relatively recently on a large tract of flat land, the classrooms are connected by softly carpeted corridors with high ceilings, tall windows, display cases and discretely narrow strips of cork that allow students' work to be displayed with pride without damaging the flawless finish on the painted walls. The corridors themselves seem large enough to teach entire classes in. Families with upwardly mobile parents who have high academic expectations for their students are moving into the school district. They find 30 minutes of highway commuting a small price to pay for the benefits of a more rural atmosphere. Because of their high expectations Emily finds teaching their children to be both enjoyable and challenging.

Responses to the Questions

Emily gave comprehensive answers to questions asked in the interview. However with some of the questions, such as the question that probed into why we cook food, she shook her head and laughed "*Why do I feel like an idiot when I answer these questions!*"

At the end of the interview she apologized for her ignorance, which was ironic given how thoughtful her responses were. She voiced concern with her teaching of social studies because she felt under-prepared to teach it. She was concerned that it would be very easy to perpetuate students' stereotypes of other peoples and places simply because she felt that she was not overly knowledgeable and because there were few resources in the school to go to find answers (they do not use social studies textbooks). She found this lack of resources to be problematic when focusing on inquiry methods where students are encouraged to formulate hypotheses in response to a question.

> "*They may soon start to realize that their hypothesis wasn't correct. Initially. But it's going to take a lot of different experiences and a lot of resources to do that and as a teacher – right now I have little "stuff" to support those encounters. I can talk about these questions and ask them what they think but I just feel like they're gonna, they're not gonna learn".*

Planning and Content

Last year Emily constructed a unit around the history of Wedgwood. She enjoys history and said that the students enjoyed the unit. However she seemed concerned that the unit evolved from the connections that the students in the class had to people in the community rather than from stricter planning on her part. She pointed out that planning in the formal sense is time consuming, especially when it comes to identifying and becoming familiar with new materials. She also mentioned that over the summer she had taken an in-service on teaching economics in the elementary school.

> *"Time and money are total issues. We haven't had published materials other than the state objectives so I think I have been seizing the teachable moments as much as I can. I'm starting slowly to design these units. I really was concentrating on the strands of an economic unit; ideally start with the unit and go through the year...we're not yet as global as we can be".*

Emily has planned a unit that focuses on the process of interviewing people to collect data about the behavior of people in the local environment in the present and in the past. Although there is an obviously historical focus to the unit that Emily has written on food, the questions students are likely to raise in the course of their investigations could well provide her with opportunities to discuss economic and geographical concepts.

Activities and Assessments

Emily entitled her unit "Food, Time and Change in Wedgwood, Michigan: A Unit of Plan and Action." In this unit the second graders are given opportunities to interview each other, their parents, and senior citizens (see Table 4.4) to determine how life has changed in Wedgwood. As well teaching the lessons as described, Emily intends to read books to the students that depict some aspect of food during the three time periods. Books such as When I was Young in the Mountains (Rylant, 1985) and The Ox Cart Man (Hall, 1996) will be used for period context. Other texts such as What was it like before it was Bread? (Moncure & Hygaard, 1986) and Let's visit a Spaghetti Factory (Corey & Emmerich, 1990) will provide students with insights into how many of the foods they eat are made.

In the first lesson Emily has planned students will be introduced to the idea that adult members of their family were once children who had lives that were in some ways similar and in some ways different from theirs. Emily will bring in photographs of herself, her mother, and her grandmother around the age of eight (the age of the children) as well as artifacts of each period that relate to dining such as table settings. She has written brief monologues that she will read to the students to see if they can place each monologue with the time period e.g.

> *"Mom asked me to call the boys in from the yard work. Our roast is ready. I smell the boiled potatoes and am very hungry. I wonder what Father will tell us tonight. It is hard to stay silent for so long at the dinner table!"*

After the students have made predictions as to which monologue fits which picture and artifacts, and explained their thinking, Emily will reveal the answers and give students more details about the lives of different members of her family. This activity will launch their investigations into finding out if dinner in Wedgwood has changed over time and if so, why. Emily will guide the students into thinking about how they might go about finding the answer to this question. Then, when they raise the notion of asking people, she will brainstorm with them the types of questions they might want to ask.

Between lessons Emily intends to type up the questions students suggested into an interview format, as well as a set of practice questions so that in the second lesson of the unit students can focus on learning interviewing skills. She plans to start the second lesson by having the students think about advantages and disadvantages of using sources of information such as books, and then review the purpose of interviewing people they know in order to answer their inquiry question. In pairs the students will rehearse appropriate ways of asking questions and practice taking notes. Emily will assess their understanding by observing their interactions with each other.

In the third lesson the students will interview each other and then as a class they will compile the data they gathered on a large chart or table that Emily will have prepared prior to the lesson. Assessment will include Emily's observation of the

students interviewing each other and their completed interview sheets. As homework the students will be expected to interview a parent using the same protocol that they used to interview a classmate.

The fourth lesson that Emily has planned will use the data from her students' parents. Each student will be asked to compare his or her own interview results with the results from the interview with a parent. Students will write down what they see as interesting similarities and differences between the two pieces of data. They will be asked to generate possible explanations for what they find. After discussing their findings, as a class they will construct a table that collates the information about their parents' experiences. To assess student learning in this lesson Emily intends to review the completeness of the parent interview, to review the accuracy of the similarities and differences each student notes, and to consider the feasibility of explanations that he or she provides.

Emily will accompany her class to a local assisted living center. In pairs or small groups students will interview the senior citizens who live there. As well as undertaking the interviews the students will share edible treats from the past and present as a way of thanking the seniors for their help. Student learning will be assessed by teacher observation of the interviewing process and by examining the data individual students gather.

In the sixth lesson students will review their trip to the assisted living center, some of their experiences with the senior citizens and what they learned by interviewing them. As a class they will make a chart to show the aggregated responses of the senior citizens. Individually they will construct timelines that show key characteristics of dining and food preparation from each of the three generations. The students will be able to determine for themselves how they want to do this. Emily suggests that some of the students will choose to sketch a scene from each period; others might decided to design a menu; still others might be interested in describing in detail how each meal was prepared. Her assessment of their learning will be by seeing if they discriminate between the three meals and show the three time periods in chronological order on the timeline.

Emily has planned the seventh lesson with a focus on making generalizations from the information gathered. As a class the students will analyze the summaries of data from each generation. Emily will write the similarities that they observe onto sentence strips. Emily will give a lecture on the dangers of generalizations, saying that everyone does everything in the same way and that our knowledge of how life is or was like for other people is always partial knowledge. Then she will distribute the sentence strips to groups of students and they will be expected to talk about the generalization they have and think about plausible reasons for it. Each group would share its generalization and explanation with the class.

Students will role play dinner-time in the eighth lesson. Emily plans on reviewing the benefits and dangers of generalizing with the class and pointing out that their presentations will be informed guesses as to what life was like in the past. Then she will ask each group of students to act out a different time period, using dialogue to share what they have learned from their interviews. Assessment will take the form of checking to see that the information gleaned from the interviews was used in the students' performances.

The ninth lesson will be a celebration of what the students have learned. They will display all of the materials that they have created or used around the classroom. Throughout the unit Emily intends to write with her students a narrative of their progress on the inquiry project. In this lesson some of the students will read this narrative while other students perform the skits they wrote based on what they had learned from interviewing. Parents, other second graders, and the senior citizens they interviewed will be invited to watch.

Commentary

Emily intends to use children's literature such as When I was Young in the Mountains (Rylant, 1985), The Ox Cart Man (Hall, 1996), What was it like before it was Bread? (Moncure & Hygaard, 1986), and Let's visit a Spaghetti Factory (Corey & Emmerich, 1990), as well as anything else that the librarian can find for her that relates to food or to the time periods they are studying. However, she

has deliberately chosen to make an inquiry project the main focus of this unit rather than literature.

Table 4.4 Summaries of Emily's Lesson Plans on Food

	Big Ideas	Activities
1	▪ People in different times have different ways of preparing meals.	Teacher shows photographs of self, mother, grandmother as 7-8 year olds. She brings in table settings from those periods. She reads monologues and asks students to match monologues with photographs. Discuss clues from monologues. Discuss how the class could go about investigating how dinner in Hunterville has changed over time. Brainstorm questions to ask.
2	▪ Interviewing is a way of collecting information. ▪ Interviewing is a skill.	Class discussion about the purpose of interviews, interviewing etiquette, note-taking strategies etc. Model good and bad examples of interviewing. In pairs students practice interviews.
3	▪ Interviewing is a way of collecting information from a primary source. ▪ Information from interviews can be organized into categories.	Review of interviewing strategies. In pairs students interview each other using dinner interview protocol. As a class fill in a chart showing responses from all interviews. Homework: interview a parent.
4	▪ Parents can provide us with information about the past. ▪ Information gathered from different groups can be compared.	Individual students compare answers to own interview with interview of parent. Students compare similarities and differences and pose possible reasons for them. They share results of second interview to create a class chart.
5	▪ Senior citizens can provide us with information about the past.	Visit local assisted living community. In groups or individually students interview senior citizens. Thank seniors by celebrating with treats from past and present.
6	▪ We can distinguish between the past, present and future. ▪ Our lives can be placed in a larger context when we compare them with others.	Class reviews visit and interview results from assisted living community, parents, selves. Individual students make timeline to show periods in chronological order and illustrate selected ideas from interviews.

7	▪ There can be multiple explanations for our findings.	Class discussion. Construct generalizations about similarities or differences from consideration of timelines. Teacher writes on sentence strips. Discuss benefits and dangers of making such generalizations. In small groups students think of plausible reason for one sentence strip/ generalization. Class discussion around each small group's generalizations and their explanations.
8	▪ Role plays can synthesize our understanding of the past.	Class discussion to review the danger and benefits of generalizing. Small groups of students construct role plays to illustrate what they learned from their interviews. Groups perform for classmates.
9	▪ What is learned through interviews can be shared with others through performance.	Teacher and students write a script together about what they have done and learned throughout the unit. Students read script and perform skits for audience, e.g. parents, second graders, senior citizens.

Emily decided to participate in this study because she was looking for resources to support her teaching of social studies. In our conversations I emphasized how involving people in the community around the school made a lot of sense in the early grades when the curricular focus is on the local area. That is what she has done in this unit. The main sources of information and the main resources in this unit are herself and people of the community: the students themselves, their parents, and the senior citizens who live in the local assisted living center.

Examining the origins and tentative nature of knowledge seem to be key features of Emily's unit on food. The nature of the inquiry project means that she cannot predict with any certainty what the children will learn in terms of facts about food and food preparation. She can predict that they will become aware of the stories that older people have to tell and that they will become more aware that not

everybody experiences the world in the same way they do, either now nor in the past. She will guide them to thinking about the reasons why people's lives are different from theirs. She will have also exposed them to the notion that we can learn about the world by studying it systematically -- as well as by reading books written by other people.

Discussion of the second grade teachers' unit plans

The unit plans written for second graders illustrated the range of ways the teachers are thinking about social studies. Whereas Felicity and Helene considered the process of getting food to be very important to teach, Glenda seemed focused on helping her students to be aware that people had the same needs as all living things and that they went about fulfilling those needs by trading. Emily's unit was very different from those of the other teachers because she intended to focus on the process of collecting and analyzing data as much if not more than on the content of her topic.

Use of report on children's thinking

The content of the report was most closely recognizable in the unit plan created by Helene Garcia, the least experienced teacher in the group. Yet all of the teachers did design a unit that featured food in it in some way, shape, or form. Felicity spent a number of lessons looking at the processing of food and the land to hand relationships. Glenda's unit revolved around apples and the process of

getting them from the land to the hand, and Emily's unit helped the students to understand that what and how families eat has changed over time.

It is interesting how Emily chose to focus her lessons on interviewing when she was the teacher who had been interviewed by a university researcher. Not one of the other second grade teachers asked their students to talk with people in their families or the community. Glenda did expect her students to go out into the community to find out the prices of products so she did have them doing some data collection but with objects, not people.

Resources

All of the teachers planned to use children's literature. Glenda used the Internet to help her find suggestions for planning. Felicity called on the multiple workbooks and resources she has collected over the years from interest groups and organizations that periodically produce materials for schools. Helene's ready acceptance of the report on students' thinking and her willingness to use the questions and results from it as if the modal responses from the children were the most comprehensive answers to the questions is disconcerting. Although some of the students did offer thoughtful answers it behooves educators to learn more about a topic if they going to teach it than what they can be told by a nine year old in a short interview.

Attention to children's thinking in activities or assessments

All of the teachers used class discussion as an integral part of each lesson. However how they intend to use that whole group time varied from teacher to teacher. Felicity intends to read a lot to and with the students. Helene intends to have an ongoing conversation that is interspersed with reading texts together. Glenda will spend some of her time with the large group demonstrating how to do things such as making a model plant and explaining what to do in their individual or small group activities. Part of the reason why it seems as if Helene will talk more with her students than the other teachers who read the report on student thinking might, is because she wrote down specific questions she would ask. The other teachers did not. It has been well documented that many experienced teachers write the briefest of lesson plans – if they write lesson plans at all. So it is likely that after a few more years of teaching in her own classroom Helene's lesson plans will also become less detailed, even though her actions in the classroom might remain the same.

Emily will be collecting and collating data with her students. She intends to spend a lot of time listening to what the students are thinking. We can hope that their findings will lead them to ask new questions that she will guide and support them in looking for answers, as Dewey suggests in How We Think (1991). They will spiral through finding solutions to questions that have within them new questions.

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WHEN TEACHERS ARE INFORMED BY RESEARCH ON CHILDREN'S THINKING: SOCIAL STUDIES UNIT PLANS FOR THE PRIMARY GRADES

VOLUME II

By

Carolyn Joan O'Mahony

A DISSERTATION

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Planning to Teach Social Studies in the Third Grade

This chapter will consider the unit plans of teachers who work with third graders. By the time children reach the third grade most of them can read and write. They have yet to be completely socialized into the adult world but they do have the academic and physical skills to contribute to the well being of their community in ways that go beyond helping in family and classroom situations.

Rosemary Mansfield, Colette Thomas, Sharon Baxter and Crystal Glover teach third graders. Rosemary has primary responsibility for the third graders and their curriculum in a multi-age classroom. The other three teachers work in self-contained classes where Crystal has a class of third and fourth graders, and Sharon and Colette teach third grade students only.

Teachers who Read the Report on Children's Thinking

Rosemary Mansfield

Rosemary Mansfield has been an elementary school teacher for six years. She taught second graders and fifth graders before settling into teaching third graders. She is in her second year of co-teaching a $3^{rd}/4^{th}$ multi-age class, in a school that serves all of the third and fourth grade students in the district. The school district is centered on Edendale, a small town lying 20 minutes north of the state capital. The area is experiencing rapid growth as commuter families

move into a number of new housing developments. Rosemary describes the parents of her students as educated and supportive of their children's endeavors to learn. She sees herself as fortunate in having not just parents who are supportive of what she does in the classroom, but also administrators who support and encourage the lifelong learning philosophy for students and teachers alike.

Reaction to the Report

Rosemary did not anticipate some of the students' responses to the questions in the report on children's thinking about food, its production, distribution and consumption. Her first reaction was to reflect upon the thinking of her own students.

> *"I was very surprised by all the misconceptions that kids have. I guess as teachers sometimes we probably make a lot of assumptions that they are getting the message or that we're speaking it clearly, and, I mean a lot of the misconceptions made sense to me. I could see how they think what they think. But. It just surprised me I guess. As I was reading it, and sometimes I would make comments to the teacher that I team with and I'd say – well, don't you think our kids would know this and we don't need to teach this. They understand the land-to-hand concept. And that food is an energy source and you know there's nutritional value in – and all that stuff. But. I don't know. It was kind of enlightening to see. That they don't all get it!"*

Rosemary tended to attribute what the children did or did not know to their learning and opportunities to learn in school. As an instance of this, she was surprised that more children could not name the food groups because it is such a common topic in the early grades. She had remembered learning it in the early grades when she was a student so she posited that teachers err on the side of not teaching various seemingly perennial topics because they assume that they have been taught before. She was surprised at how stereotyped the students' comments about other cultures were, like chopsticks for and rice for Japan, and attributed this to teachers tending to focus on the differences between cultures rather than the similarities. She was also concerned about the children's comments regarding the process of how we obtain our food.

> *"A lot of the kids, they kind of, it seems to me that they understand like with the land to hand and all the products that you had mentioned, all the foods, that they understand where those things come from, but the in between is, they don't understand how it goes from being a cow to being a hamburger. They know it comes from a cow. There was one girl who mentioned that she knew that there was a butcher involved somewhere in there. As teachers we're probably doing a good job of explaining where its coming from but not necessarily the production part of it, or the distribution. Just maybe talking about the natural resource part of it!"*

Planning and Content

Rosemary sees herself as the type of person who has to make something her own so when it comes to planning she has to think things through and change them, regardless of whether the ideas are from a book, another teacher, or from an in-service. She sees teaching as creating connections between the students and the subject matter.

> *"I don't think that you can just present material to kids and assume that they're going to see how it relates to them. I definitely feel that as a teacher I'm part of the bridge between all these different concepts in social studies and the kids and how they relate and how they interact – it's a work in progress."*

Her opinions about curriculum have been shaped by Howard Gardner's writings on the notion of multiple intelligences. She says that she tries to accommodate different learning styles and different needs in the different areas such as art and music but often this is not through social studies.

The unit that she has planned is entitled "From Apples to Apple Pie" so we will be able to see how Rosemary has taken the insights she has about students' thinking and applied them to the process of getting apples from the land to the hand.

Activities and Assessments

Rosemary intends to make the students aware of how the lessons in the unit are all related right from the very beginning. In her first lesson she will introduce them to the story How to Make an Apple Pie and See the World (Priceman, 1994). Then in subsequent lessons they will learn about the production and distribution of each of the different ingredients of an apple pie. To end the unit they will bake and eat apple pies. But each lesson is not a simple repetition of the previous one except with a different foodstuff -- within each lesson Rosemary presents new issues related to food. In her plans Rosemary includes optional activities, many of them related to learning songs that use old tunes with new lyrics to teach economic concepts.

In the introductory lesson Rosemary plans to write a Christmas list for Santa Claus with her students. She anticipates that they will suggest items that they want rather than need so this will allow her to introduce the concepts of wants versus needs. They will sing a song called "The Wanting Song" that allows a student to insert the name of an item in each verse. Rosemary will point out to the students that people depend upon each other to have their needs and their wants met. She will tell them that the story they will read is about a little girl who needs to do a lot of traveling to get what she needs to make an apple pie.

Before they read the story she intends to ask the students to predict what the ingredients of an apple pie would be and then where those ingredients might

come from. They will read How to Make an Apple Pie and See the World (Priceman, 1994) then review their predictions and address their previous misconceptions. Each student will start to write the apple pie recipe on a recipe card by listing the ingredients on it. She will assess them by observing their participation in the discussions. Rosemary will challenge her students to think about the origins of their dinner ingredients when they go home that evening, and to consider how they got from their place of origin to Michigan.

The second lesson in the unit will start with a review of the first lesson, defining wants and needs and then listening to what students ate for dinner the night before and where those foods came from. Rosemary intends to stress the importance of being aware of how other people meet our needs and relate it back to How to Make an Apple Pie and See the World (Priceman, 1994). She will explain that they are going to watch the story as a video and will give them maps of the world (copies of the illustration at the front of the book). The students will be expected to draw lines on their maps between the different ingredients and where they are produced. In the discussion following watching the video she will introduce the terms producer and consumer in relation to the story. At this point she might or might not introduce "The Market Song" to reinforce the idea of producers and consumers.

At this point Rosemary intends to introduce the notion of healthy food and will present the food pyramid for discussion. The students will complete worksheets

on classifying foods according to the categories of the food pyramid. Depending on how familiar the students are with the food pyramid Rosemary might show a video from the Dairy Council of Michigan on food groups. The students will take out their apple pie recipe cards from the previous day in order to locate apple pie ingredients on the food pyramid. They will start a "Food for Thought Journal" to track what they eat and to see if they are eating healthily according to the food pyramid. Rosemary intends to challenge her students to find a copy of food pyramid in their home (they are often on cereal or cracker boxes) and to think about what they eat for dinner in terms of the food groups they will eat.

To start the third lesson Rosemary will ask some students explain where their dinner foods were on the food pyramid. The class will determine if they ate a healthy meal. She will present foods made with wheat or pictures of them to the students and ask what they have in common. If the students don't make the connection, Rosemary will ask them to place each food on pyramid. Once wheat is identified as the common element, they will read Wheat We Eat (Fowler, 1999). They will discuss the main points of the book then watch two Reading Rainbow videos of that book and a book about bread.

As a class they will diagram the stages wheat goes through to get from being a seed to being in a store. Students will identify stages of *production*, *distribution,* and *consumption.* They will use these terms to label the class diagram. Rosemary thinks she might share samples of wheat flour with different textures

from the natural health food store. In a large group the students will reflect upon the videos and identify *resources* in them as *natural resources*, *human capital*, or *capital equipment*. They will use these examples to complete a three-column table. Rosemary might teach them a song "We've Been Working on Production" to help them remember the different terms for the different types of resources. Another optional activity Rosemary might do is read Agatha's Featherbed (Deedy, 1994). which is a story that reinforces the differences between natural resources and capital equipment as well as explaining that "Everything comes from something. Nothing comes from nothing." Students will work independently to complete a table of resources for making a hamburger. To end the lesson they will review the new economic terms as a class. Rosemary will ask students to choose a food product from home and research the resources needed to produce and distribute it, and then write what they found out in their journal.

Rosemary plans to start the fourth lesson in the unit by having her students watch the first five minutes of the claymation movie, Chicken Run, to get a sense of the process of egg production. She might also choose to show a later scene in the movie that depicts a machine the farmer has built to make chicken pies! It would be a good scene to illustrate capital equipment, Rosemary thought. Another idea Rosemary had, but as yet is still undecided about, is to either have a local chicken farmer speak with the students, or to have a field trip to a chicken farm so that the students could really understand the process an egg goes through before they eat it. She points out that they could collect the eggs they

would use to make pies at the end of the unit from the chicken farm during their visit.

Rosemary intends to ask the students to identify in the video the resources needed for production and distribution of eggs. They would then categorize these resources using same categories as lesson 3. They would locate eggs on the food pyramid and discuss the recommended daily servings. Rosemary might arrange for parents to host a breakfast for the students where they would be able to select from eggs cooked in different ways: scrambled, poached, over-easy etc.

Rosemary will share unlabeled jars of ground spices with the students. Students will pass the jars around, smell them, and write down predictions as to what they are. Then Rosemary will tip out samples of each spice out so that the students can look and touch them. They will revisit their predictions and Rosemary will let them know if they were accurate. Rosemary will point out that cinnamon is often used in apple pies. The students will read information sheets that Rosemary printed from a web-site (http://www.schwartz.co.uk.) She will help them to make sense of the adult-level material by paraphrasing and discussing the text as they read it together. Rosemary will show the students a stick of cinnamon and pass around cinnamon sticks. They will take turns to grate the sticks. They will store the ground cinnamon for the pies that they will make at the end of the unit. Rosemary might heat some apple cider so that the students can add their own grated cinnamon to flavor it.

To complete the lesson, as a class they will identify the resources used in the production and distribution of eggs. Rosemary will ask students for homework to choose a food product from home and research the resources needed to produce and distribute it and then write about it in their journal.

Rosemary's fifth lesson will revolve around dairy products. She plans to start the lesson by either having the students brainstorm answers to questions about where we get milk from, how it is made, and the products that are made from milk. Alternatively, she will bring in a range of dairy products and get the students sharing what they know about milk and milk products that way.

The students will locate dairy products on the food pyramid. They will drink cartons of milk while watching Milk Makers (Gibbons, 1987). As a class they will diagram the stages of production and distribution then label them. Rosemary will ask them to decide what the consumption stage might look like. Rosemary might arrange for them to visit a dairy farm or she might organize a trip to the local grocery store that would be timed so that they could meet with the milk distributor. They might get a chance to see the refrigerated storerooms or to look in the refrigerated truck.

Rosemary will expect students to be able to identify and categorize the resources that they saw being used in the video on milk production and distribution and

write them onto a table. She might teach them to sing a song entitled "We've been Working on Production." She might make butter with the students by shaking up small jars of cream.

Individually, students will write the name of their favorite dairy product on a post-it note and place on class bar graph. They will discuss their graph. Rosemary will get them to predict what the graph might look like if their parents filled it in and then to explain their reasoning. In their journals they will create a flow chart showing the stages of milk production and distribution. In class they will start making a collage of dairy product pictures, including a food pyramid with dairy group identified, to be completed at home.

The sixth lesson that Rosemary has planned is different from the others in that she will start by constructing a K-W-L chart with the students. She will ask the students what they know about sugar, reminding them to think on what they have learned about the other ingredients in apple pies. She will tell them that they will be filling in the "L" part of the chart at the end of the lesson. She might share samples of cane sugar and beet sugar. The students will locate sugar on the food pyramid and look up he recommended daily allowance. With Rosemary explaining the text as necessary they will read and discuss extracts from an encyclopedia pertaining to the types of plants that have a high sugar content, the climates in which these plants grow well, and how beet sugar is produced. Rosemary might organize a field trip to a local sugar beet farm.

The students will look at and taste samples of granulated, powdered and brown sugar. Rosemary will use tables of data to illustrate how Michigan is depicted in the reference books as a major sugar producer in the nation, and in the world. As a class they will complete a table identifying the types of resources used to process sugar beets. They will complete their K-W-L chart. Rosemary will ask students to identify foods that are made with sugar. For homework she will ask them to diagram or write how sugar is made from sugar cane in their journals.

The seventh lesson in Rosemary's unit is about apples. She plans to present her students with several varieties of apple and ask them to compare the seeds. Then the students will taste slices of apples and determine their favorites. They will tally the scores to determine most popular variety. Rosemary might show a video about Johnny Appleseed. They will read Apples (Gibbons, 2000). As a class they will diagram the stages of production and distribution in the apple growing process and label them. Rosemary will ask the students to imagine what the consumption stage would be. She might organize a trip to a local orchard or cider mill. Or she might ask a local nursery to donate an apple tree and invite the nursery person to show her students how to plant and nurture apple trees.

The students will work with Rosemary to write up a table identifying and classifying the natural resources, human capital, and capital equipment, this time in relation to apples. She plans to provide the students with an assessment rubric

then ask them to work individually or in small groups to devise a way of presenting a description of the growth, production, distribution and consumption of apples. For homework she will ask them to work with an adult to make something with apples, then write the recipe and a reflection on their baking experiences in their "Food for Thought" journal.

The eighth lesson in the unit will start with Rosemary and her students reading and discussing The Seasons of Arnold's Apple Tree (Gibbons, 1984). After having some time to prepare, the students will make their presentations to the class. Other students will be encouraged by Rosemary to comment on each presentation. She might have the students use an old-fashioned apple peeler/ corer/ slicer to make applesauce. While they are eating the applesauce they will be asked to identify the resources they used to make it. Rosemary will ask the students to reflect on their presentation and presentations of others in their journal.

Rosemary plans to rely on adult volunteers a lot during the final two lessons of the unit where she returns to the text of How to Make an Apple Pie and See the World (Priceman, 1994). For instance she will ask them to provide the cooking items such as mixing bowls and measuring cups. They will also be involved in the classroom activities. In the ninth lesson of the unit the students will work with the guidance of an adult in a small group that focuses on one ingredient of the apple pie. Each group will work in a defined area of the classroom, representing

the country where their ingredient originated. They will create a banner showing the group's country, a picture of the product, and its location on a world map. Rosemary anticipates drawing the students together as a large group to review what each group has done.

Rosemary intends to tell her students that their task is to make an apple pie. She will pass out copies of the recipe and talk about the challenges that they face if they only have access to "their" ingredient. They will discuss their need to "travel" to get ingredients as consumers. They will discuss interdependence.

Then Rosemary plans to ask the students what else they will need to make an apple pie apart from the ingredients. She anticipates that they will identify kitchen tools as capital equipment and themselves as human capital. Students visit each group to collect ingredients. Either the lesson will stop there and each group's ingredients will be stored until the following day or they will continue with lesson ten in the unit.

In the tenth and concluding lesson Rosemary will explain that they are going into the production phase of getting from apples to apple pie. She will ask them what the consumption phase is. Then she will ask them how they would go about distributing the pies if they weren't going to eat them. After that she intends to set up the apple peeler/corer/slicer so that the small groups can use it one at a time while other groups prepare their crusts and assemble the apple pies. While their

apple pies bake in cafeteria oven the students will do a vocabulary quiz and complete an apple pie resources worksheet. They will prepare for an apple pie picnic with blankets, plates, forks, napkins. Rosemary points out that they could serve pieces of the apple pies with cartons of milk from the cafeteria.

Commentary

Rosemary covers a lot of material, both in terms of the information to which students are exposed and in the types of activities they will experience. However she has done this in a systematic way, taking half a dozen major concepts such as the stages of production and types of resources and interdependence and deliberately focused and refocused the students' attention on them throughout the unit.

In her plans and her conversations she said that she would be flexible in how she implements her plans. She said that if the students get restless or if she perceives they don't comprehend the concepts she will adapt the lesson. Instead of continuing with a discussion or teacher presentation she might teach the students one of the songs she has found that reinforces what she wants the students to learn.

Table 5.1 Summaries of Rosemary's Lesson Plans on Food

	Big Idea	Activities
1	▪ People have wants and needs that often exceed their resources. ▪ Countries are interdependent in relation to natural resources and food.	Teacher asks students to write a class Christmas list for Santa Claus. Determine which items are *needs* and which are *wants*. Learn the "Wanting Song." Brainstorm *needs*. Teacher explains *interdependence*. Teacher introduces How to Make an Apple Pie and See the World. Students predict ingredients and their country of origin. Teacher reads story to students. Review predictions. Write ingredients on recipe cards. Teacher challenges students to think about the origins of their dinner ingredients and to consider how they got from there to Michigan. Teacher will assess by observing participation.
2	▪ People need food. ▪ We eat food from around the world. ▪ Ingredients of apple pie are in the food pyramid.	Review wants and needs. Students tell what they ate for dinner and origins. Teacher stresses importance of knowing where our food came from and how it got to us. Emphasizes our reliance on others to meet our needs. Relates it to the character in How to Make--. Discuss world map in relation to story. While watching video trace line from ingredient to country of origin. Discuss. Teacher introduces *producer, consumer*. Learn "The Market Song." Teacher introduces *healthy*. If no student mentions food pyramid, introduce food pyramid. Discuss and complete worksheets. Locate apple pie ingredients on food pyramid. Challenge students to find a food pyramid guide at home and to think about dinner in terms of food groups. Students start "Food for Thought Journal" to track what they eat and to see if they are eating healthily according to the food pyramid.
3	▪ Countries are interdependent for food supplies. ▪ Numerous people are involved in each stage of food production. ▪ Wheat is used to produce many of the foods we eat.	Students explain where their dinner foods were on the food pyramid. They determine if they ate a healthy meal. Teacher brings foods made with wheat or pictures and asks students what they have in common. If they don't make the connection, teacher will ask them to place each food on pyramid. Once wheat is identified as the common element, read The Wheat We Eat. Discuss then watch video of the book followed by video on bread making. Class draws diagram of stages from seed to store. Students identify stages of *production, distribution, consumption*. Label diagram. Examine

		samples of wheat flour from natural health food store. In large group identify *resources* in the videos as *natural*, *human capital*, *capital equipment* and complete a three column table. Students work independently to complete a table of resources for making a hamburger. Review economic terms. In journal students choose a food product from home and research the resources needed to produce and distribute it.
4	▪ Different resource types are used in the production and distribution of food products. ▪ Students are consumers who rely on other people to meet their need for food.	Students watch first five minutes of Chicken Run to see process of egg production. Identify resources needed for production & distribution of eggs. Use categories from Lesson 3 to categorize resources. Locate eggs on food pyramid and recommended daily servings. Teacher shares unlabeled jars of ground spices. Students smell & write down predictions. Teacher displays samples of each so students can look & touch spices. Revisit predictions. With teacher paraphrasing students read information sheets on cinnamon: often used in apple pies. Pass around cinnamon sticks. Grate sticks. Store for pie-making. Review resources used in egg production & distribution. In journal students choose a food product from home and research the resources needed to produce & distribute it.
5	▪ We eat many dairy products – made from milk. ▪ Different resource types are used in the production and distribution of butter.	Teacher brings in dairy products and asks students to identify what they have in common. Locate on food pyramid. Consider production process. Drink boxes of milk while watching Milk Makers. Diagram stages of production & distribution then label them. Decide what consumption would be. Identify and categorize resources on table. Students write name of favorite dairy product on post-it note. Place on class bar graph. Predict what graph would look like if parents filled it in. Explain reasoning. In journal create flow chart for milk production and detail each stage. At home students make a collage of dairy product pictures, including a food pyramid with dairy group identified.
6	▪ Sugar is in many of the foods we eat. ▪ Different resource types are used in the production and distribution of	Start K-W-L chart as a class. Teacher shares samples of cane sugar and beet sugar. Identify sugar on food pyramid and daily allowance. Read and discuss extracts from encyclopedia. Students look at and taste samples of granulated, powdered and brown sugar. Teacher uses tables of data to illustrate MI is a major sugar producer in world.

	sugar.	Complete table showing types of resources used to process sugar beets. Complete K-W-L chart. Identify foods made with sugar. In journals diagram or write how sugar is processed.
7	▪ There are different varieties of apples. ▪ Different resource types are used in the production and distribution of apples.	Students compare the seeds within different types of apples. Students taste slices of apples and determine their favorite. Tally scores to determine most popular variety. Read Apples. Diagram stages of production & distribution then label them. Decide what consumption would be. Teacher asks local nursery to donate tree. Nursery person shows students how to plant & nurture tree. As in earlier lessons write up resources table. Individually or in small groups students devise a way of presenting a description of the growth, production, distribution and consumption of apples -- with an assessment rubric in mind. At home make something with apples. Write recipe and reflection on the baking experiences in journal.
8	▪ Apples and other ingredients are used in making apple sauce.	Read and discuss The Seasons of Arnold's Apple Tree. Students make their presentations to the class. Other students comment on presentations. Use old-fashioned apple peeler/ corer/ slicer to make applesauce. Identify resources used to make applesauce. In journals students reflect on their presentation and presentations of others.
9	▪ Students will have a deep understanding of the concepts taught so far.	Students work with an adult in a small group that focuses on one ingredient of apple pie. They represent the country where the ingredient originated. They create a banner showing the group's country, product, location, on a world map. Discuss as a large group. Teacher tells students that their task is to make an apple pie. Students read recipes. Discuss need to "travel" to get ingredients as consumers. Discuss interdependence. Identify kitchen tools as capital equipment and themselves as human capital. Students visit each group to collect ingredients.
10	▪ Students will be able to demonstrate their understanding of the concepts taught so far.	Teacher explains that students are in the production phase of pie making. Discuss distribution & consumption. In small groups students make crust, prepare apples and assemble pies. While pies bake in cafeteria oven students do vocabulary quiz, complete pie resources worksheet. Prepare for apple pie picnic with blankets, plates, forks, napkins. Serve pies with cartons of milk.

Rosemary's unit plan can be seen as a reflection of her beliefs about the support the parents of her students are able to give her classroom program. She has made homework, or home-based activities, a feature of most lessons. She has planned regular writing prompts for the students in their social studies "Food for Thought" journals. She is confident that parents will help their children find answers to the questions she sets for homework. She told me that 95% of her students have a computer at home so no doubt they will be able to use that as a resource to find out exactly where their dinner came from. She plans to have at least one parent working with each of six groups in her final two lessons and knows that she can rely on having enough parents volunteer to make this happen.

She intends to use the opening sequence of Chicken Run, a movie that has only recently been released on video, to introduce children to the process of producing eggs. Although all of the teachers plan to use children's literature, bringing artifacts from the popular culture into the classroom hopefully encourages students to be more aware that they might be learning new things as they watch movies and television and have other experiences outside the classroom.

Rosemary Mansfield is enthusiastic about her teaching, as evidenced by her carefully presented thirty-one page unit plan, with its additional nineteen pages of

appendices. The ways that she has drawn upon resources that are not commonly used, such as excerpts from popular movies and downloaded information from spice companies, show how she searched for innovative ways to make her instruction meaningful for her students.

The following teacher, Colette Thomas, shares Rosemary's passion for her work in that she also wrote a lengthy unit plan. Rosemary was eager to use the people of the community as resources but wanted to help the students see how interdependent they were internationally. Colette, on the other hand, while having a similar attitude towards helping the students understand interdependence, chose to teach it through an in-depth study of their local community.

Teachers who Read the Report on Children's Thinking

Colette Thomas

Colette Thomas is a long time resident of Hunterville. Hunterville is within commuting distance of the Capitol. However, unlike Edenvale where Rosemary Mansfield teaches, it shows few signs of suburbanization in its main street buildings or its schools. It still looks and feels like a small farming town.

As a child, in the 1950s, Colette grew up on a farm about an hour east of the town, and her four children, now in their twenties, all attended the local schools so she has a strong sense of connection with and commitment to the community. She has spent eighteen of her twenty years of teaching at Hunterville Elementary

where she has taught generations of second and third graders. She describes her current class of 9 girls and 13 boys as a challenge. They take more time than the average class to settle down and they compete aggressively for attention. However she still holds out hope for them, pointing out how the small school system means that students do not get lost: *"It's nice to have a small system where they sometimes come back or you see them and they'll stop and talk to you."*

Colette expresses concern at how more and more keeps being added to the curriculum. She says that it is important to make connections within subjects but that it seems like they are expected to teach so much that it is impossible to teach anything in depth. She is frustrated by the increasingly frequent forays into the schools by businesses and local organizations who have agendas that have little to do with preparing informed American citizens.

> *"I worry about breadth versus depth these days. It seems like we are just touching the surface in so many areas. Because we have no time to get into things in depth… I feel so divided, having the economics component, now the career component. It's put in there. And I still think the history of our country is important but it's not as important to the business leaders of our times and they're tending to come in and tell us what they want from their future workers. And history isn't that important to them right now. Although I think it's important to the kids. And I think the Veterans' Day project that I do – that gives them a taste of what it used to be like. And*

why our country did fight and what it was about. Even the Depression. Especially today. The kids have no idea that the rest of the world doesn't live as they do. And particularly in our history when people were without jobs and hungry and going to soup kitchens for their food. And I think they need to know that. They talk about making a mistake and having it happen again if you fail to learn from it. And if they never hear about it they won't learn anything. So – I think that's something that I'm really concerned about that a lack of depth that we can get into. When I was doing two or three units a year we would spend a lot of time in one area. We could make connections. But maybe we didn't use the book very much at all. Now we feel that we need to do that."

Colette perceives increased pressure from teachers in the upper grades and administration to have her students well versed in the basic skills of social studies such as map reading because the MEAP tests are administered when students enter the fifth grade. This is a particular challenge this year because the students entered her room without many of the skills she has come to expect new third graders to have. She decided that for this research study, despite everything, she would like to return to one of the units she had used a number of years back that has a historical emphasis, and revitalize it to meet the needs of her current students.

Reaction to the Report

When she discussed the report on student thinking about food Colette explained that she was not sure of how her students might respond to the science-related questions because for the past few years she has not taught science. There has been a science specialist in the building who works with all of the students. Colette was surprised that so many of the students mentioned starving in response to the consequences of not eating because they do not live in a country where people experience a lot of food shortages or go hungry. She was also surprised that so many of the children did not understand the concept of nutrition – she had always assumed that by the third grade they would know what was nutritious and what was not, and that they would know the food groups.

She noted that time seemed to be an abstract concept for the students in the report to understand, even the third graders. In her classroom she has found that using time lines in single year increments is what her students have tended to understand best.

> *"I'm surprised at really how poorly they do with the timeline. They don't seem to be able. To them 1950 is like the year 1000 or something. Many of them still have that concept-- at an age you would think they were past that."*

Colette pointed out that as a child she would not have confused the time of Christ with the time her grandparents lived. Then she went on to explain that when she

was a child and throughout her life the past was thought of in relationship to wars.

> *"I think that the wars were a framework for people at that time because it was part of your history. You had somebody who was in a war, who was injured in a war. And of course for these children I have now – it is not part of their history at all."*

Despite observing that she probably had had a better sense of time than her students at the same age, Colette was very aware that there are many things that her students have knowledge of that she had never considered as a child. For instance she has overheard her students talking about the corn that shouldn't be in cornflakes, i.e. genetically modified corn. She attributed differences between what she knew as a child and what her students and what the children in the report said to their exposure to the world through media, such as the television.

> *"One of the things I discovered in reading this is how little I know. It's very humbling"* said Colette, after discussing the first half of the report. She continued, explaining that she often found herself learning along with her students. *"You discover right along with the children and then you pretend that you already knew it when you teach them! There's so much that I'll say "Oh – I didn't know that before" to myself then I teach it. I'm a lot smarter as a teacher than I was when I was not exposed to so much."*

Throughout the interview Colette continued to make commentaries on the children's understandings in relation to teacher knowledge such as their attitudes towards people of different cultures or their understanding of the ways Native Americans lived prior to the arrival of the Europeans. She also related many of her comments about the students' thinking to her own personal life. For instance after she had responded to the students' comments about farming equipment changing over time she talked about how difficult life is for today's farmers – relating the challenges that her uncle and cousins who are dairy farmers face. These connections are evident in the content of the unit she planned.

Planning and Content

In her school Colette is expected to focus on "communities" in social studies. At the same time she is also expected to teach economic concepts, the Core Democratic Values of the Constitution, career education, mapping, and geography.

So, Colette decided to plan a unit entitled "Hunterville: A Historical and Economic Perspective." She wants to teach her students a sequential narrative of events about Hunterville and its people, as an example of a community. She also intends to help them understand how natural resources, man's need to pursue his fundamental beliefs of life, liberty, and happiness, and how the progression of the Industrial Revolution in the nineteenth century shaped both the people and the place between 1836 and 2001. As students revisit food, transportation, and

economics across the eras they will create a useful framework for studying communities of other types and sizes.

She does explain in the introduction to her unit plans that the unit could easily encompass an entire school year but that the time would be shorter if the students exhibited a good grasp of the skills to be learned. So, what is difficult in describing Colette's unit is that each lesson she has planned is, by itself, a unit of work that weaves in concepts from economics, history and geography. The first "lesson" is on the Early Settlers and has an estimated "realistic time frame" of "approximately four weeks." She estimates that the second "lesson" will also take around four weeks to teach. It will focus on "The Advent of the Railroad in Hunterville, 1860." The third "lesson" is entitled "Hunterville 1870-1920." The next "lessons" are in chronological order and cover the development of the town from the1920s to 1950, 1950 to1980, and 1980 to 2001.

I asked teachers in the study to prepare a unit of six to ten lessons around food that they could and hopefully would teach to the students in their current class. Colette's first "lesson" has six distinct phases to it so for the sake of this study I will treat it, "The Early Settlers" as her unit and describe each phase as a lesson.

Activities and Assessments

Colette designed the unit to stimulate her students' interest in the history of their community. She assumed that they already know that a man named Paul Hunter

arrived in the area a long time ago and that Hunterville is named after him. She was interested in finding out what else they know about the history of the town so in the first lesson she intends to facilitate the completion of the "K" and "W" portions of a K-W-L document. She will distribute "Learning Logs". Students will be expected to highlight and summarize important unit concepts and definitions of key concepts in their Learning Logs. From time to time the Learning Logs will be shared with a peer and with Colette and evaluated in terms of accuracy and knowledge. She will ask students to bring in photos [sic], implements, family histories or diaries of that time to share.

In the second lesson of the unit Colette intends to narrate the beginnings of Hunterville, from the 1600s to the 1850s. She will tell them how the river and the lake were once surrounded by forests of spruce, tamarack and oak trees that were home to an abundance of wildlife. She will tell them that the Chippewa Indians used to be the only people living on this land up until the 1830s when Paul Hunter arrived. Then she will describe the early life of Paul Hunter, including his family, profession, and motives for coming to the area.

Using a book written by local authors entitled The Hill and Below (Colby, 1976) and resources such as photos, sketches and maps of early Hunterville and its people, Colette plans to lead the students in teacher-directed discussions in the third lesson. They will talk around the who, what, when, where, why, and how questions of life for the early settlers as they came together to build a community

in this area. For example, early Hunterville developed into an agricultural community – why? Where did the early settlers get their food? What did they eat? Who grew the food eaten by the settlers? How was it grown and how was it distributed elsewhere? When did people begin to look beyond the community for food and how was trading for food beyond the community made possible? The students will write predictions, reactions, summaries, sequential facts, definitions, solutions, and draw conclusions as they pertain to the history of Hunterville and its people. The students will be assessed on their active participation in discussions and debates with the teacher and other class members.

In the fourth "lesson" of this "unit" on early settlers the students will work in small groups that, through discussion, will make predictions, draw conclusions, and recount important events. Colette hopes that in small groups they will identify problems relating to the teacher-presented material and brainstorm possible solutions. She wants them to summarize the material presented and create drawings of the people and events that were depicted in the historical narrative.

The students will be expected to participate in small group discussions on teacher or student initiated topics in the fifth lesson Colette has planned. Through writing they will clarify, define, recount in sequential order, summarize or react to what has been presented to them.

In the sixth lesson the students will write accounts of their lives as if they were the children of the early settlers of Hunterville. They will be expected to describe the hardships, the food they ate, their shelter, chores, clothing, dangers that existed, their education, and their family life. They will be able to choose between writing a diary or a narrative account. They will be allowed to illustrate their work if they want to. They will share their narratives in small or large group settings. They will be assessed on their demonstration of a clear understanding of how life was for settlers back then.

In the seventh and culminating lesson on the early settlers Colette and her students will collaborate on creating a timeline of early Hunterville history. Students will be assessed on their ability to place important events in the early history of Hunterville into chronological order.

Commentary

The content of this unit is a historical narrative of a local area. Apart from a passing acknowledgement of the presence of the Chippewa people in the two hundred years before the Europeans arrived, the narrative seems as if it will be one of European-American progress.

Table 5.2. Summaries of Colette's Lesson Plans on Food

	Big Ideas	Activities
1	▪ Many towns are named after the early settlers from Europe. ▪ People have lived in our area for many generations. ▪ We can do research to find answers to questions we might have.	Teacher introduces the unit about Hunterville and say that although they might know why it has that name, what do they know about the town apart from that and what would they like to know. Class completes the "K" and "W" columns of a K-W-L chart. Teacher introduces students to "learning logs." She asks them to bring in artifacts pertaining to local history.
2	▪ Native Americans lived in Michigan before the early settlers. ▪ Paul Hunter was an early settler after whom their town is named.	Teacher will tell students a narrative of early Hunterville in terms of Paul Hunter and his family.
3	▪ Early settlers changed the landscape. ▪ Early settlers faced many challenges regarding food that we do not have today.	Teacher discusses materials they have available to them to answer the questions they raised in Lesson 1 and questions concerning food production and consumption.
4	▪ Various, as yet undetermined.	Students work with resources in small groups to find answers in artifacts and printed materials to questions that they posed.
5	▪ Various, as yet undetermined.	Students discuss them write about the early settlers on topics suggested by the students or teacher.
6	▪ We can understand better the lives of people in history when we try to see the world through their eyes.	Students will write accounts of their lives as if they are the children of early European settlers in Hunterville. They will share their work. They will be assessed on their understanding of the way life was for people back in the 1800s.
7	▪ Important events can be placed on a timeline to illustrate how they are related chronologically.	Class discussion about important events in the early history of Hunterville. After important events have been identified the class will place them in chronological order on a time line.

The methods of instruction Colette plans to use in teaching the unit have some of the elements of historical inquiry, such as the students being encouraged to ask historically significant questions. But for the most part Colette will provide her students with large amounts of narrative material then expect them to be able to retell the story of Hunterville's development. Also, in the third, fourth and fifth lessons in the unit when small groups of students will be expected to do somewhat independent research the focus of this research will be determined by their teacher. The students will be expected to answer questions that they have posed in response to the material Colette has presented to them as well as to answer the questions directly relating to food production and consumption that she intends to ask.

Despite this possibility of flexibility in the type of content that the students will be exposed to, from the overview we get a sense that the stories of early settlers will be used to exemplify the core democratic values. In our conversations around social studies Colette stressed her belief in the importance in children knowing where they came from in order to think about where they are going.

In Colette's lessons she intends to build a connection between her students and the people who lived in the area in earlier times. Her stance is supported in the district, and traditional notions of patriotism are fostered in the town. For instance, recently, representatives from the American Legion came into the school and checked in the classrooms to see how many flags were displayed

and how many classes were saying the Pledge of Allegiance each day. When they found out that not all everyone was saying the Pledge of Allegiance they complained to the School Board and their complaint was taken seriously. Similarly, pictures of local soldiers are honored on the wall of the local post office.

Colette did not write up her unit plan in a way that made it easy to fit into the format of this dissertation. In the overview to the unit she said that she would expect the students to be using historical data found in the library archives, church documents, longtime families and web sites as well as tapping the knowledge of visitors to the classroom. Although they were not referred to in relation to the particular lessons outlined above they might be available as artifacts for the students to examine in the classroom.

Colette wrote an extensive and detailed unit plan that could be used as the basis for a year-long study of local history. Sharon Baxter, the next teacher whose unit plan we shall examine, wrote very succinct notes that outlined the integrated unit she intended to teach.

Teachers who Read the Report on Children's Thinking

Sharon Baxter

Sharon Baxter has been teaching for twenty-eight years, twenty of them teaching third graders in her current suburban school district. The suburb is traditionally

working class however the parents are very supportive of the school district and just this year an ambitious bond issue to rebuild many of the schools was accepted by the voters.

Sharon enjoys teaching and her eyes sparkle when she talks about her classroom and the children with whom she works. Although the local university has a considerable presence in the district, Sharon's school is not a professional development school and Sharon prefers to work on her own than with teacher interns in her classroom. The classroom has been hers for a rather long time, which is apparent in the way it is decorated, with framed quilts made by past students on the wall, a fresh new carpet rug, and four computers and two electronic keyboards (with headphones) set up for easy student access. The classroom windows overlook a butterfly garden, complete with paths of cedar bark and a log talking circle that she designed and built with her students a few years back.

Reaction to the Report

Sharon said that she found the report on students' thinking about food interesting because a lot of the ideas covered in it, almost everything except the food storage section, are directly dealt with in the third grade curriculum. Some of it is covered in health, such as the food groups and issues of nutrition, the rest of it comes into the study of communities, although it is not called a study of food per se. She felt that a lot of the questions could really lead into the third grade

curriculum rather than to the curriculum in the earlier grades so she felt as if she really benefited from reading it. Although, as she pointed out, she finds connections to her curriculum everywhere. *"It's kind of sad really! When you've been an elementary teacher for so long that <u>everything</u> you do, you think – "Oh my, I should take one of these for my class!"*

Most of the students' responses didn't surprise her. She pointed out that it's a given that there will always be somebody with a very different answer. She liked the report because she enjoyed looking at the questions and they gave her ideas about what she might do with her students and alerted her to things she hadn't considered. They also helped her to recognize when a child had absolutely no concept of what the question was directing him or her to think about. Sharon paid special attention to the questions where the children's answers were really "off the wall." She saw these as areas that she would like to spend a little more time on. For instance she was amused by some of the younger students' responses to the questions about food groups: *"When they talk about food groups like purple and orange, yellow and green; breakfast, lunch, and dinner. I mean – those are just delightful! Food groups. I thought – well, that's good."* She looked at the responses that were really "off target" or really "on target." She said that it made her think a lot about how explicit one needs to be with young students.

She liked the questions where the children were asked why people in one country ate a certain type of food more than others. She didn't think that her

students thought much about that sort of thing at all, despite food being a major component of their conversations about other countries.

> *"As we talk about different countries food is always a big item. They remember those things and I think that's helpful in learning about the country too because you know what they might eat there. But you have to spell it out. You have to go through, you know, "Why do you think they have--" They mention in here that they don't really think about why people, say in China, eat a lot of rice... Or why people in the States eat a lot of food.*

In her unit plan Sharon intends to ask her students to think about why things are the way they are very frequently.

Planning and Content

Sharon sees that teaching about food is already being done in a variety of content areas, especially in health, science, and social studies. She outlined some of the curricular expectations that are already in place and that her students would have met before undertaking this new social studies unit. For instance, two units in her science curriculum, "Ecosystems" and "Matter and Energy" also deal directly with food. In the former unit students are expected to be able to identify familiar organisms as part of a food web and describe relationships within the web. They are also expected to be able to describe the basic requirements for life, and to explain common patterns of interdependence and interrelationships of living things. In the unit on "Matter and Energy" students

should be able to measure the weight, dimensions and temperatures of appropriate objects and materials and to identify forms of energy "associated with common phenomena" i.e. understand that food gives us energy.

The third grade Michigan Model for Health lessons deal directly with food and nutrition. Students are expected to be able to define terms such as nutrition and nutrient, classify foods by nutrients and the food groups, and identify and practice positive health habits.

The district-level learning objectives for social studies include some that focus on rural communities and some that focus on urban communities. Students are expected to describe an urban area and a rural area and to explain why farms are important. They should be able to distinguish between farms of long ago and today. They are expected to be able to compare a local rural community with a community in another part of the world. They are expected to understand that urban areas grew because of the availability of natural resources and ease of transportation. They should be able to compare an urban area in the United States with another nation's urban area.

Sharon explained that because the students have already learned quite a lot about food through previous science units, she would focus on teaching some social studies and health concepts through connections with literature. She decided to use a retelling of the Hansel and Gretel (Gross, 1988) fairytale by the

Brothers Grimm as a vehicle for helping the students think about the decisions people make about eating food.

Activities and Assessments

In the first lesson of the unit Sharon plans to read Hansel and Gretel (Gross, 1988) to her students then discuss with them the notion of famines and what might have happened if there had not been a famine. She wants them to think about how the story might have been told if there had been a famine and the witch had eaten healthy foods and had a house made of healthy foods. She intends to ask them to suggest other food-related variations that might alter the outcome of the story. Students will be expected to participate in the large group discussion then write their comments in their daily journals.

Sharon will introduce the roles of various nutrients in making for a healthy life in the second lesson. As a class they will discuss the functions of each nutrient then the students will make posters depicting the job of one or more nutrients and the foods that contain these nutrients. They will be assessed on how well they match each nutrient to its role on their poster.

Sharon's third lesson involves helping the students to realize that nutrients are available in different foods. She will share with her students informational cards from the Michigan Model for Comprehensive School Health that show a picture of food on the front and list the nutrients it contains on the back. They will add

illustrations of foods that contain high levels of specific nutrients to the posters that they made in the second lesson. They will be assessed on their placement of foods with appropriate nutrients.

The story of Hansel and Gretel will be revisited in the fourth lesson of the unit. Sharon will introduce the lesson by reminding the students of the gingerbread house and discussing whether it was very nutritious. She wants the students to think about how a healthful diet consists of eating a variety of nutrients, i.e. food from a variety of food groups. They will revisit their posters and the food cards, and read through the poster depicting the food pyramid. Students will draw what the witch's house and garden might have looked like if the witch had decorated in a healthful manner, using food from all of the food groups. Their drawings will be used to assess if they have included food from each of the food groups.

The fifth lesson of the unit focuses on the consequences of eating only unhealthy foods or not eating enough food. Sharon anticipates discussing the behavior of the characters in Hansel and Gretel (Gross, 1988). She will have the students share how they feel after eating too much candy. Are these feelings an indicator of how the witch might feel? They will review the value of eating foods from a variety of food groups. The students will write in their journals how they think the witch in the story might feel and why. Their writing will be assessed in terms of how it indicates their knowledge of the need for a variety of foods and how a lack of healthy food in the diet can cause undesirable behaviors.

In the sixth lesson Sharon wants students to realize that like people who live in cities, people who live in rural areas do have a variety of foods to eat. She will review with the students what they know about how foods get from farms to stores. They will watch a video about food production then read from their social studies textbook about how people in rural areas get access to different varieties of food when they only grow one crop themselves. They will discuss what they have learned from the video and from their textbook and as a class create a large graphic organizer to illustrate their knowledge. Individually, students will make a series of labeled drawings to show how food is transferred from the farm to the store.

Sharon will read a story about eating food in a different country in the seventh lesson. Then the students will be expected to choose another book from fifteen she has pre-selected, and read it to find out what a healthful diet would look like in that country. They will draw a picture of what a healthful witch's house might appear if it were in that country. She anticipates that students who understand the notion of a balanced diet will depict food from a variety of foods eaten in that country. In her unit plan Sharon writes that a variation on this could be to research the history of the local community, or regions of the US and have the students draw a picture of the witch's house in the past, or in the different regions, showing regional foods.

In the eighth and final lesson of the unit students will rewrite the story of Hansel and Gretel to demonstrate their understandings from the previous lessons. First of all Sharon will review with the students what they have learned about food and food choices. Then she will ask the students to rewrite the story considering one or more of the following questions: How might the story have been written if it had been written in a different country, region of the United States, or at another time in history? What would the house have looked like if it had included food from all of the food groups? How might the witch have acted if she had eaten a healthful diet? Where did she get her food? How might their conversations and the story have been different if the witch had been happy to see the children as company and not as food? The students' stories will be assessed in terms of answering one or more of the questions in their retelling of the story.

In her unit plan Sharon offered other activities as possibilities: comparing a video of a direct retelling of Hansel and Gretel with a video of the opera by Engelbert Humperdinck; making models of the witch's cottage using Graham crackers, cake frosting and candies; and making dioramas.

Table 5.3. Summaries of Sharon's Lesson Plans on Food

	Big Ideas	Activities
1	▪ People make difficult decisions in times of scarcity. ▪ Stories change when we alter details of context.	Teacher reads Hansel & Gretel to students. They discuss what happened and why, and suggest possible variations to the story related to food e.g. if there had not been a famine or if the witch had eaten healthy foods etc. Students will participate in a large group discussion then write their ideas in their journals.
2	▪ Different nutrients serve various functions in our body. ▪ People need many nutrients to be healthy.	Teacher introduces notion of different nutrients serving different functions in the body. After a discussion, students make posters illustrating the relationship between a particular nutrient and its function.
3	▪ Nutrients are available in different foods.	Teacher shares informational cards depicting foods and the nutrients they have. After a discussion they will add illustrations of food to their nutrient posters.
4	▪ A healthy diet means eating a range of nutrients i.e. foods from different food groups.	Teacher will ask students if witch's cottage in Hansel & Gretel was nutritious. They will revisit ideas about nutrients and foods and discuss how a healthy diet consists of eating a range of foods from each of the food groups. Students will draw a cottage decorated with food from all of the food groups.
5	▪ Eating only unhealthy foods has consequences.	Teacher introduces discussion of possible consequences of not eating healthy foods by asking if witch in Hansel & Gretel might have been different if she had eaten healthy food. Students will share their stories of eating too much candy. They will review the value of a nutritionally balanced diet. They will write ideas about the witch in their journals.
6	▪ People who live in urban and rural areas today have access to a variety of foods. ▪ Food is transported between different places.	The class discussion will be a review of how food gets from farms to stores and how people in areas with only one crop still have access to a range of foods. Students watch video on food production and read with teacher from social studies textbook. As a class they will create a graphic organizer of what they know. In their journals students draw a series of pictures to show route of foods from farm to store.

7	▪ People in different countries eat different foods. ▪ Having a healthful diet in a different country might mean eating different foods from ours.	Teacher reads students a book about eating food in a different country (from a selection of fifteen titles). They discuss then students choose a book to read for themselves. Then they each design a witch's cottage made from the foods that would make up a healthful diet in that country.
8	▪ Stories can be rewritten with different contexts.	Class discussion to review what they have learned about healthful foods, and food choices in the unit. Then students will rewrite the story of Hansel & Gretel considering a number of questions related to food, such as how would it have been different if it had been written in a different time or place? How might the witch have acted if she had been eating healthy food, or if she had seen children as company and not food, etc.

Commentary

In her unit plan Sharon focused on the details of the witch's cottage and related them to learning objectives. She intends to teach lessons that address issues raised in the report on children's thinking about food, such as the relationship between what people eat and where they live. However the main learning objectives in her plans often have more to do with health and the importance of eating a balanced diet than social studies.

Consistent with her comments about how direct you sometimes need to be with the students in order for them to understand something, she will use the construction of the witch's cottage as a unifying symbol throughout the unit. The students will be asked to draw at least two versions of the cottage (one with

healthy food, one as if in a different country) that would make it look different from the usual candy-covered one depicted in children's storybooks.

Whereas Sharon intended to focus on using a number of written texts, the fourth third grade teacher whose unit plan we will examine, Crystal Glover, planned for the students to spend a considerable amount of time getting information from people, museums, and sites on the Internet.

Unit Plans of Teachers who Responded to Questions on Food

Crystal Glover

Crystal Glover has been teaching for more than twenty-six years. She spent the first eleven years working as a pre-school teacher before moving into elementary schools and into teaching fourth graders. Currently she teaches a grade three/four class at a magnet school in an urban school district. The mission of the school is to provide students with a sense of belonging in a multicultural and global society so it attracts the children of many new immigrant families. Other buildings in the district tend to be culturally homogeneous so Crystal's school also tends to attract a small group of children with U.S. parents who want their children to learn in a deliberately globalized environment. The popularity of the school has had consequences for teachers in that enrollments have led to an overcrowding of the building. While gratifying, increasing enrollments have forced

class sizes to be larger than optimal and people have been driven to teaching in rooms previously dedicated to other purposes.

Responses to the Questions

Throughout the interview Crystal tended to answer the questions with multi-faceted responses that were a blend of idiosyncratic and conventional. For instance, food not only nourishes us, it also brings us pleasure, Crystal pointed out. People, she said, need food "*for nourishment, for sociability, for satiating their desires.*"

Another instance of an even broader ranging response was her reply to the question about what is food. She started her answer by talking about how people differ in what they consider is food. Then she said that food comes from the earth. But then she revised that answer as she spoke about a conversation with an Amish farmer at the local market who had told her that so much of the food that is available today has very little nutritional value because it is picked too soon. She started to talk about the ingredients in packaged food and how if she couldn't pronounce the words on the packaging because they're "chemically created" she would say that whatever's inside might be edible but she didn't know if she would really consider it food. She returned to the notion of food as something that comes from the earth and clarified that it would have to have some nutritional value to be food; dandelion tea might provide some nutrients but warmed up dirt would not.

Crystal did not define "nutritional value" but she referred to it throughout the interview, with respect to why we cook or don't cook certain foods, why we store foods as we do, and in reference to the difference between healthy foods and junk foods. Her response to the question about junk foods was based on the notion that if we had a diet strictly of those foods we wouldn't feel very good, but, of course, that was just her opinion.

> *"I think healthy and I buy it, I believe it. So-- somebody else that believes in junk food and maybe they're 95 years old. They might tell you a totally different story. They're alive, they're eating, they're well, they're--. So this is just strictly for me."*

More than once Crystal said that she couldn't answer questions about what people in her country or other countries ate, she could only answer for herself, not as a representative of Americans or the human race. For instance she questioned the premise of the question that starts by stating that Americans eat more beef and Chinese eat more chicken because she, and many of her friends, don't eat beef at all. She also pointed out that many Americans eat a lot of rice. When her college-aged daughter was younger and living at home they ate rice about four or five times a week. She said that she wasn't sure what people from other countries didn't eat that Americans ate because she had never asked that of her international friends. She suggested that people might be more likely to eat foods that are familiar to them, the foods of their childhood, than foods that are

new to them. Interestingly, not long after she explained how she had deliberately rejected the white bread of her childhood.

> *"I don't eat a lot of bread so I don't think about it. I actually eat more rice than I do bread so I'm. I think that it's a cultural thing again too. You were raised with certain things. I was raised with that crappy white bread that's spongy. That's absolutely – nothing. There's not nutritional value in it at all. As soon as I learned more about my own identity and who I was that was completely cut from my diet. Basmati rice has been a main staple for me. And my daughter's part Japanese so she just nat-- she likes rice. And "Mom – I could eat rice every night." So we would make rice probably four or five times a week so it was something, I guess, again, it's a cultural thing.* [You said that your daughter's part Japanese so do you attribute her liking rice to that?] *I don't know. That's a good question. It's a preference for her. If she didn't have any Japanese background would she not? I don't know cause she does. It's an interesting question. I think again, what you consume as a staple, what your country has to offer. And rice is something in the Asian countries that's grown there. So it's readily available. And has been utilized for centuries, so it's through the years."*

Later in the interview she pointed out that dietary guidelines such as the food pyramid are extremely culturally bound because in many parts of South America and Asia people don't drink milk or eat dairy products.

Like another teacher in the study, second grade teacher Glenda Hughes, Crystal indicated that changes in technology and people's decisions to spend less time preparing food were major causes of changes in diet however as well as to changes over time within American society, she related them to differences across cultures. She suggested that people don't eat things like porridge or stews these days because they don't want to take the time to make them. She later commented that in other cultures people still take time to cook.

> *"Maybe certain stews. Sometimes that took a whole day to cook. It probably was really yummy and very nutritious and great but because it, we live in such a fast society and go go go go go, there's a lot of people that wouldn't bother. But I think that probably some people still eat that and they enjoy it. I'm hoping.... A lot of this food that other cultures bring here to this country – yum yum yum – but it takes time, and energy to spend the time to prepare it, and put it together, and get it made."*

Crystal explained that although for families with children it would be different, for a single person eating in a restaurant was often much cheaper than making a meal at home. She admitted that certain things were really expensive but said that it depended upon the meal. If single people used coupons they could do much better eating in restaurants than buying foods such as fresh vegetables and fruits that they would eventually throw out. She also commented on relative expense. She pointed out that it is very expensive for a family to go to McDonalds for a meal and they don't get much nutritional value from it. However

if it is their one night to eat out it may be cheaper to go to McDonalds than to another type of restaurant.

When she discussed changes in the way people farm Crystal returned to the notion of nutritional value, decrying the way that the minimal nutritional benefits of foods that are mass produced, picked too early and transported thousands of miles, such as eggplants from Brazil and bananas. She said that she would have preferred the time long ago to what we have today and that she gets really excited about the local market, going every Wednesday and Saturday to buy produce from local farmers. She thinks that people were probably healthier then than now because of what they ate.

Nearing the end of the interview Crystal got tired of answering the questions about how foods are processed. She explained that she has mostly taught fourth grade and that if she had been teaching those grades and these types of issues and information about them were in the texts she would have been thinking about them a lot more.

Planning and Content

Crystal does not see herself as a designer of curriculum. She explained that the establishment of standardized testing, (the Michigan Educational Assessment Program which has been referred to by other teachers in this study) has pushed teachers like herself to teach to the test and at the moment the test is assessing

students' understanding of "the core democratic values." Her definition of curriculum seems closely bound to the textbook.

> *"We had a new textbook. We got a new curriculum. And that first year, when we got that, it's a lot of work just to familiarize yourself with all the resources. So I'll be able to advance in more designing of that probably the next couple of years."*

Crystal explained that she has used the new textbook as a resource a lot because it is so interesting. Crystal will use information garnered from the textbook to introduce her students to "Food Production in Michigan" – the unit that she has planned.

She intends to give the students many choices because when she has discussed social studies with students at the end of the year what they have enjoyed the most during the year has been learning about things that they chose to learn about. She believes that this holds true for herself as well, especially as an elementary school teacher.

> *"I know a lot but there's always more to learn. Knowledge, academic knowledge is always something that an elementary teacher, in my opinion, I see, we're supposed to know so much about so much. You know you just have to focus on what you're interested in. So there are some areas that I'm very knowledgeable on."*

Activities and Assessments

Crystal intends to start her unit on "Food Production in Michigan" by asking the students what they know and what they want to know. She will use the overhead projector to write down what the students know and what they want to know about the foods grown and manufactured in Michigan. The students will start

their "Michigan Food" journals by writing up notes from what Crystal is recording. She will add questions to their list if they don't ask questions that will lead to learning the information that Crystal deems important to know. She wants them to know that foods with nationally known brand names such as Sara Lee, Gerber, Kelloggs, and Pioneer Sugar are manufactured in various towns throughout Michigan.

In the second and third lessons of the unit Crystal will bring in items of food that are made in Michigan to show the students. As a group they will locate where each of the foods is manufactured on a large map of Michigan. Individual students will then mark the location of each industry on their own poster of Michigan. They will draw a picture of the food that is produced at that location. Students will compare where they have located the cities on their posters and then display them.

Crystal intends to invite a guest speaker from Michigan Historical Museum or Michigania Inc. (a local shop that specializes in selling products made in Michigan) to speak with the students. Crystal will have arranged for the visitor to share his or her specialized knowledge of how food is grown or manufactured in Michigan. Students will ask questions of their visitor that they have from the first lesson of the unit and from subsequent discussions. They will take notes on the answers in their "Michigan Food" journals.

In the fifth lesson of the unit Crystal plans to take the students on a field trip to the Michigan Historical Museum. She will give each small group directions for a scavenger hunt that she will have designed so that they get to learn about food as they explore the museum. Students will follow the guidelines and take notes on anything related to food that is grown or manufactured in Michigan. Each of the small groups will report their findings to the rest of the students in class the following day.

Crystal intends to have each student or small group of students study a particular food that is grown or manufactured in Michigan. They will be expected to create posters to highlight the facts about this food and how it is processed, using information they have already collected and additional information that she expects them to research. Before they begin their research she will set up guidelines for poster content and model her expectation by showing them a sample poster.

In the seventh lesson of the unit the students will go to the library or to another facility so that can all have access to the Internet to further study their product.

Crystal has decided that in the eighth lesson she will have the students prepare and demonstrate their connection with the food product they have chosen through making a piece of artwork, or a musical or dramatic presentation.

Crystal's students will give oral presentations using their posters of Michigan foods as props in the ninth lesson. Using the teacher-made rubric that she gave them at the beginning of the project, students will assess the work of their peers.

In the tenth and final lesson that Crystal has planned they will return to the original K-W-L overhead that they started at the beginning of the unit. The students will read from their journals and posters to check off the information they have found out. Each student will submit one question for a whole class test to assess what they have learned in the unit. Crystal will inform them that they will have the test that uses their questions the following day.

Commentary

In the unit Crystal has designed it seems as if she wants her students to know that many foods are grown and manufactured in Michigan and where they are manufactured, however, beyond that she seems comfortable with letting the students dictate what they want to learn about. Her unit identifies strategies and processes of learning that she wants them to practice such as asking questions, taking notes, getting information from the Internet, and making presentations.

Table 5.4 Summaries of Crystal's Lesson Plans on Food

	Big Ideas	Activities
1	▪ Sometimes we know more about something than we realize.	Teacher uses OHP to write down what the students know and what they want to know about foods grown and manufactured in Michigan. Students take notes in "Michigan Food" journals.
2	▪ Foods are grown in different locations around Michigan.	Teacher shows Michigan food items to students. Students will locate where food is manufactured on map then transfer location to individual posters of Michigan. They draw a picture of the product at that location. Students will compare then display posters.
3	▪ As for lesson 2	As for lesson 2
4	▪ Some adults have specialized knowledge because of their career.	A guest speaker from Michigan Historical Museum or Michigania Inc. will share knowledge of how food is grown or manufactured in Michigan. Students will ask questions, take notes on the answers in their "Michigan Food" journals.
5	▪ Museums are places where we can learn about food production in our community. ▪ Businesses need certain resources in order to be successful.	Teacher takes students on a field trip to the Michigan Historical Museum. She gives each small group directions for a scavenger hunt. Students follow the guidelines and take notes on anything related to food that is grown or manufactured in Michigan. Small groups will report their findings to the rest of the class.
6	▪ Information can be presented on posters.	Teacher sets up guidelines for poster content and models expectations with a poster example. Students create posters to highlight the facts about one food grown or manufactured in Michigan, using information they have already collected and additional information they research.
7	▪ Information can be gathered from multiple sources.	Students will go to the library or another facility to have whole class access to the Internet to further study their product.
8	▪ We can communicate what we know through art, music and drama.	Students will demonstrate their connection with the food product they have chosen through art, music or drama.
9	▪ We can share what we have learned through oral presentations.	Students will give oral presentations using the posters as props. Students will assess using teacher-made rubric.
10	▪ Revisiting a K-W-L chart can remind us of how	Teacher returns to original K-W-L overhead. Students will read from their journals and

	much we have learned.	posters to check off information they have discovered. Each student will submit one question for the whole class test.

What is interesting is that Crystal is working with a class of third and fourth graders of whom 90% speak English as a second or third language. The ages of her students range from eight years old to twelve years old and their academic level ranges from the equivalent of grade one to that of strong fourth graders. Despite this she intends to have them using the Internet to do research when many of them lack the language arts skills of reading and spelling. What is evident in her plans is that she intends that the students will work in small groups much of the time. For instance, they will explore the Michigan Historical Museum in small groups and they will make their posters as individuals or in small groups. The students' desks in her classroom are arranged in small groups of four or six because she encourages cooperative learning across the curriculum.

Discussion of the third grade teachers' unit plans

From the descriptions of their unit plans we can see that Rosemary, Colette, Sharon and Crystal made extremely different decisions as to what to focus on when teaching their students. Food production and international interdependence, local history, healthful diets, and food production in Michigan are very different points from which to start a study of food. They also varied more in the teaching strategies they chose to use.

More than the teachers in the other grades they seemed to struggle with the task of writing a unit plan. This could be related to their practice. Preparing their planning materials for this format was fraught with difficulties similar to those I had with the plans of Felicity, another 25 year or more veteran teacher, who planned a unit for first graders by offering me a collection of ideas and resources. Colette, Sharon and Crystal may be more accustomed to preparing for instruction by mentally rehearsing their lessons than by committing their plans to writing (Borko & Livingston, 1989; Yinger & Hendricks-Lee, 1995).

Another aspect of the task of planning this unit is that as teachers of third graders they are feeling pressure to prepare their students for the standardized tests to be taken in the Fall of the fourth grade. Therefore, more than the other teachers they were unsure as to the feasibility of using the unit they had written in the classroom. In a statement that attests to her perception of curricular pressure and her belief that teaching this unit (and perhaps even planning it) would be a defiant act Crystal wrote in the introduction to her unit *"The intent of this unit is for students to feel empowered and self-motivated as they learn these concepts... It is not my intent to use these lessons for state bureaucrats to prove accountability to the state mandated MEAP test."*

Use of report on children's thinking

Rosemary, Colette and Sharon appeared to use different parts of the report on children's thinking to support their planning. Rosemary wanted to help the students think about how foods were processed and how interdependent people were in their everyday lives without even realizing it. In reading the report Colette was reassured in her belief that students need to know more about how things were in the past so that they can better understand life today. Sharon found the report helped her to think about the connections across subject areas such as connecting the decisions people make about their diet in relation to the geography and availability of particular foods where they live.

While Rosemary and Sharon focused on what the students said and what they did and did not know, Colette found many connections to her own background and knowledge. Despite her length of time teaching she seemed humbled by the issues raised in the report regarding knowledge of the production, distribution and consumption of food.

In answering the interview protocol given to the children, Crystal revealed much about her thinking about food. Not that interested in how foods were produced herself, she left the decision about what they would study more in detail up to the students. As she pointed out, she has taught the fourth grade for fifteen years so although she has had many third graders in her class for the last two years she is

more familiar with teaching Michigan than teaching about food production in Michigan.

Resources

The third grade teachers tended to teach with fewer resources and the resources tended to be more subject oriented. This could be because of a lesser emphasis on children's literature than in the earlier grades. It could be because Colette, Sharon and Crystal intend to bring in a variety of resources from which the students will choose a few on which to focus.

The emerging subject-matter differentiation is not surprising given the way that the curricular focus tends to move away from teaching basic communication skills of reading and writing skills to teaching content matter as students move through K-12 classrooms. From what these teachers have said it seems important that as teacher educators we help teachers in grades one through three to realize that social studies can be exciting subject matter to teach. We can help them to think about how to teach in ways that are meaningful to their students. Here is what Rosemary said about this:

> *"I feel like I had a lot of the social studies teachers who were not real excited about it. And I think that's one of the reasons I wasn't real excited about it. And so I really try to be a motivator and coach and see how the kids, how this affects them and how it needs to be a part of their life and a part of their thinking... I went to several county-wide social studies in-*

services the year I taught fifth grade and learned a lot about. I didn't know a lot about social studies because I never really liked it growing up or in high school. I learned a lot about just kind of how to approach social studies with kids as far as breaking it down as economics, geography, civics, those types of things. The history and how to teach those things effectively."

Attention to children's thinking in activities or assessments

Much more than at the other grade levels, the third grade teachers tended to encourage their students to work in small groups to accomplish set tasks. Rosemary plans for her students to research different ingredients of apple pies. Colette expects that her students will examine artifacts and documents for the answers to their questions about food in early Hunterville. Sharon wants her students to use books to determine what a healthful diet would look like in different countries. Crystal plans for her students to create posters that inform others about a particular product of Michigan. While Rosemary often intended to invite parents to help with these small groups the other teachers did not write about or imply that they anticipated having other adults in their classrooms. Like Helene who teaches first grade, Rosemary is the youngest teacher in the group, the most recent to attend teachers' college and perhaps the most accustomed to putting her professional thoughts to paper.

In the third grade plans there is less of an emphasis on discussion as an instructional activity and accompanying reliance on observing participation as a form of assessment. Instead three of the teachers plan on having the students write journals. All four of the third grade teachers talk about the various products that their students will produce. Many of these are not the simple completion of worksheets but projects that require a lot of coordination between teacher and students to be undertaken successfully.

In the previous three chapters I have described the teachers' unit plans for social studies and considered them within the context of their grade level. In the following chapter I will present the characteristics of the unit plans as particular artifacts of one or the other of the research treatments: either as characteristic of plans written by teachers in the Report Group or as typical of plans written by teachers in the Interview Group.

Findings

Introduction

In this chapter we will consider the similarities and differences within and across the unit plans of the teachers in the two groups as determined by the research design. The original study was designed to investigate how giving teachers information about K-3 students' responses to interview questions around the production, distribution and consumption of food might influence the plans they make to teach a social studies unit on food. Their plans were compared with the plans designed by teachers who were interviewed using the same protocol as was used to interview the students who were described in the report given to the first group of teachers. Teachers were assigned to the experimental groups such that the groups had similar participants in terms of years of teaching experience, grade levels, and teaching contexts.

What was evident across the three chapters describing the units was a change in the focus of the teachers across the grade levels, regardless of whether or not the teacher had read the report on children's thinking. However, with a 3:1 ratio of teachers who had read the report to those who had not, it was difficult to discern patterns within the groups. This chapter will start with an examination of the two groups across the dimensions of planning, content, resources, activities and assessments and continue with a presentation of the unanticipated findings.

A PLANNING PROCESS PREDICTIONS

Report Group

1 Teachers in the Report Group might find the process of planning difficult because they will be trying to find activities that either build upon student thinking or that address directly the ideas with which students struggle.

2 Their thinking about food will be noticeably child-oriented.

Interview Group

3 For the teachers in the Interview Group planning might also be problematic because, assuming that their interest has been piqued, they will read adult literature to learn more about the topic.

4 There will also be an adult orientation towards thinking about the unit.

These predictions were not supported by data from the study. Teachers in the Report Group did not say it was because they could not think of suitable activities that they could not get their lesson plans done. Teachers in the Interview Group did not say that their planning was time consuming because they were reading materials for themselves. For both groups it was generally a matter of making time to write. This is supported in the literature. Zahorik (1975) chose not to analyze plans because he observed that some teachers do not make written plans. He suggested that they think through various aspects of their teaching but they do not write them down.

It was difficult to determine how much time each of the teachers had spent on planning because as other studies on planning (Yinger & Clark, 1982) and reviews of teacher thinking (Clark & Peterson, 1986) have pointed out, teachers say that they plan while doing other tasks such as the laundry or driving to work.

From the questionnaire that that they completed before planning a unit I learned that all participants in the study varied in their level of comfort with planning in different ways, such as by expanding textbook units or designing theme or topic-based units. The only notable difference between the attitudes and experiences of teachers in the Interview Group and the Report Group was familiarity with using units prepared collaboratively at the school or district level. While all of the other teachers claimed to have had some experience with using units prepared by local teachers or with colleagues, neither Emily (Interview Group) nor Crystal (Interview Group) claimed to have done this. In terms of cross-grade differences: the first grade teachers were more likely than teachers in other grades to plan using the experiences of themselves and their students, and they were more likely to plan collaboratively. They were also most accustomed to designing theme or topic oriented units.

In the questionnaire that all participants completed and discussed before they planned their units they assigned values to their thoughts about planning on a scale of 0 – 5, where 0 = not at all; 1 = rarely or a little; 2 = sometimes or

somewhat ; 3 = often or definitely; and 4 = very often or very much. Aggregated totals are shown in Table 6.1. For ease of comparison in the table, i.e. rather than comparing nine teachers with three teachers, the teachers' responses are aggregated into five groups.

G1: teachers who read the report on student thinking who taught first grade.

G2: teachers who read the report on student thinking who taught second grade.

G3: teachers who read the report on student thinking who taught third grade.

RG: all of the teachers who read the report.

IG: the three teachers who were interviewed.

Table 6.1 Teacher attitudes towards types of planning to teach social studies.

Planning in Social Studies	G1	G2	G3	RG	IG
To what extent is each of the following illustrative of your social studies planning? Your social studies planning:					
Expands published textbook units	1.7	3	3	2.6	2
Follows teacher guidelines of published materials	1.3	2.7	1.7	1.9	2
Involves designing theme or topic oriented units	3.7	3.3	2.7	3.2	2.3
Is about seizing teachable moments when children raise issues pertinent to the social studies goals for the class	3.7	3.3	2.7	3.2	2.7
Takes considerable time to conceptualize & organize.	2.7	3.7	2.7	3	3
Uses contributions from the lives of you & the students	4	3.7	2.7	3.4	2.7
Uses units prepared collaboratively at the school or district level	3.7	3.3	1.3	2.8	1.3

The other evidence from this study suggests two things associated with the time it takes to plan. The first is that assignment to either group in this study had no effect on how long it took teachers to plan. The second finding is that when teachers are asked to write up a unit plan during the school year they will take much longer than they anticipate at the outset. Table 6.2 shows the date of the planning meeting and the date on which I collected the unit plan. As has been made evident in the data chapters, I had met with each participant a number of times before the final planning meeting so they had been starting to think about their unit before then.

What is disconcerting is that the teachers who were recruited early in the study, i.e. in the Spring and Summer of 2000, were the last to hand in their unit plans. There seems to be a relationship between the time participants started the unit plan and how long it took them to complete it. The teachers who started closer to the end of the year took less time to plan. No doubt this is because they used the school vacation to do it. Or, as in the case of Emily (grade two, IG), they committed to the project and so were determined to get the unit plan written by the year end holidays, even though we could not schedule to meet until after two weeks into the new calendar year. As a researcher I became better at talking with the teachers about the research study as I talked more about it so perhaps I was more forceful regarding the time issue with the participants who were recruited later in the Fall.

Table 6.2 Elapsed time between planning meeting and completion of unit plan

Participant	Planning Meeting	Unit Plan Received	Days
Sharon	July 25	March 12	230
Crystal	**August 22**	**February 12**	**173**
Kate	September 21	March 14	174
Colette	October 12	February 9	119
Emily	**October 19**	**February 1**	**104**
Amanda	November 14	January 25	71
Glenda	November 14	January 26	72
Denise	**November 22**	**January 31**	**70**
Helene	November 28	February 6	69
Rosemary	December 5	January 18	43
Brian	December 5	January 29	54
Felicity	December 12	January 24	42

B CONTENT PREDICTIONS

Report Group

1 A number of lessons written by teachers will be based on teacher solicitation of student experiences

2 A number of lessons will address directly the student misconceptions raised in the Report.

3 A number of lessons will address ideas raised in the Report that have easily discernible connections to the children's lives such as:1) the characteristics of food; 2) how many of our staple foods are made; 3) farming now and in the past; and 4) people who work to provide us with food.

Interview Group

4 A number of lessons planned by teachers in the Interview Group will address ideas that the teacher spent time exploring in the food interview

5 A number of lessons will address intellectually complex ideas that the teacher finds intriguing.

6 The ideas that teachers are likely to address are the more abstract notions addressed in the interview such as the multiple reasons for people's actions. These in turn lead to geographical and economic concepts that are not easily grounded in the lives of the students.

The first expectation I listed about determining content based on student experiences would be difficult to do because the act of writing plans requires that teachers make some decisions about what they will focus on in lessons before they are taught. The numbers of lessons that had content based on the students' prior experiences was not notable, but several of the teachers in the Research Group did plan to have students doing activities out of school and reporting what they had discovered back to the class. Two teachers spoke about students deciding what they would do next such as discussing the types of seeds to plant in the garden or choosing the focus of their research projects on Hunterville. Another three teachers in the Report Group intended to use K-W-L charts with their students. So, assuming that they shaped their lessons somewhat dependent on the students' responses this prediction holds true, however, the first grade teacher in the Interview Group made similar decisions regarding using students'

experiences in that she had students interviewing parents and sharing what they found.

Generally the teachers in the Report Group did not suggest in their plans that they would systematically address all of the misunderstandings that arose in the report but they did intend to cover at least one of the major findings from the report with students. For instance Amanda and Brian (grade one), and Sharon and Rosemary (grade three) all planned to address directly an important finding from the study: that children don't make the connection between what is eaten and what is grown and local geography.

Teachers in the Report Group did plan lessons around the ideas in the report that had obvious connections to the students' lives. They primarily covered ideas about the characteristics of food (and how the FDA recommends we eat them) and how many of our staple foods are made. Three teachers planned to emphasize the difference farming now and in the past. Two teachers wrote that they planned to focus on the people who work to provide us with food.

In their unit plans the Interview Group teachers did not spend a number of lessons exploring some of the intriguing ideas that seemed important to them during the interviews about food. Denise (grade one) only spent one lesson covering the processing of food despite making lengthy comments about the manufacturing process in our conversation. She had spoken very thoughtfully

about the processing of food and shook her head over the fact that a can of beans that costs so much to produce in terms of labor, capital equipment, and transportation sells for less than a bunch of fresh beans produced locally. She did not indicate that she would investigate with her students why a can of corn might cost less than fresh corn. Similarly Crystal (grade three) did not talk at length about the nutritional value of foods. Emily (grade two) did focus her conversations with students on the process, the difficulties and the ethics of interviewing. None of the teachers in the Interview Group planned units where the students would study geographical and economic concepts that were not easily grounded in their lives. In the last lessons of her unit Denise (grade one) intended for the students to read some stories about people in other countries eating different foods but the books she chose emphasized social issues rather that economic or geographic ones. Crystal's unit (grade three) focused on food produced in Michigan and Emily's (grade two) on local people's experiences across time. Although they might indeed have planned to cover economic and geographical concepts, at least in the contexts of their studies they all intend to help the students see connections between their lives and the content.

The following analysis involves considering the nature of the big ideas or content that the teachers chose to emphasize. The big ideas that were displayed in each unit summary table were analyzed and grouped into categories that arose from the data. The big idea that was central to each teaching episode within the unit summaries was coded and then counted. Each big idea was categorized once.

Regardless of whether they read the report on students' thinking or were interviewed, all of the teachers in the study tended to choose similar big ideas to pursue with their students (see Table 6.3). There were several notable differences between the teachers who read the report on children's thinking (Report Group or RG) and the teachers who were interviewed (Interview Group or IG) in terms of the big ideas that they were planning to teach. The teachers in the Report Group teachers planned: 1) to teach more lessons based on the big ideas associated with food production; 2) to focus more on big ideas associated with economics; and 3) to teach a number of concepts that are often taught as science or health. Teachers in the Interview Group were intended to make the main points of their lessons: 1) awareness of how to collect data, 2) how to analyze data, and 3) how to present research findings.

The process of getting food from the land to the hand was the most popular focus for teachers, especially in the Report/grade one group where all of the teachers intended to dedicate a number of lessons to this topic. However, within each group of teachers there was at least one teacher who intended to study the production of a variety of different food products with their students. David (grade one, RG), Felicity (grade two, RG), Rosemary (grade three, RG) and Denise (grade one, IG) all planned to examine the production and distribution of at least three different foods.

There were some intriguing but small differences across the grade levels, with emphases on food production and economics in the first grade and science in the second grade but these were less radically different than the differences already described. Once again, if a certain teacher within a group focused on a particular topic this had a large influence on her group's results. For instance, Glenda's (grade 2, RG) focus on plants and what they needed for growth at the beginning of her unit perhaps overly skewed the findings for the second grade.

Table 6.3 Unit content analysis by grade and research group designation

Categorization of big idea	G1	G2	G3	RG	IG	Total
History	1	5	5	3.7	3	14
Geography	4	5	4	4.3	3	16
Economics	11	7	5	**7.7**	**3**	26
Science / health	4	9	6	**6.3**	**1**	20
English/ mathematics	-	-	2	0.7	-	2
Socialization/ values	2	-	-	0.7	-	2
Interdependence	2	2	3	2.3	2	9
Culture	2	1	1	1.3	-	4
Food groups	1	2	2	1.7	1	6
Food production	13	8	8	**9.7**	**3**	32
K-W-L	-	2	-	0.7	2	4
Collecting data	1	-	1	**0.7**	**7**	9
Interpreting/ analyzing data	1	-	-	**0.3**	**3**	4
Presenting data	-	-	1	**0.3**	**5**	6
Group total	42	39	35	38.7	33	

The influence of the current pressure and support for teachers in the early grades to teach more economic content so that their students can score well on the Michigan Educational Assessment Program tests can be seen in the dominance of economics in the social science disciplines. In support of this explanation,

Amanda (grade one, RG) and Emily (grade two, IG) had informed me that they had attended workshops about teaching economics to young children last summer. Rosemary (grade three, RG) had talked about the workshops she had been able to participate in as a fifth grade teacher two years ago. Colette (grade three, RG) spoke of the booklets on essential economics she had been given to inform her teaching.

C RESOURCES PREDICTIONS

Report Group

1 These teachers will use resources that focus on ideas raised in the Report.

Interview Group

2 Teachers in the Interview Group will use more adult oriented resources as well as children's literature and non-fiction materials.

What happened was that all of the teachers struggled to locate resources. It seemed that what was planned was sometimes dependent upon available resources rather than particular big ideas. For instance, Amanda (grade one RG) explained that originally her "Apples" unit was going to focus on food in Zimbabwe but when she couldn't find suitable materials she changed her mind.

What was noteworthy is that two of the three teachers in the Interview Group, chose to deal with lack of written resources by planning to focus on teaching process skills, and using people or the Internet as sources of information. Also

interesting was the fact that none of the Interview Group teachers cited any adult-oriented resources in their unit plans although teachers in the Report Group did.

The variations in what resources teachers chose to use were unexpected. I had anticipated that teachers who had read the report on student thinking would have used more books written at the students' level than the teachers who had been interviewed. Although that held true for Crystal (grade three, IG) it was not the case for Denise (grade one, IG). The rhythm of Denise's lessons was to offer the students a succession of texts interspersed with conversations and briskly paced activities. This method of presentation enabled her to plan on exposing her students to a lot more material than most of the teachers in the study had written that they intended to do. She listed the titles of nine pieces of children's literature that she would use directly with the students in teaching this unit. In her unit plan Emily (grade two, IG) noted four books about food and living in the past that would be available to the students in the classroom library or that she would use with students during the scheduled language arts time. She did not intend to use children's literature in social studies in ways that many of the teachers who taught at her grade level and read the report did.

What was interesting was that, like Emily (grade two, IG), three of the teachers who had not planned to use a lot of children's literature in their social studies unit did indicate many more books that they would have in their classroom libraries. Their lists of identified books for their libraries were much greater than for the

teachers who had listed numerous books that they would use directly in their unit. Amanda (grade one, RG) indicated that she would use children's literature in a deliberate way only once in her unit however she had a list of nine books that she would have available for the students. Sharon (grade three, RG) also had a list of ten books that would be out for the students to read. Near the end of her unit on food she would have them use the books as resources. Felicity (grade two, RG) provided a list of thirteen books related to food that would be in her classroom library although she planned on introducing two other books to the students as part of the structured lessons.

Only three teachers wrote that they intended to use their social studies textbooks to teach any of the lessons in their unit. Helene (grade two, RG) and Sharon (grade three, RG) indicated that they would direct the students to the textbook at least once during the social studies unit on food. Denise (grade one, RG) intended to use her new textbooks intensively. Having an impetus to explore the new materials was a main reason for her participation in the study. She was the only teacher in the study to write how she intended to use the charts and posters that came with her new textbook series. Although Crystal (grade three, IG) did not write that she intended to use her textbook, when we talked about her unit plan in December she showed me the page that listed the companies that processed foods in Michigan and the map upon which they were located.

In addition to not using as many books written at the children's level, I had anticipated that the teachers who were interviewed would have read more books at an adult level. I expected that there would have been questions in the interview that had intrigued them or made them realize that there are many facets to the study of the production, distribution and consumption of food if we think about them earnestly. This was not the case. None of the teachers in the Interview Group wrote or spoke about doing their own investigations, by referring to works written at an adult level, into the aspects of food that seemed to interest them when we discussed it. Neither did they write down that they had made use of reference materials. Helene (grade two, RG) listed eleven different sources that had informed her planning, including three texts that are commonly used in the social studies methods classes at Michigan State University. All of the other teachers in the Report Group listed at least one piece of professional writing that had helped them think about planning their unit. In addition to this, Glenda (grade two, RG) and Helene referred to web-sites that had ideas and lesson plans for teachers online.

The use of the Internet was also very different across the groups but that is unlikely to be related to the research design. None of the teachers in the Interview Group identified sites they would use, although Crystal (grade three, IG) intended for her (predominantly English as a second language) students to "do research" online.

As we might have expected given how access to computers has changed so quickly in the past decade, only the younger, or more recently qualified, teachers in the Report Group, wrote about sites they would use in order to plan or teach a social studies unit on food. Three teachers wrote down sites that were relevant to the content they planned to teach. Brian focused on sites that children could navigate. Amanda (grade one, RG) and Rosemary (grade three, RG) noted sites where they could glean information that could be presented to the students in forms that were more accessible, such Amanda's table on varieties of apples and their uses or Rosemary's downloaded information on cinnamon that she intended to read with them. Rosemary, along with Glenda (grade two, RG) and Helene (grade two, RG), cited Internet sites in relation to the act of planning. Glenda was the single teacher to mention the possibility of using a specific software program with her students and it was for presentation purposes rather than content: Kidpix.

Surprisingly, given the number of instances of I have witnessed elementary students watching videos during school time only four teachers of the twelve participants in the study said that they planned to use videotapes in their teaching of food. Denise (grade one, IG) and Rosemary (grade three, RG) both planned to use at least three videos produced by Reading Rainbow. Rosemary had also identified other video resources that would help students understand the production of food, including one from the Michigan Dairy Council and an excerpt from the recent British movie Chicken Run. The only other teachers to plan on

using videos were Sharon (grade three, RG) who located a video that shows how food gets from the farm to the store and Glenda (grade two, RG) who intended to show a video on how plants grow, i.e. a science-oriented program.

D ACTIVITIES PREDICTIONS

Report Group

1 Teachers in the Report Group will choose hands-on activities rather than teacher led lectures or discussions. Their students will be encouraged to keep journals or learning logs.

Interview Group

2 They will allocate more time to studying food with students because they see the connections across disciplines.

3 They will decide to teach the topic of food as an integrated unit, with attention paid to the goals of science or language arts curricula as well as to social studies goals.

Certainly, the teachers in the Report Group intended to have students doing a lot of hands-on activities and discussions. However, the amount of large group, teacher directed activity was dramatically different across grade levels. Some of the difference could be attributed to the preferred teaching practices of particular teachers but there was a trend nevertheless, which might be attributable to teachers' perceptions of their students' developmental stages and needs (Van Scoy,1994).

Although four of the teachers in the Report Group chose to have their students keep journals, the incidence of journals and learning logs increased across the grade levels. One teacher in grade two and all three of the Report Group teachers in grade three intending to use them with their students. However, the third grade teacher in the Interview Group also intended to use a journal with her students.

Two teachers in the Interview Group did plan to spend more time on teaching ideas about food than the teachers in the Report Group. The types of activities they intended to do with the students involved moving outside the school and into the community. They did not design integrated units. The goals of science or language arts were not presented in their lesson plans. In fact, teachers in the Report Group planned to meet goals from science and language arts far more than the teachers in the Interview Group.

When we consider the instructional activities that teachers chose to use we discover that by far the most popular form of instruction remains large group teacher-directed discussion. In the categorization of activity, discussions that were to ensue after the presentation of artifacts or the reading of a text or making a class product such as a graph or chart from their opinions or data were not coded separately. However, the teachers in the Report Group intend to talk more with their students than do the teachers in the Interview Group. Despite this difference, all of the teachers in this study plan on being in constant

conversation, as a large group, when it comes to teaching social studies to their early grade students.

Although a cross-case analysis of the unit plans by group is interesting it hides the variation caused by individual teachers who are enthusiastic about one particular instructional activity and plan on using it frequently. An example of this was Denise (grade one, IG), who intended to read numerous texts to and with her students. Other teachers in that group did not record similar amounts of that activity as their intention.

Table 6.4 Analysis of activities by grade and research group designation

Activity	G1	G2	G3	RG	IG	Total
Teacher led discussion	20	25	14	19.7	12	71
Teacher introduces artifacts	11	6	9	8.7	8	34
Teacher reads books to/with students	10	12	9	10.3	17	48
Students read individual texts	-	5	-	1.7	-	5
Make class product	7	9	7	7.7	8	31
Draw individual diagram/picture	3	4	4	3.7	1	12
Write independently	2	4	14	6.7	4	24
Make individual models	1	1	1	1	2	5
Complete worksheets	1	10	2	4.3	3	16
Large group hands-on activity	13	4	12	9.7	1	29
Field trip	1	-	-	0.3	2	3
Guest speaker	-	-	-	0	1	1
Large group classification activity	3	3	7	4.3	-	13
Do individual inquiry	1	3	5	3	3	12
Small group activity	1	3	5	3	5	14
Give presentation	-	-	2	0.7	6	8
Use maps	-	1	1	0.7	2	4
Watch video	-	1	6	2.3	5	12

In the group of first grade teachers who had read the report Kate cited many more instances of planning to involve students in large group activities than did her peers. Grouping the data also veils the differences in the amount of information individual teachers provided for the study. Amanda in grade one, Helene in grade two, Rosemary in grade three, and Denise in grade one all wrote much more detailed descriptions of their plans than the other teachers in their group.

E ASSESSMENT

Report Group

1 Teachers will question the children to see if they have responses that are similar to the ones given in the report.

2 They will use the individual interview format for some type of assessment: diagnostic, formative, or summative, during the unit.

3 Children's production of artifacts will be taken as evidence of understanding.

Interview Group

4 Teachers will expect students to articulate their knowledge and understanding.

5 Students will be assessed using traditional testing methods rather than by activities and "authentic assessment."

This was definitely the case with Helene (second grade, RG) whose unit plan consisted of a number of questions from the report and notes on how she would follow up on ideas that, based on her reading of the report, she predicted her students would raise. Unexpectedly, none of the teachers in the Report Group planned to use the individual interview format for some type of assessment: diagnostic, formative, or summative, during the unit. Apart from Kate (first grade RG) who focused on observing activity as an assessment strategy, all of the RG teachers intended to use their students' production of artifacts as evidence of understanding.

I had not expected so much variation within the interview group. Although Denise (first grade) planned to ask her students to demonstrate their knowledge at the end of each lesson by making something or answering a question, Emily (grade two) planned to have a number of group activities where assessment would be based on a group-developed product. Crystal (grade three) did plan for the students to complete a poster project and performance that would be graded using rubrics. She also wanted them to contribute to the construction of a test at the end of the unit.

Along with the high levels of discussion, the teachers in both the Interview Group and Report Group tended to cite observation of participation and cooperative behavior as their major form of assessment, especially in the first grade. As the students moved up grades and they produced more drawings and writings,

teachers wrote that they planned to assess more of the students' products rather than just behavior. Glenda (grade two, RG), Rosemary (grade three, RG)and Crystal (grade three, IG)spoke of giving the students rubrics and sharing with the students the criteria to be used in constructing their grade. Glenda did this for the model of a plant. Rosemary shared this with the students to help them think about a presentation on the process of getting from apple to apple sauce. Crystal explained the rubric for assessing a poster on foods of Michigan. Helene (grade two, RG), Rosemary and Crystal planned to give the students a quiz or a test at the end of the unit but none of the other teachers wrote of this.

Table 6.5 Articulated or Apparent Focus of Assessment

	G1	G2	G3	RG	IG	Total
Participation/ oral comment	15	8	9	10.7	13	45
Drawing/diagram	2	4	6	4	4	16
Written comment/explanation	3	11	10	8	9	33
Model	-	2	-	0.7	-	2
Homework assignment	1	-	-	0.3	1	2
Test	-	1	1	0.7	1	2
Total	21	25	25		28	

Discussion

The muted patterns in the teachers' planning, choice of content, resources, and instructional activities and assessments demonstrated the complexity of the teaching situation. Briefly, the next two sections will consider some patterns within the groups and then we will proceed to the unanticipated findings.

Relationship between the report on students' thinking and content in unit plans written by teachers who read the report

There seemed to be four levels of report usage amongst the teachers who read it. The first group planned their unit following the structure of the report. The major concepts addressed in their unit plans were ones that questions in the report were designed to elicit the children's understanding of food in particular contexts. The second level of usage came from teachers who took a piece of the report and created a completely new unit that was related tangentially to the report. The third level of report usage came from teachers who found that parts of the report related to what they were doing already so that was what they described in their unit plan. The fourth level of usage seemed to be to use a connection to a small section of the report to justify further investigation and expansion of a curricular interest that was already in place.

Helene (grade two), was the teacher whose unit plan was most obviously influenced by the report on students' thinking. In fact, she was the only teacher in this level of report usage. Seven of the ten lessons she planned were designed to help her students to understand the ideas inherent in "good" answers to the questions that were asked of students in the report. She addressed issues concerning food that had historical, geographical and economic underpinnings.

A number of the ideas regarding student thinking that are in the report are found in Rosemary's (grade three) unit plan; around 60% of her lessons directly

connect with the report and like Helene (grade two), they tended to range across disciplinary areas, albeit geography and economics but not history. Like Helene she has created a completely new unit but she did not follow the structure of the report. The students' responses to the questions in the report made her think about the complex social and economic organization that enables us to get the food we eat so she created a completely new unit to help her students understand and appreciate this.

In the third level of report usage are David (grade one), and Felicity (grade two). David and Felicity both spoke of a number of lessons that they had or would do concerning food production and consumption but they wrote fewer lessons than many of the teachers. The lessons that they wrote tended to match the questions asked in the report (57%). They both focused on the notions of classifying food into food groups, health food groups, and the process of getting food from the land to the hand.

The teachers whose unit plans had minimal connection to the report on students' thinking about food production, distribution and consumption were those written by Kate(grade one) and third grade teacher Sharon (50%), second grade teacher Amanda (44%), second grade teacher Glenda (40%) and third grade teacher Colette (29%). Kate, who wrote up six lessons, focused on food but rather than considering the industrial processes like David and Felicity did she focused on gardening, and storage issues associated with food. Sharon and Glenda had a

number of science related ideas in their units that had not been addressed in the report. Like Rosemary (grade three), Amanda (grade one) made the connection between an idea in the report on student thinking and something that occurred to her as she was reading it. She made the connection between the questions about apple sauce and the economics of food production and the educational value that could be added to an activity that was already being done, albeit nonchalantly, in her school. Reading the report encouraged her to expand upon one of her school's curricular traditions: the first graders visit to the cider mill. Reading the report and noting the students' confusion with issues of time and the past convinced Colette (grade three) that her students needed to get a better sense of history. Participation in the study supported Colette in articulating a study of the history of her local community -- in which food production, consumption, and distribution would be a part.

The interviewed teachers and their unit plans

The three plans that were written by teachers who were interviewed, Denise (grade one), Emily (grade two), and Crystal (grade three), were extremely different. More than any of the other teachers in the entire study, the content of Denise's unit plan corresponded to the questions asked in the interview (89% of her lessons were related to questions in the interview protocol). On the other hand, Crystal's unit plan had the fewest intentional connections to issues raised in the interview (11%). Emily's unit plan focused very heavily on methods of collecting, analyzing, and presenting data but did respond to some of the

historical issues raised in the interview (22% of her lessons could be directly connected to questions in the interview).

Denise's and Crystal's unit plans did not seem particularly different from those of the other teachers at their respective grade levels. Like the other teachers, Denise (grade one) planned to use a lot of children's literature and Crystal (grade three) planned to have the students doing their own research. But Emily's plans are different from the other second grade teachers in the study. This is because she focused on planning how a teacher could teach the process of historical inquiry and practice strategies such as collecting oral histories with second graders while the other teachers at her grade level focused on finding appropriate written texts to use.

The distinctiveness of each of these unit plans and the lack of similarity are extremely noticeable when we put the plans written by the teachers in this group together. Perhaps this was to be expected. They did not have materials that related the questions to particular content or ways of thinking about it, such as the report on students' thinking, that they could refer to as they planned. However, they did keep a copy of the interview protocol and they did get planning materials, including the state standards and national guidelines for social studies.

As well as the issues associated with the design of the study, these three teachers approached the task with very different goals, resources, levels of

confidence in teaching social studies at their current grade level, and experience in planning units. Although each of the teachers in this group shared a number of these characteristics with teachers in the Report Group, within this group they were dissimilar. For instance, Denise (grade one) wanted to use the study to support her exploration of new social studies textbooks and materials that had arrived in her classroom with little warning and no accompanying in-service to help her make sense of them. Emily (grade two) wanted help thinking about teaching social studies in Wedgwood, in a district where they have deliberately abstained from buying new textbooks because the social studies committee wanted teachers want to use more trade books and more non-traditional resources. Crystal (grade three) was also working with a new textbook. After teaching a straight fourth grade for fifteen years, she wanted support in thinking about how to teach social studies to her third graders as well as her fourth graders, especially when most of them had English as a second language.

Unanticipated Findings

I offer the following unanticipated results of the study more tentatively, because, not having anticipated them I didn't design the study appropriately for examining them directly. What I am going to write about them is more provisional and, rather than looking back at what has been done, looks more towards the future and what, in future studies, including my own, might be done.

As anticipated in the introductory chapter, in getting close to where elementary social studies teaching, subject matter and student thinking meet we can uncover a lot more about the world of teaching elementary social studies than just the differences between the plans of the two groups. For ease of discussion I will place these findings into two weakly bounded groups: research design, and classroom curriculum, and address each group of findings in turn.

Research design

Resource use

All of the teachers took part in an interview around their beliefs about social studies, their role as a social studies teacher, the resources and activities that they often used. I had designed the questionnaire by culling strategies for teaching social studies in K-6 classrooms from multiple methods texts because not only did I want to understand what they were already doing, it was a way of helping them think about the possibilities that were available to them. The teachers in the Interview Group seemed to regard this list as an important resource. Two of the Interview Group teachers focused on less commonly used instructional strategies such as drama, and interviewing. Crystal (grade three, IG) typed part of the list of activities from the questionnaire and pasted it directly into her unit plan.

Integrated units

Participants were asked to plan a social studies unit they would use in the classroom. The teachers, who had little background in the social sciences, struggled to define social studies in our initial interview around the questionnaire. I would posit that they believed that they were covering or meeting many social studies goals when they planned to have students working together. That opened up the content to be in other subject areas such as health or science. At least three teachers in the study who were in the Report Group had unit plans with substantial portions devoted to subject area goals other than social studies, generally science and health.

Research role

I struggled with the implementation of the design because people had decided to participate in this study because they wanted help with thinking about social studies. They were not "expert" teachers, they were ordinary teachers wanting to get better. As a researcher my primary goal was to find out what the effect of having information about children's thinking would do to their unit plans, not our unit plans. Although I expected that there would be variation in what individuals produced I did not realize how much of a variation there would be. I felt somewhat guilty that I had not been more involved in the planning process with the teachers who struggled but persevered. Also, I had not realized how difficult it would be to critique in print the efforts of people I had grown to admire.

Grade level differences

What became apparent in the study were the differences between grade levels. Although researchers acknowledge the developmental differences in children as they grow, many reviews and commentaries group grades 1, 2, and 3 all together. What came out in this study is that across the grade levels teachers plan to teach their students very differently, not just in terms of content, despite having large ranges of academic ability and social maturity within the student group at their grade level.

Generational differences

In this study there were many instances of the younger teachers, and especially the newest teacher, Helene (grade two, RG), finding the task and the conversations easier than the older and more experienced teachers. Experience-wise there were three groups of teachers in the study. Five teachers had been teaching up to five years, one had been teaching around eleven years, and six had been teaching for more than nineteen years.

The younger teachers seemed able to articulate their ideas in writing very easily and produced their unit plans comparatively speedily. Less experienced teachers seemed more comfortable using the computer and committing their plans to paper. They were better able to operationalize the language of the state

standards for their classrooms. Three of the veteran teachers ignored the standards completely in writing up their unit plans.

All of the teachers in the study used word processors in their work, such as for writing letters home and in all but one instance for typing up their unit plan. But in addition, the younger teachers used the Internet to find lesson plans, to get adult level information about their topic, and to find sites to use directly with the students.

This finding points to what happens when teachers remain in their classrooms without being given the opportunity and support of meaningful professional development opportunities in social studies.

Classroom curriculum

Children's literature

As part of the preparation for planning we talked about the role of social studies. The teachers definitely needed help to learn how to bridge the distance between their textbooks and the standards and benchmarks and to translate the standards into operational classroom language.

There was a general reluctance to talk about the textbooks (with two notable exceptions in case the two teachers who used the textbook and who articulated

the most "big ideas." Instead it seemed as if using the textbook was a bad thing, best done behind closed doors and quietly so that no university person could hear. Teachers spoke enthusiastically about the trade books and children's literature that they would use.

This move away from textbooks has hurt the older teachers who evidently lacked resources and the expertise to translate the standards into operational classroom language and to find non-textbook resources and activities to teach to the big ideas pointed to in the standards.

What is a concern is that a number of the pieces of children's literature that the teachers suggested using to teach food may lead to more misconceptions, such as that all farmers live in cottages, use pitchforks, and have chickens and pigs foraging around their yard.

Alternatively, many children's books simply do not help students understand the big ideas about food, such as that what people eat is often determined by where they live and that only wealthy individuals or societies can afford to eat food produced in distant places.

It seems that teachers are being done a disservice when teacher educators advocate abandoning textbooks that do offer, if not perfectly at least in classroom sets, a shared text from which students and teachers can start their explorations.

The teachers' endeavors to find resources illustrated a need for more books to be published or acknowledged that directly relate to social studies topics. They perceived that the mandated curriculum keeps changing so the teacher energy that goes into finding and compiling resources, such as kits, to fit their curriculum is often wasted. If they were better able to understand broadly written goals such as the standards they might not feel quite so much at the mercy of people with short term agendas.

Discussion as a classroom activity

The major activity planned by teachers was large group discussion yet there are potential problems with an overemphasis on discussion. Just as recording K-W-L discussions on charts can legitimize misconceptions, so can free-flowing discussions if we take the power of personal narrative seriously. For instance in the report on students' thinking, when asked what people eat in different countries a child talked authoritatively about food in Texas because her father had been there. She announced that in Texas they eat "bar food." Texas is a state and that while many people in Texas may eat "bar food" it is not the cuisine generally associated with the region. No doubt if the child had made her response in a large group it would have made an impression on at least some of her peers.

An important issue associated with discussion is assessment. Many of the teachers used observation of participation in discussion as evidence of learning. It is extremely difficult, if not impossible to both control and guide a large group discussion, as a teacher of young children must, and at the same time note the substance and nuances in what individual students are saying. Even meetings of adult groups have both a chairperson to run the meeting and a secretary to take minutes. Only a peripheral participant would be in the position of being able to assess the thinking of participants in a large group discussion somewhat objectively.

Of course another way to think about this is that using large group discussion allows a teacher to "finesse" assessment. Any assessment is difficult when you are not sure of your goals. By spending time in large group discussions you can base your assessment on how cooperative the students are.

Curricular Traditions

There are pressures on teachers to do "fun stuff." Both Amanda (grade one, RG) and Rosemary (grade three, IR) talked about this. Teachers' perceived that there were activities that parents and administrators expected them to do, regardless of whether or not it met the students' academic needs. Such pressures reinforce a culture of meaningless curricular traditions such as the cider mill visit in Amanda's case. At the same time there is pressure from administrators for the students to do well on tests. Although teachers might focus on content,

communities may be more interested in the activities in which their children participate – they like what they can see.

Summary

In terms of their knowledge of food as revealed by the interview: at some point in the interview all of the teachers expressed their surprise at not being more articulate about the answers to at least one question. Overall, Denise (grade one) seemed much more secure in her knowledge of the issues that were raised in the interview than Emily (grade two) or Crystal (grade three). Excerpts of some of their interview responses that seemed salient to their unit plans were shared in the descriptive chapters for each grade level.

As well as seeming more secure in her knowledge of social studies, Denise (grade one) shared that she has been designing integrated units for the past eight years. She has a large collection of videos, CDs, and trade books that she has collected over the years to make her professional life easy. Although she is also an experienced teacher Crystal (grade three)did not speak of being particularly comfortable with planning and she did not refer to a personal pool of teaching resources. Emily (grade two) said that she was comfortable planning a unit but she expressed concern about her lack of knowledge in social studies and the fact that she could not readily identify many material resources.

Assignment to either the Report Group or the Interview Group did influence what the teachers planned in their units in that both Emily and Crystal chose to teach more objectives related to learning process skills than academic content.

Teachers did teach the uncontroversial and straight-forward ideas about food that were written on in the report but did not expand upon them. Teachers who read the report on student's thinking tended to teach content that was related to issues raised in the report such as the food groups and the land-to–hand processes of food production. Despite having information about students' thinking and knowing where they might have trouble understanding some concepts the teachers seemed more comfortable with teaching uncontroversial topics like the route that wheat takes to become bread on our table.

Other characteristics of the teachers shaped what they planned. The grade level similarities in terms of activities and assessments came across in the comparison tables. Easy access to resources, such as posters on the food pyramid, seemed to be an important reason why teachers planned to teach particular lessons.

These patterns and trends across the social studies units that the twelve teachers in this study have planned and their implications for research and teacher education in social studies will be considered in the next and concluding chapter.

Discussion

As anticipated, there were differences between the unit plans of the teachers who were presented with the information about student thinking and the unit plans of the teachers who were interviewed. However, the fact that only two teachers of the twelve designed their plans as predicted points to the two treatments having no clearly evident contrasting effects. In a strange way this is fortunate because it reduces the seriousness of not having as many teachers in the Interview Group. While acknowledging the variations in the presentation and substance of units within each group of teachers, it is still possible to examine and explain the differences in the unit plans in relation to the two types of treatment that the teachers received. I will outline possible explanations for the results. I will discuss how what the study revealed about planning, early grade social studies and researching on it relates to other research. Then I will determine what these notions imply for future research and teacher education in early elementary social studies.

Possible explanations for the findings

The first possibility (#1) is that both treatments influenced the teachers' unit plans. The influences may have resulted in characteristics of the plans that were predicted. For instance, teachers in the Report Group would attend more to their students' thinking, and would address more content matter directly related to that of the report on children's thinking. Also, teachers in the Interview Group would

address in their unit plans content issues that had particularly interested them in the interview. Perhaps both treatments influenced the teachers' plans but in ways that were not predicted. The fact that a high number of teachers in the Report Group focusing on the technical processes of food production for a number of lessons and that the emphasis teachers in the Interview Group put on process skills such as interviewing, and analyzing data might be effects of the treatments.

The second possibility (#2) is that neither treatment influenced any of the teachers in the study. In that case we would expect there to be similarities in the plans of teachers working with students at the same grade level (because of the "de facto national curriculum"). At the same time we would not expect to find any other regularly occurring similarities or differences in the unit plans that aligned directly with teacher membership in either the Interview Group or Report Group.

Another possibility (#3) is that teachers in the Report Group were influenced by what they experienced as a part of the study, and the teachers in the Interview Group were not. In this instance the plans of the teachers in the Interview Group would be examples of the types of plans we would expect to see from "regular" teachers. If this were the case, given the results of this study, we might reasonably expect the unit plans of regular teachers to be greatly varied and oriented towards teaching inquiry processes rather than towards teaching a particular body of knowledge.

The fourth possibility (#4) is that the plans written by teachers in the Report Group were not influenced by reading the report while the plans of teachers in the Interview Group were. In this instance the Report Group's plans would be typical of those written by regular classroom teachers.

With regards to possibility #1: it is not common practice for classroom teachers to design their own unit plans. Participation in the study, in either group, influenced teachers' unit planning – because they did write a unit plan. Twelve of the original sixteen teachers who participated in at least the initial interview about their beliefs about social studies teaching were willing and able to design a unit plan for social studies during the school year without the extrinsic rewards of money, or time out of the classroom. This is encouraging.

Also, it does appear that the treatments had a notable influence on the plans of Helene (Report Group) and Denise (Interview Group). However, because the rest of the teachers in the study showed much more variation in their unit plans in terms of content and in terms of the activities they intended to use in their teaching, it would be rash to make claims about any cause and effect relationships regarding the treatment groups and teacher's plans. Instead, the variety in the unit plans point to the range of experiences and beliefs about teaching and learning social studies that the elementary teachers in this study held.

All of the teachers said that they had decided to participate in the study because they wanted to think about their social studies teaching. Although there was little sense that Colette (Report Group, third grade) had been influenced by the Report on Children's Thinking about Food, the majority of the units designed by teachers in the Report Group made a number of references to issues raised in the Report. Apart from Denise, the Interview Group teachers did not use the topics raised in their individual interviews on food in the same way. My hunch is that the teachers in the Interview Group focused on the questionnaire and the "tips" they could glean from that about social studies teaching because they were not given a report to read or provided with a guide towards content they might choose to cover. For this reason they felt encouraged, or perhaps obligated given that it was a university research study, to teach in ways that they had not tried before, such as using the Michigan Historical Museum (Crystal, grade three teacher) and interviewing senior citizens (Emily, grade two teacher).

The second possibility (#2), that none of the teachers were influenced by their experiences of reading the report or by being interviewed, is refuted by the unit plans of Helene and Denise that so closely follow the scope and sequence of the big ideas covered by the report and interview. However, as stated previously, the influences of the treatments seemed minimal in most of the teachers' unit plans.

It is fascinating to consider possibility #3, that while the teachers in the Report Group were somewhat influenced by their experiences as part of the study that

the teachers in the Interview Group were not and were simply doing what K-3 teachers, if they planned social studies units, would do. So, what this points to is the situation where, if not given a guide towards big ideas to teach, and in the absence of a textbook, K-3 teachers tend to learn with their students. On the surface the notion of teachers learning alongside their students is a positive one. However if we think about it a little more it is disconcerting. If teachers themselves don't have a good understanding of what it is they are hoping their students will learn, they are unlikely to notice (and therefore address) misconceptions that students might raise. In an even worse scenario, they would teach their own misconceptions to the students. It may be that being a "guide on the side" is preferable to being a "sage on the stage", but, while perhaps not being imbued with the wisdom of a sage, a guide is someone who has knowledge of the terrain to be traveled.

Possibility #4, that teachers in the Interview Group were influenced and those in the Report Group were not, is not supported by the results if we consider the content of their unit plans. If the unit plans written by the teachers in the Report Group were typical of regular classroom teachers then we would have expected that the plans written by all three of the teachers in the Interview Group to focus even more strongly on the big ideas raised in the interview. Instead these teachers intended to focus more on the skills of data collection and interpretation of the data they collected. Perhaps this is not surprising because discussing children's thinking is not as personally challenging as being interviewed. The

experience of being interviewed on their thinking about food and being perplexed about not being able to provide quick or wise answers to some of the questions raised Emily's and Crystal's level of anxiety. It might have overwhelmed their later reflections on the content of the interview with respect to planning. What might have stayed with these teachers was an emphasis on the act of interviewing – or data collecting.

In this instance we would assume that regular classroom teachers use various pieces of children's literature and resources from science to teach about food production and consumption, with lessons that generally involve presenting written texts and then having students respond to them through talk or writing. The effect of the study was to foster the teaching of process skills in social studies. Unlike Emily and Crystal, Denise was not sensitized to alternative ways of thinking about teaching social studies in the early grades because she did not find the interview disconcerting so her unit plan was more similar to those of the teachers in the Report Group.

What was learned from undertaking the study

Planning

What came across quite clearly was that the teachers of younger students (grade one) were more accustomed to and comfortable with tailoring their units and lessons to meet the perceived needs and interests of their students than the teachers of older students (grade three). Analyses of social studies textbooks

during the 1980s and early 1990s noted the paucity of ideas offered in textbooks for teaching in the early grades. Even so, within the early grades, textbooks for older children tend to have more substantive material in them so teachers can discuss information presented in the textbooks with their students without necessarily referring to other resources. Textbooks for the younger children tend to provide pictures but little accompanying text. It is up to the teacher to use the teaching guides and to find other resources in order to be informed in ways that allow him or her to nurture student interests and knowledge-building. Perhaps this in part explains why the first grade teachers felt more confident in building their own units than the third grade teachers.

The study revealed some fascinating differences between the younger and older teachers. The less experienced teachers seemed to find the act of writing up their plans easier than the older teachers, and presented material in attractive formats, with tables and different fonts. As evidenced by their references to standards, they were more comfortable with translating subject-matter standards into their plans. They also seemed more confident in accessing the Internet to assist them in their planning, as a way of increasing their own understanding, and as a teaching tool.

Comparisons of expert and novice teachers are common in the teacher education literature. Usually the novices are student teachers or teacher interns while the teachers are teachers who either have student teachers in their

classrooms or are people whom colleagues consider expert. The research generally exalts teaching experience and points to reasons why the expert teachers are expert and why the novices are not along particular dimensions of their actions. This study is not about experts or novices however it does point to generational differences that, given the changing expectations being placed on teachers and the interests and understandings that their students bring to school, need to be addressed in research and teacher education.

Content

As predicted, the majority of teachers intended to build upon students' experiences in terms of what they ate and how the food that we eat is courtesy of networks of people whose job it is to produce, distribute or prepare foods for other people to eat.

I was surprised however, at how so many teachers in the study adopted the big ideas from the Report and from the interview, such as examining food production without, at the same time, planning to raise important social and environmental issues associated with them. It is another example of the point Ochoa et. al. (2001) raised: teachers in the early grades avoid addressing potentially contentious issues. For instance, none of the teachers who intended to talk about wheat production planned on talking about the problems associated with living in an area where families relied on the successful harvest of a single crop such as in the Dust Bowl of the 1930s. Although Rosemary (RG, grade three) intended to

show students that food was produced in different parts of the world she gave no indications that she would entertain discussions around the economic hegemony of industrialized nations over the raw agricultural products of underdeveloped nations.

Similarly, although some of the teachers planned to cover the question of how early Americans stored their food there was little sense that they would introduce their students to other notable times in American history that could easily be introduced through talking about food. The Boston Tea Party was a reaction to the British King's tax on tea. Many Americans have ancestors who came here to escape the Irish potato famine. The organization of the meatpacking factories inspired Henry Ford's establishment of the automobile assembly line. None of these stories from history are too difficult for young students to connect with. Yet they could provide introductions to rich discussions about current government involvement in the production and consumption of food, access to food as a reason why people move, and have moved in the past, and general insights into mass production. These discussions would lead students in a natural way to think about the economic concepts many of the teachers hoped to address in their units such as the notion of trade, the difference between goods and services, and the various types of resources used in production.

The different content emphases of the two groups of teachers was unexpected because this phenomenon has not been addressed in the literature I have

reviewed. The teachers in the Report Group focused so much more on concepts associated with economics, science, and health and the nature of food production while the teachers in the Interview Group focused on the process skills of collecting, analyzing, and presenting data. Writers of social studies textbooks who have tended to promote teaching using a constructivist theory of learning have emphasized the need for teachers to teach students networks of knowledge along with research skills (Brophy & Alleman, 1996; Nelson, 1998; Parker, 1998).

Resources

Sharon (RG, third grade) said that teachers are always thinking about how they can use the resources that they find in their everyday lives in their teaching. It had been that way for me as a classroom teacher so I had not anticipated that participants in the study would find it difficult to locate resources to teach big ideas about food production, distribution and consumption. According to the participants, locating appropriate resources slowed down the writing of their unit plans. This focus on resources and related activities rather than big ideas supports the findings of Yinger (1980) and Zahorik (1975). Perhaps the younger teachers' easier access to resources through the Internet contributed to the speed and ease with which they were able to plan relative to their more senior colleagues.

The research literature relating to social studies textbooks has not been complimentary yet what came out in this study was that the teachers in the early grades who used their textbooks thoughtfully tended to focus on more big ideas than teachers who did not. At a time when entire school districts are moving away from using textbooks, it seems that research is needed to investigate the effects of such actions on what students have opportunities to learn. If the children's literature that teachers choose to use instead of textbooks is fanciful and lacking in big ideas related to social studies, then such changes in resources might lead to students holding more rather than fewer misconceptions about their physical and social worlds.

Activities

As Goodlad (1984) observed, social studies teachers tend to lead their classroom discussions and activities. However what this study illustrates is that in early elementary classrooms this does not just take the form of teacher lecture and student recitation. Instead it is a curricular quilt of discussion, presentation of artifacts, reading aloud, creation of a class product, and the coordination of numerous hands-on activities. These types of activities made up two-thirds of the activities planned by all of the teachers in the study. Teachers in the Report Group were more likely to plan such activities than teachers in the Interview Group. This finding points to a possible relationship between the emphasis that teachers place on content and the type of teaching (and student learning) that is likely to occur. When teachers focus on process skills they might be more

concerned that their students physically do the task and that in doing it they will learn ways of learning. For instance these teachers want their students to remember that we can learn about the past by talking with older people. Other teachers want their students to recall ideas such as that the early Americans did not have refrigerators so they had use other methods for storing food so that they can build on this knowledge in the future.

The research of Alton-Lee and Nutthall (1993) provided us with evidence that students have ongoing commentaries that stray far from the where the teacher is focused. For the most part, however, when social studies lessons are teacher-centered the teachers are guiding the direction of the conversation and controlling students' actions and interactions with each other. So it could be that management issues rather than consideration of how best to teach for conceptual understanding determine teachers' choice of activities, especially in the very early grades when children are being socialized into the ways of school.

Teachers in the student-report group tended to use more "tried and true" lessons than those in the teacher interview group. This fits with McCutcheon's (1981) finding that teachers tend to visualize what they will do based on previous experiences and how they have captured students' attention in the past. The interesting variation on this was Amanda (the grade one RG teacher who deliberately sought to challenge and enrich the curricular traditions of her school community).

Assessment

Overall, the teachers' attention was not on assessment around the big ideas in social studies. A number of the written assessments that Report Group teachers proposed gave the impression that they would be assessing language arts skills as much as social studies understanding. This makes sense if teachers are not usually teaching social studies around big ideas that need to be taught that they would not be accustomed to assessing understanding of these big ideas. They don't really know what to look for or what is particularly important. Unlike arithmetic and reading, achievement in social studies in the early grades is hard to measure because teachers tend to assess pro-social behavior with peers and cooperative behavior with adults as a major component of achievement in social studies.

The Interview Group teachers tended to plan more activities where students would be working together than the Report Group teachers did, so they intended to assess their students by their behavior in the small groups and by the products produced in the small groups.

Research Design

In their report quoted in the literature review, Carpenter, Fennema, et.al. (1989) described how providing teachers with workshops that focused on student thinking helped teachers change their classroom practices. However, my study

leads me to posit that it was not simply the presentation of the data on student thinking that resulted in changing teacher attitudes and classroom practices: it was the complete package of summer workshops, ongoing support throughout the year, and curricular resources. Because my study had no control group and no classroom observation it is difficult to judge the usefulness of reading the report. Although it did not seem to influence their plans overly much, without observation of classroom behavior it is hard to tell how reading it changed classroom practices. It could be that teachers planned according to how they interpreted the Report: 1) read the Report and accepted it (Helene, grade two); 2) read the Report and saw it echoing the voices of their students (Kate, first grade, and Sharon, third grade); or 3) read the Report and did not see it as much of a reflection of their current students' thinking (Felicity, grade two).

Also, written plans and lesson observations provide us with different types of data, especially in the case of more experienced teachers who are not accustomed to writing down their ideas. It would be interesting to compare the taught lessons of the teachers in this study with the plans they made. It may be possible to do this in the future. I have been in contact with all but one of the teachers (Felicity, grade one Report Group) in the study since they completed their unit plans.

Limitations of the study

As noted already, not seeing the teachers actually teach their lessons is a limitation in that it is difficult to ascertain from the plans of these teachers exactly how they will go about teaching their units on food in the classroom.
Also, given that there are only twelve teachers and that they are unevenly distributed across the two treatment groups, it stands to reason that any claims of differences I have made are quiet claims of possible difference rather than strident claims of definite difference.

Working with the data as a sole researcher means that a single interpretation of the data has been undertaken. A more substantive study would use two or more researchers to analyze the lesson plans in order to summarize them and to determine meaning when teachers have not written up their units in ways that make them easy to compare with others. This is especially important when determining the big ideas that teachers intend to teach, which means analyzing various multiple objectives the teacher has written.

Researcher-Teacher Relationships

I learned that if I want to think of research and professional development as two sides of the same coin then I must take particular note of my interactions with the teachers that are not a planned part of the research design. They could be construed as confounding variables if the focus of the study is on teacher actions. For instance, perhaps the reason why it took Sharon (RG, grade three)

and Crystal (IG, grade three) from LATTICE so long to write up their unit plans was because they knew me principally as an international graduate student rather than as a researcher. Perhaps they felt that our agreed upon deadlines weren't imperative to meet because I would let them know if I really needed something from them.

On the other hand, if the point of the research is to explore issues of curriculum rather than issues of teacher behavior, it might not matter as much how researchers and teachers work together as long as the work they do benefits students.

Recruiting participants

As described in the methods chapter, I learned how difficult it is to find teachers to work with when you don't have a personal history in a school district. However, I had been a teacher so I knew "teacher talk" and I was from a country whose methods of teaching reading have been lauded within the local districts. I had some interesting conversations with teachers even if they chose not to participate in the study.

The key to finding participants seemed to be using word of mouth. Most of the teachers with whom I spoke were flattered to have been recommended to me by a colleague, especially from another school. The exercise of having to talk to numerous teachers in order to find people willing to participate was

disconcerting. However, after dozens of "cold calls" to teachers my explanations of what the study was about and what I expected of participants became much more succinct.

Classroom teachers are inundated with offers of resources or time away from the classroom in return for their adoption of particular curricula. A number of the teachers were eager for me to come into their classroom and teach their social studies lessons or to work with their students. If I had offered incentives such as money or teaching materials or if I had paid for release time more teachers might have found participation in the study appealing. Instead I was asking for teachers to use their planning time, which, because it is expected but not monitored, varies from person to person, to consider students' thinking about food and to design a unit plan. One of the limitations, or alternatively, one of the strengths of the study is that it considers the work of teachers who planned the units in their own time, amidst the busy-ness of the school year. It meant that teachers had to be really committed to the goals of the study to stay involved in it.

Three (50%) of the teachers who were interviewed on their thinking about food (the Interview Group) obviously did not appreciate that the interview might have been useful to them in their planning because they chose to leave the study. Only one teacher who had read the Report did not complete a unit plan. Having the Report appeared to increase teachers' commitment to the study.

As well as attracting more participants, funding would have allowed for teacher support in release time for individual planning and for attendance at workshops. I would envisage that in the workshops the teachers would have opportunities to interact with the ideas raised in the Report on Children's Thinking. There would have been attention focused on the children's responses with regard to the state and national standards for social studies, as well as conversations around how to teach some of the big ideas to young children, and possible resources to use in order to do so. Of course this would have made it a completely different study with, hopefully, rather different results.

This dissertation study was based on the premise that most teachers plan alone and for the most part unsupported by school or university colleagues, even if they do not write their ideas down, during the school year. So, in that respect it can be seen as a baseline from which to develop a program of research and teacher development in social studies that includes more comprehensive input from me as a teacher educator. This brings us to what I see as the implications of the findings from this study and what I consider important to think about in future endeavors in research and teacher education.

Implications for research and teacher education in early grades social studies

Some of the teachers who had the opportunity to read data on children's thinking did attend to their own students' thinking in relation to the big ideas addressed in

the research. Many of the other teachers who read the report used at least some of the ideas addressed in the report in the content of their social studies unit. Providing teachers with reports on children's thinking around targeted curricular areas is one way of introducing teachers to new ways of thinking about social studies curriculum, i.e., extending it beyond pro-social behavior alone. This makes directly providing teachers with research data a worthwhile strategy for working with both experienced teachers and people who are new to the field, so that is something that I would like to continue doing.

More research on children's thinking about commonly taught topics in the early grades needs to be done and disseminated. It could be that supportive workshops and scheduled meetings with peers to discuss their efforts are necessary for teachers to plan using what they have read about student thinking.

From doing this study I have learned the importance of building networks of teachers with whom I can talk about curriculum in the classroom and establish an long term agenda for research. So, given what I have learned about recruiting and working with teachers, I see another important study after this to be a variation on this study in an urban area close to the university where I will be situated. I intend to work with teachers on writing social studies unit plans around the topic of food. Focusing on the same characteristics of their plans as I did in this study, I would be interested to see if the results were similar to what I found here: only a few teachers planned as predicted; teachers tended to use

resources that were easily accessible to them; teachers who were interviewed tended to focus on teaching process skills; and there seemed to be generational differences in the act of planning. It would also provide insights onto "curricular traditions" associated with food. Is the curricular preoccupation with apples in the early grades a local Mid-Michigan phenomenon or does it extend into the urban areas of the state as well? Of course such a study would involve locating teachers who work in schools with children from similar socio-economic, if not similar cultural backgrounds as children whose teachers participated in this initial study.

Another study I intend to initiate which also considers teacher planning when informed about students' thinking is one that uses data (with the gracious permission of Jere Brophy and Janet Alleman) on children's thinking about communication. Unlike the topic of food where there numerous local curricular traditions to use as default lessons, communication is a topic that few early elementary teachers will have taught, so I would anticipate that there might be even greater variations in what teachers plan in terms of content. There are likely to be generational differences and differences due to the teachers' and their students' access to modern forms of communication such as the Internet and Instant Messages. Although rarely heard of as a topic in early elementary social studies, as another cultural universal communication is a wonderfully appropriate topic to study with young children whose primary goal in school is to learn how to

communicate: whether it be through writing, reading, or by using the specialized vocabularies of mathematics or science.

In terms of student learning: I intend to design a study that tracks students' learning in social studies while working with two competent teachers, such as Kate and Denise, who both had extremely reasonable rationales for their chosen pedagogies but were using radically different approaches to teach children from similar backgrounds.

One reassuring thing about the study is that it indicates the value of the teacher education programs undertaken by the younger participants in terms of being able to write plans and address subject matter standards. Amanda, Brian, Emily and Helene are graduates of the program at a large land-grant university and Rosemary graduated from the teacher education program at a small private college. All of them had a good understanding of what was expected and wrote social studies unit plans that would teach substantive ideas. But it is exciting to think of how much easier they might have found writing their unit plans with the Report in mind if they had been introduced to the notion of considering student thinking in systematic ways during their pre-service programs.

If reports of research data were given to student teachers they might have a better sense of how children think and would be more likely to use these ideas when writing the unit plans that are commonly assigned in methods classes.

They would be better prepared to enter classrooms with curiosity about their students' thinking. In my future work with student teachers I intend to explore this notion.

Conclusion

Talking with teachers about student thinking in social studies is a strategy for encouraging teachers to spend time considering how they teach social studies. Such talk can support teachers in making connections between the knowledge that they and their students bring to the classroom and the goals and methods of social studies instruction. Their reflections on teaching become reflections for teaching. Such conversations can promote the teaching of powerful social studies lessons in the primary grades.

Epilogue

As of the end of the school year in which this study was undertaken first grade teachers Kate (RG) and Denise (IG) have taught their units, as have second grade teachers Emily (IG); and third grade teachers Rosemary (RG), Susan (RG), Crystal (IG). Crystal had very positive experiences when she taught her unit because prior to implementing her unit plan she had never worked with museum educators. Amanda (RG) and Glenda (RG) intend to teach their units in the Fall because their units are based on the apple-picking season. The other first grade teacher in the study, Brian (RG), has obtained a position as a school principal so it is unlikely that he will teach his unit. When I spoke with first year teacher of second graders, Helene (RG), and veteran third grade teacher Colette (RG) in the Spring of 2001 they were feeling overwhelmed by pressure to prepare their students to take the Michigan Educational Assessment Program tests so they were unsure as to when they would be teaching the social studies units they had planned. Colette was excited however because her two third grade colleagues in the school were interested in using her unit as the starting point for a discussion around planning a local community study for all third graders.

APPENDICES

APPENDIX A

FOOD INTERVIEW PROTOCOL

1. PEOPLE ALL OVER THE WORLD EAT FOOD. IS THAT JUST BECAUSE THEY LIKE TO OR DO THEY NEED FOOD? WHY? WHAT DOES FOOD DO FOR US?

2. WHAT IS FOOD?

3. HOW IS FOOD DIFFERENT FROM THINGS THAT ARE NOT FOOD?

4. SCIENTISTS TALK ABOUT DIFFERENT FOOD GROUPS. HAVE YOU HEARD OF FOOD GROUPS? WHAT ARE SOME OF THE FOOD GROUPS?

5. THINK ABOUT THE FOODS THAT PEOPLE ATE ABOUT 80 YEARS AGO, AROUND 1920. DO WE HAVE FOODS TODAY THAT THEY DIDN'T HAVE IN 1920? WHY DIDN'T THEY HAVE THOSE THINGS BACK THEN?

6. BACK THEN DID THEY EAT SOME FOODS THAT WE DON'T EAT TODAY?

7. ARE THERE SOME COUNTRIES WHERE PEOPLE EAT DIFFERENT FOODS THAN WE EAT? WHAT DO THEY EAT? WHAT DO WE EAT THAT THEY DON'T EAT?

8. WHY DO THEY EAT THAT?

9. THINK ABOUT JAPAN. DO THE JAPANESE PEOPLE EAT DIFFERENT FOODS THAN WE DO? WHAT THINGS DO THE JAPANESE PEOPLE EAT? WHAT DO WE EAT THAT THE JAPANESE PEOPLE DON'T EAT?

10. SOME FOODS THAT WE EAT NOW WERE BROUGHT HERE TO AMERICA BY PEOPLE WHO CAME FROM OTHER COUNTRIES. WHAT ARE SOME OF THESE FOODS THAT WERE BROUGHT HERE FROM OTHER COUNTRIES?

11. AMERICAN PEOPLE EAT A LOT OF BEEF BUT CHINESE PEOPLE EAT A LOT OF CHICKEN. WHY IS THAT?

12. AMERICAN PEOPLE EAT A LOT OF BREAD BUT CHINESE PEOPLE EAT A LOT OF RICE. WHY IS THAT?

13. WE EAT SOME VEGETABLES RAW, BUT WE COOK MEATS AND MANY VEGETABLES BEFORE WE EAT THEM. WHY DO WE COOK THESE FOODS?

14. WE EAT MANY VEGETABLES AND MOST FRUITS RAW. WHY DON'T WE COOK THESE FOODS?

15. WE PUT MANY FOODS IN THE REFRIGERATOR TO KEEP THEM COLD. WHY DO WE DO THAT?

16. BEFORE ELECTRICITY WAS DISCOVERED PEOPLE DIDN'T HAVE REFRIGERATORS. WHERE DID THEY KEEP THEIR FOODS THEN?

17. SOME FOODS KEEP FOR A LONG TIME IN BOTTLES OR CANS WITHOUT SPOILING. WHY IS THAT?

18. CERTAIN FOODS ARE HEALTHFUL AND NUTRITIOUS. WHAT ARE SOME OF THE FOODS THAT ARE ESPECIALLY GOOD FOR YOU?

19. WHY ARE THEY GOOD FOR YOU?

20. OTHER FOODS – OFTEN CALLED JUNK FOODS – ARE NOT VERY HEALTHFUL AND NUTRITIOUS. WHAT ARE SOME OF THESE JUNK FOODS?

21. WHY AREN'T THEY GOOD FOR YOU?

22. LET'S TALK ABOUT HOW WE GET DIFFERENT FOODS. WE'LL START WITH APPLESAUCE. HOW IS APPLESAUCE MADE?

23. HOW IS CHEESE MADE?

24. HOW IS BREAD MADE?

25. HOW IS THE MEAT IN A HAMBURGER MADE? WHERE DOES THE MEAT IN A HAMBURGER COME FROM?

26. HOW IS THE MEAT IN A HAMBURGER MADE? WHAT IS THE PROCESS OF MAKING THE HAMBURGER PATTY?

27. MANY FARMERS GROW CROPS BUT OTHERS RAISE ANIMALS. FOR EXAMPLE SOME FARMERS RAISE CHICKENS. WHY DO THESE FARMERS RAISE CHICKENS?

28. SOME FARMERS RAISE COWS. WHAT DO WE GET FROM COWS?

29. SOME FARMERS RAISE PIGS. WHAT DO WE GET FROM PIGS?

30. SOME FARMERS RAISE SHEEP. WHAT DO WE GET FROM SHEEP?

31. A POUND OF CEREAL COSTS MORE THAN A POUND OF APPLES. WHY IS THAT?

32. IT COSTS MORE TO EAT A MEAL IN A RESTAURANT THAN IT DOES TO HAVE THE SAME MEAL AT HOME. WHY IS THAT?

33. MANY FARMERS GROW CORN. TELL ME ABOUT THE STEPS THAT FARMERS GO THROUGH TO GROW CORN.

34. THERE ARE LOTS OF FARMERS AROUND HERE BUT THERE ARE NOT SO MANY FARMERS IN ALASKA. WHY NOT?

35. HOW IS FARMING TODAY DIFFERENT FROM FARMING 100 YEARS AGO?

36. WHAT ARE SOME INVENTIONS THAT HAVE HELPED FARMERS?

37. LONG AGO MOST PEOPLE HAD TO BE FARMERS IN ORDER TO PRODUCE ENOUGH FOOD TO FEED EVERYONE. BUT TODAY, ONLY A FEW FARMERS PRODUCE ALL THE FOOD WE NEED. WHY IS THAT?

APPENDIX B

Children's Thinking about Food as a Topic in Social Studies

If social studies is about preparation for citizenship, and if, as many research studies have informed us, many adult beliefs about the world are established in childhood, then social studies education in the early grades needs to be considered more thoughtfully.

This project began with a belief that children in the early grades, kindergarten through grade three, would be best served in social studies if they were led to understand that some aspects of human societies can be found in societies across the world because as humans we have common needs. We called such aspects of societal organization *cultural universals*. Food - or the ways people eat, prepare, grow, and distribute it, is a cultural universal, as are shelter, clothing, government, and communication.

The use of cultural universals as topics for study is not new. Since the 1930s teachers and curriculum makers have used cultural universals as topics for introducing primary grade students to social studies concepts and principles. However, when studying cultural universals, much of what is taken for common sense by adults is not so apparent to young children; for instance the notion that climate and geography determine what people might eat. While some individual children have a great deal of prior knowledge upon which to build their understanding of the world, many lack the prior knowledge that make this construction a simple task. Earlier studies of children's thinking about their world (Jahoda, 1984; Driver et. al. 1994) revealed that children do not perceive the world as adults. In addition, because of their limited exposure to the world of adults, they have "misconceptions" that adults might not be able to predict.

In order to teach concepts associated with food effectively to young children and to explore with them the ways in which people interact with each other and with the environment in order to meet their needs it is worthwhile for adults to examine what children already know or think. This study began with a survey of social studies textbooks and other curricular documents that are commonly used in the early grades. They provided the base for a list of ideas about food that are often considered with students at these levels. Based on the list of ideas, a series of questions was constructed to elicit the children's beliefs and understandings about food. The questions were developed and piloted for ease of comprehension.

Ninety-six students in kindergarten through third grade, in a Michigan school district characterized by its blend of working class and middle class families were asked the questions. Twelve boys and twelve girls from each grade level were interviewed. Using open-ended questions the children were interviewed individually and their responses were audio-taped. Teachers identified individuals who were interviewed as high, average and low achieving students in the language arts. Transcriptions were checked for errors of transcription then all of the responses were analyzed. A code for common responses was constructed based on the frequency and complexity of common responses and each student's responses were coded and agreed upon by two researchers. In the following report similarities and differences are noted across the coded responses of individuals and across the groups of students based on grade level and teacher-identified ability level.

In reading this report you will gain a sense of how the students in different grade levels responded to each question. The report includes both their commonly shared beliefs and misconceptions as well as some of the less commonly voiced responses that reveal the range of student thinking. Tables show the frequencies of different responses. The data presented in this report should help you when you come to considering student thinking and prior knowledge in preparing to teach a unit about food.

The Nature of Food

The initial questions of the interview examined the children's understanding of the nature of food and its significance in people's lives. Many children offered more than one explanation for their response. Each explanation was coded e.g. a student who suggested that people ate food to stay alive but also talked about how eating particular food gives us strong bones or healthy teeth was "given credit" for all explanations.

All students were assigned pseudonyms and the letters after their names refer to their grade level and teacher identified ability level in language arts. A girl who is in the upper third of her first grade class is identified in the report by having 1H after her name.

> *"People need food because if they don't eat food they get poor. Food is good for you and it's healthy. You can't just eat junk all of the time. You have to eat food and carrots and apples to make you healthy and grow up.* How is food different from non-food? *Candy has sugar and fruit does too, but carrots don't have sugar inside. Dip has a taste to it and carrots do too. Carrots have juice inside and dip doesn't. Dip has taste and carrots don't" (Connor, KH).*

Common responses were mostly sensible such as that of Connor but only 12 students described food as an energy source. Some commonly expressed ideas were that people eat food to avoid starvation; they eat food "to be healthy" (without any explanation); they eat food to grow (no explanation). Food has taste and non-food items do not (or food does not have a good taste). Many foods have juice or seeds inside of them. Circular reasoning was often evident: you eat stuff that is food and stuff is food because you eat it:

"What does food have that other things don't have? *Vitamins. Chewiness. [Food is] something you can eat with a fork and spoon"* (Ramona, 3L).

Common confusions included the notions that pills or vitamins are food; human food is different from animal food such as grass. They contrasted good food such as vegetables with bad food such as candy or icecream rather than comparing food with nonfood:

"Candy is not food" (Kyle, 2A). Students pointed out that food is solid (including grass) not liquid (water, soup, medicine). Defining food by its material state (solid or liquid) became problematic for some of the students in grade three. Initially they identified various liquids such soup as non-foods but as they continued to talk they tended to revise what they had said and suggest that they were food. Nonfoods were identified on the basis of convention rather than fitness as an energy source (bugs, flowers, clover, horses, sunflower seeds, leather).

The most comprehensive explanation was offered by Tammy (3H) who mentioned not only energy but nutrition. She was the only student to mention the latter. When asked why we need food, she said,

"Because it's part of our survival. We eat the food and it goes down our esophagus into our stomach and our stomach grinds it up and makes it a liquid and then it can go through our blood and it makes energy for our body." When asked if there are things we eat or could eat that are not food, she responded:

"Lots of things. As a baby, you could eat non-toxic things or paper. Sometimes people swallow money. People eat a lot of things that they shouldn't. So then, what does food have that other things don't have? *Nutrition, vitamins, minerals."*

PEOPLE ALL OVER THE WORLD EAT FOOD. IS THAT JUST BECAUSE THEY LIKE TO OR DO THEY NEED FOOD? WHY? WHAT DOES FOOD DO FOR US?	K	1	2	3	Σ
Don't know/ no relevant response	3	1	0	0	4
To avoid hunger	5	0	0	0	5
To avoid starvation, death; to stay alive	10	20	17	19	66
"To grow" – mentions growth in general w/o details or explanation	4	2	3	5	14
"To be healthy" – mentions health in general w/o details or explanation	3	8	8	6	25
Food provides strength, assists body functioning – specifies health benefits or growth e.g. helps bones grow	1	1	1	3	6
Food provides energy or fuel	3	2	3	4	12
Other	0	0	0	1	1

WHAT IS FOOD?	K	1	2	3	Σ
Don't know/ no relevant response	11	6	4	0	21
Lists food items	3	4	4	8	19
Food is something that people eat	8	12	17	16	53
Lists non-essential characteristics of food	1	1	2	4	8
Food is good for you – makes general statement w/o details or explanation	2	1	4	1	8
Food contains things that are good for the body – essential characteristics	0	1	1	0	2
Other	0	1	3	6	10

HOW IS FOOD DIFFERENT FROM THINGS THAT ARE NOT FOOD?	K	1	2	3	Σ
Don't know/ no relevant response	8	6	5	3	22
Lists non-essential characteristics – looks like food, doesn't walk, has seeds etc	3	1	4	8	16
Food is healthy -- w/o details or explanation	1	3	3	1	8
Food has taste	3	0	5	6	14
Food is eaten, non-food items are not eaten	2	10	3	8	23
Food provides health benefits – contains vitamins and minerals	0	2	3	5	10
Lists food or non-food examples – candy, bugs etc	3	4	5	6	18
Other	3	4	4	5	16

<u>Food Groups</u>

Many of the students did not know about or had not heard of food groups and only two students mentioned the food pyramid. 24 students listed four or more conventional food groups. Students could generally list one, two or three conventional food groups however they did not use terms such as carbohydrates and proteins but terms that also referred to particular foods e.g. grains, meat, dairy products. *"Like peanuts and the meat one, and like vegetables, the corn one and the green ones, and like the food chamber"* (Debbie, 1L). These responses could have been simply issues of language or they could reveal a lack of understanding of the fundamental rationale for grouping the foods as they are represented in the food pyramid. The most common confusion was in naming food items as particular food groups.

Some of the more rare and unusual responses included Barbara's (KA) *"Purple and orange and yellow and green"*; and Sam's (3A)

> *"Breakfast, lunch, and dinner."*

Tammy (3H) provided the most detailed explanation:

> *"It all goes in a pyramid. The bottom one is grains – like bread, cereal, rice, and noodles, and you should eat 8 to 11 servings a day, and then the next story up is fruits and vegetables and you should eat... I'm not sure how much you should eat, but it's like*

apples and stuff and you shouldn't eat as much of those as grains, but you should still eat quite a bit. There's milk and protein—dairy and protein, and dairy helps your bones get stronger, and protein gives you energy and calories. Then there's fat at the very top, which is the smallest, and you should kind of narrow those down to the smallest that you eat, and there's like candy and other things that have a lot of sugar and stuff."

SCIENTISTS TALK ABOUT DIFFERENT FOOD GROUPS. HAVE YOU HEARD OF FOOD GROUPS? WHAT ARE SOME OF THE FOOD GROUPS?	K	1	2	3	Σ
Don't know/ no – has not heard of food groups	16	9	1	5	31
Yes – has heard of food groups but does not list any	1	0	1	1	3
Yes – has heard of food groups – cannot list any but lists food items instead	3	0	1	1	5
Lists non-conventional food groups	2	4	7	4	17
Lists one or two conventional food groups	3	8	5	5	21
Lists three conventional food groups	0	4	3	1	8
Lists four or more conventional food groups	0	3	12	9	24
Mentions food pyramid	0	1	0	1	2
Lists conventional food groups and gives a detailed explanation of them	0	0	1	2	3
Other	0	3	1	0	4

Food in its Historical Context

Students were asked to comment on what people eat today compared with what people would have eaten 80 years ago and why there might be differences.

People did not know how to make modern foods or lacked the technological capabilities were the explanations students gave for why we have access to different foods: *"They had to make food.* Don't we have to make food? *No, we have to make some but we don't have to make all"* (Adam, KL). Students suggested that foods were unavailable because they did not exist or the concept of a particular food had not been developed "it hadn't been invented yet." Foods existed but were not locally available. Some students said that there were particular foods available now that were not available before but they could not list them. Foods found in children's literature such as porridge or apples were listed as food available in the 1920s.

The most common confusions were that the majority of foods that children commonly suggested were not available in the 1920's actually were. Students referred to earlier times rather than to the 1920s.

> *"Maybe they didn't have any machines to help them make it like we do now, and the cave men probably weren't smart enough to make machines like the people that are making machines now"* (Sally, 3A).

Students listed foods that were available in the 1920s as no longer available- incorrectly. They spoke of a way of obtaining food that is no longer commonly practiced, such as hunting game or picking berries in the forest

> *"We don't eat their kind of soup, and all their beer stuff, whatever, and that's really all... They'd go find buffaloes and they'd take their hands and they'd have a heart and they'd eat it, and they eat the heart of the buffalo"* (Jason, 2L).

Confusions about time became evident: some children impatiently explained that they could not be expected to know what people had eaten in the past because they had not lived then. Other students talked about what their grandparents eat these days:

> *"My grandparents don't eat the same thing as my mom and dad. They eat chicken. We don't all the time. They do all the time"* (Connor, KH).

Students believe that they have better lives than people who lived in the past.

> *They didn't have a lot of money. They were sort of poor...the people said back then it wasn't a better place, and now it's a more better place to live in and have food* (Kate, 2A).

Other confusions were about the role of shops in providing food: students suggested that people could not get a range of foods because there were no stores -- without considering why there were few stores. At first Ramona (3L) suggested that they didn't have lots of food or drinks because they didn't have stores. They didn't have stores because they didn't have builders and that they didn't have builders because they didn't have any wood, paint, or nails and they didn't have any of the building materials because they didn't have any machines. When reminded that she was talking about 1920 the student corrected herself and said that they had houses in 1920 so they would have had stores do they would have had lots of food, like molasses, and that we still have it today.

THINK ABOUT THE FOODS THAT PEOPLE ATE ABOUT 80 YEARS AGO, AROUND 1920. DO WE HAVE FOODS TODAY THAT THEY DIDN'T HAVE IN 1920? WHY DIDN'T THEY HAVE THOSE THINGS BACK THEN?	K	1	2	3	Σ
Don't know/ no relevant response	7	4	1	2	14
No – there are no foods that we have now that they didn't have back in 1920	6	3	2	3	14
Yes – no explanation or examples given	5	4	3	1	13
Incorrectly lists foods that were available in 1920s	5	12	16	15	48
Correctly lists foods that were not available in 1920s	1	2	6	6	15
Foods existed but were not locally available	0	1	2	4	8
Foods were unavailable because they didn't exist or the concept of the particular food had not been developed – "it hadn't been invented yet"	1	1	4	6	12
People didn't know how to make modern foods or lacked the technological capabilities to make them	0	4	6	6	16
Other	0	6	5	7	18

BACK THEN DID THEY EAT SOME FOODS THAT WE DON'T EAT TODAY?	K	1	2	3	Σ
Don't know/ no relevant response	7	4	3	2	16
No – we have the same foods that people did in 1920	8	2	3	4	17
Yes – there are foods that we do not have today that were available in 1920 – no examples	4	12	10	8	34
Lists foods still eaten today	2	5	3	8	18
Mentions a food not typically eaten today, but still available	1	1	5	2	9
Mentions a way of obtaining food no longer commonly practiced e.g. hunting own game or picking berries in forests – and gives explanation for the change	0	0	4	1	5
Gives explanation in addition to accurate examples	1	1	3	2	7
Other	1	1	2	5	9

THINK ABOUT THE FOODS THAT PEOPLE ATE ABOUT 80 YEARS AGO, AROUND 1920. DO WE HAVE FOODS TODAY THAT THEY DIDN'T HAVE IN 1920? WHY DIDN'T THEY HAVE THOSE THINGS BACK THEN?	K	1	2	3	Σ
Don't know/ no relevant response	7	4	1	2	14
No – there are no foods that we have now that they didn't have back in 1920	6	3	2	3	14
Yes – no explanation or examples given	5	4	3	1	13
Incorrectly lists foods that were available in 1920s	5	12	16	15	48
Correctly lists foods that were not available in 1920s	1	2	6	6	15
Foods existed but were not locally available	0	1	2	4	8
Foods were unavailable because they didn't exist or the concept of the particular food had not been developed – "it hadn't been invented yet"	1	1	4	6	12
People didn't know how to make modern foods or lacked the technological capabilities to make them	0	4	6	6	16
Other	0	6	5	7	18

BACK THEN DID THEY EAT SOME FOODS THAT WE DON'T EAT TODAY?	K	1	2	3	Σ
Don't know/ no relevant response	7	4	3	2	16
No – we have the same foods that people did in 1920	8	2	3	4	17
Yes – there are foods that we do not have today that were available in 1920 – no examples	4	12	10	8	34
Lists foods still eaten today	2	5	3	8	18
Mentions a food not typically eaten today, but still available	1	1	5	2	9
Mentions a way of obtaining food no longer commonly practiced e.g. hunting own game or picking berries in forests – and gives explanation for the change	0	0	4	1	5
Gives explanation in addition to accurate examples	1	1	3	2	7
Other	1	1	2	5	9

Food in its Geographical Context.

Students were asked to comment on what people eat in the United States compared with what people eat in other countries.

Commonly expressed ideas were that people in the US eat: fast foods, common types of meat, and junk food. They eat vegetables, cereal and foods commonly served for dinner such as pizza, spaghetti, or for Thanksgiving such as turkey, corn etc. In contrast, people in other countries eat specific foods conventionally associated with and eaten in their countries such as pasta in Italy or rice in China and generic ethnic foods such as Chinese food or Italian food.

Students often listed country names but did not say what people ate there, identifying US states and continents instead of countries. People in other countries eat exotic foods such as cheetahs, tigers, spiders, etc. "*Like they eat tigers. They eat tiger hamburgers*" (Barbara, KA).

Other students focused on how people ate, mainly comparing forks with chopsticks. Some of the children such as Debbie (1L) started by answering the question but then explained the process of food gathering:

> "*In China they eat China food and in Africa, they eat like meat like cheetahs...Cheetahs are hard to catch because they're very fast so they like have to hide in places then like one of them comes up and then they start running away and then they jump up and hit one of them, and the mate cheetah comes.*"

Tammy (3H) gave a detailed explanation:

> *"All over the world they eat different foods...Like in China, they eat rice and it's all clumped up, so they can eat it with their chopsticks, and in Africa, they don't eat meat and when they find tropical food and stuff, they eat it, and in France, they eat a lot of different things, and like in Mexico, they eat things that taste awfully good. Normally things that have meat in them. They eat different stuff all over the world."*

A number of the children made personal connections with the question. Anecdotes sometimes lead the students to draw misleading conclusions:

> *"Mexico. My dad and brother went to Mexico and they had to eat like killed animals and stuff like that, so they brought some food along that we eat here in Michigan... They eat fish, sea creatures, stuff like that. They eat a lot of crabs in Spanish...They don't eat carrots or grapes or oranges."* (Kate, 2A).

Jessica (2L) gave an atypically sophisticated explanation for the similarities and differences in diet across countries:

> *"Yes, different kinds of breads and some things. Different kind of bread, different kind of rice. There's different types, but most people don't eat different things than we do – just different types."*

ARE THERE SOME COUNTRIES WHERE PEOPLE EAT DIFFERENT FOODS THAN WE EAT? WHAT DO THEY EAT? WHAT DO WE EAT THAT THEY DON'T EAT?	K	1	2	3	Σ
Don't know/ no relevant response	5	5	1	2	12
No	2	1	3	0	6
Lists foreign countries but gives no examples or explanations	8	6	4	2	20
We eat fast foods, common types of meat, and junk foods	7	11	13	19	50
We eat fruit	1	4	2	1	8
We eat vegetables, cereal, and other typical American foods	5	4	5	7	21
They eat exotic or questionable foods – cheetahs, tigers, spiders etc	1	3	0	3	7
They eat generic ethnic foods – Chinese food, Italian food	0	3	0	4	7
They eat – lists specific foods that are conventionally associated with and eaten in other countries	3	5	5	8	21
Other – includes US states, food sources, they eat different types of same foods	1	3	8	9	21

Food in Japan and in the United States

The students were asked to comment on what people eat in the United States compared with what people eat in Japan.

Commonly expressed ideas included the notion that people in the US and Japan eat the same things. Americans eat candy and other processed foods and Japanese people do not. Americans eat fruits and vegetables but Japanese people do not. Americans eat family meal foods such as pizza and spaghetti. People in Japan eat traditional Japanese food such as rice and fish. A number of students related Japan to China: *"I don't know. It's sort of like China"* (Gabrielle, 1H);

> *"They have different stuff like China has"* (Jane, 2L).

Students often stated that Japanese people do not eat fruits and vegetables. They said that Japanese people do not eat candy and other processed foods. A number of students compared eating utensils rather than what was typically eaten.

Rory (3L) suggested that economic connections do not always influence cultural differences: When asked if Americans eat things that Japanese people don't eat he said *"They are one of our biggest trading partners, but – probably more sugars and fats."*

THINK ABOUT JAPAN. DO THE JAPANESE PEOPLE EAT DIFFERENT FOODS THAN WE DO? WHAT THINGS DO THE JAPANESE PEOPLE EAT? WHAT DO WE EAT THAT THE JAPANESE PEOPLE DON'T EAT?	K	1	2	3	Σ
Don't know/ no relevant response	3	1	1	2	7
No – Japanese and American people eat the same thing	3	2	1	0	6
Yes – no explanation	5	7	2	1	15
Americans eat candy and other processed junk foods or Japanese people do not	2	2	6	5	15
Americans eat fruits and vegetables or Japanese people do not	6	10	10	8	34
Americans eat family meal food	6	8	7	12	33
Lists conventional Japanese foods	2	2	3	7	14
Contrasts eating utensils	0	1	4	0	5
Other	3	5	4	6	18

The Historical Origins of Food

Students were asked to comment on the origins of what people eat in the United States.

Many students listed countries or continents rather than the foods that were brought from them. They listed specific crops originating from other countries. They spoke of specific dishes originating from other countries such as crab rangoon and tacos. They described which group of people brought which foods e.g. Chinese people brought Chinese food.

Generic or common food items e.g. fruit, or meat were listed without reference to their country of origin. Specific crops or foods of the Americas e.g. corn, tomatoes, etc. were commonly referred to. Students suggested that the Pilgrims brought turkeys and the foods we associate with Thanksgiving, with them: "*Turkey.* Where did it come from? *The pilgrims. I forgot what country they were from"* (Barbara, 1L).

Rory (3L) articulated his understanding of the relationship between culture and dietary patterns in the US:

> "*All foods started out from England – most of them. Italy, Japan, Mexico, France, -- China... Before America was discovered, things came from France and they brought a lot of English food over here, or British food. The British came over here and made it into America."*

SOME FOODS THAT WE EAT NOW WERE BROUGHT HERE TO AMERICA BY PEOPLE WHO CAME FROM OTHER COUNTRIES. WHAT ARE SOME OF THESE FOODS THAT WERE BROUGHT HERE FROM OTHER COUNTRIES?	K	1	2	3	Σ
Don't know/ no relevant response	13	8	4	5	30
List countries or continents	4	3	2	5	14
Lists generic or common food items e.g. fruit, meat, milk etc.	7	7	15	6	35
Lists specific crops or foods of the Americas e.g. corn, tomatoes, turkey	2	3	6	5	16
Lists specific crops originating from other countries	0	4	7	5	16
Lists specific dishes originating from other countries e.g. crab rangoon, tacos etc.	1	3	6	6	16
Describes which group of people brought which foods e.g. Chinese people brought Chinese food, Pilgrims brought turkeys etc.	1	3	0	1	5

Beef and Chicken Consumption in their Geographical and Cultural Contexts: US & China
Students were asked to speculate as to why people eat in the United States tend to eat more beef while Chinese people tend to eat more chicken.

Chinese people have more access to chicken while American people have more access to beef was one of the more commonly expressed ideas. American people raise more cattle and Chinese people raise more chickens. The US has more open spaces and more grass for cattle to eat than China has. Tracy (3H) explains:

> *"Because we can find more beef in America from cows than they can, and they can find more chicken. And they can find more chicken than we can cows.* Why might that be? *They eat seeds that are lying around, but since there aren't many fresh fields in China, the cows wouldn't be able to live because they need lots of fresh grass to eat. I think they eat 18 hours a day or something like that...In the US you can always find fresh grass except for in the winter, cause in the fall it's underneath all the leaves, but in China it's usually always hot weather and so it's harder for the grass to stay fresh."*

Common confusions included the notion that Chinese and American people eat different foods because they are different people:

> *"That's why they're called Chinese people and why they eat a lot of chicken is because they are Chinese people. You know, my sister has a Chinese cap – a beanie cap"* (Connor, KH).

Students suggested that personal preference is the major determinant of what people eat: people eat what they eat because they like it. Chinese people do not know about beef. They do not know where it comes from, or what it is, or how to cook it.

Only one student suggested that economic factors might influence choice: Chinese people eat less beef because they have less money than Americans. Amongst a host of other ideas Lily (2H) suggested that religion might be important and she related this notion to her own life:

> *"It could have something to do with their religion or maybe they just don't care for it as much as we do...Maybe they can't cook it...They don't have some things that we have...Like maybe they don't have stoves like we do. Microwaves...*You said their religion might make a difference. Would you like to say a little bit more about that? *Maybe they just – like I'm from two churches and it's kind of hard and if they come here and where they used to live, it's like you don't eat it that much there, and then you feel like you're all left out, but if you stay in your same country and stay like that, then I think you could probably do it. I think it might be because their religion --- maybe they just can't – there's something they do, like how they were taught. I don't know."*

AMERICAN PEOPLE EAT A LOT OF BEEF BUT CHINESE PEOPLE EAT A LOT OF CHICKEN. WHY IS THAT?	K	1	2	3	Σ
Don't know/ no relevant response	12	6	4	6	28
Chinese people eat different kinds of foods than Americans do; they are different	5	5	2	3	15
Chinese people like chicken; Americans like beef	5	10	10	8	33
Chinese people have more access to chicken and Americans have more access to beef	4	3	8	3	18
Chinese people do not know about beef (they do not know where it comes from, or what it is, or they do not know how to cook it)	0	2	2	2	6
Chinese people raise more chickens and Americans raise more cattle/ cows.	0	2	3	6	11
The US has more grass for cattle to eat and more open space than China has.	0	0	0	3	3
Other	0	1	6	5	12

Rice and Bread in their Geographical and Cultural Contexts.

Students were asked to comment on what people eat in the United States compared with what people eat in China.

Many students suggested that Chinese people have more rice or more access to rice while American people have more bread or more access to bread. Some suggested that American people grow more wheat and Chinese people grow more rice. They explained that it is easier to grow wheat in the US and rice in China:

> *"Cause there's more rice fields than there are in America and China and there's more wheat in America and other grains in America besides rice grains... I think it's because of the amount of rain and farmers, cause we have something in America called the Great Plains where half of our grains grow, and in China some farmers just grow little rice fields and things like that and they sell them. The Great Plains I don't think ever stops growing until the cold weather hits them for awhile... I think another reason is because most Americans like bread better than they do rice. I think that. I know I do"* (Tracy, 3H).

Other students suggested that Chinese people do not know about bread: they do not know how to make bread or they lack the materials to make bread: *"They never had bread and they like rice...Because they've never come here and they've never tried it"* (Gerard, 1H).

Donna, (2L) points out that milk is one of the ingredients of bread:

> *"Cause they don't have as much bread, and people do...Because they don't got a cow or they probably just got rice or something. They probably like rice...Probably because they don't got dough or a cow cause milk probably helps it, bread get made. And they probably don't got ovens"*

Often students pointed out that Chinese and American people eat different foods because they are different people or that people eat what they eat because they like it. Ignoring possible differences in the production of rice or bread, some students focused on the use of different kinds of utensils: rice is easier to eat with chopsticks, and bread is hard to eat with chopsticks. Chinese people lack knives to spread things on bread:

> *"Because they don't have a knife to spread the peanut butter on anything because they have those chop sticks so they don't really eat a lot of bread. I guess we don't eat a lot of rice. I don't know why. And they don't eat a lot of bread because they don't have knives to spread something on it – like butter or something"* (Leanne, 2H).

Kyle (2A) suggested that people might use chopsticks for health reasons:

> *"Maybe they don't like to use their hands and stuff...Maybe they don't want to put their hands on stuff because they don't want anyone to get sick...Like maybe they don't want to get sick because they could get germs on the bread...It's easier to use bread with your hands than rice."*

People might eat more rice because they don't have access to shops from which bread can be bought is an explanation given by Cindy (KH):

> *"Cause they like it, and maybe that's all they have... cause they don't have a grocery store there...* Where does the grocery store get things from? *...People give it to them or people make it and some farmers make it and then give it to the store."*

Very few students mentioned cultural reasons for choices. However, Tammy (3H) provided an explanation that tied together culture, geography and food consumption:

> *"Because we're different cultures... It means like we're different than them and we don't have the some things, like people that live down in the Amazon will eat Piranha meat cause they're used to that and that's their culture, eating stuff from the Amazon. And like Chinese – their culture is eating stuff that they can find over in China and raise well in China. Our culture is raising what we can raise.* What determines what we can raise?

How our weather is. Like if it's sunny, you can raise tropical things, and it has to be sunny. It pretty much all depends on the weather what you can raise."

AMERICAN PEOPLE EAT A LOT OF BREAD BUT CHINESE PEOPLE EAT A LOT OF RICE. WHY IS THAT?	K	1	2	3	Σ
Don't know/ no relevant response	11	7	3	4	25
China and the United States are different countries and so people eat different kinds of foods	5	5	3	4	17
Chinese people like rice; Americans like bread	7	8	8	9	32
Differences are due to unspecified health issues	1	1	1	0	3
Chinese people have greater access to rice. Americans have greater access to bread.	3	6	4	5	18
Differences are due to the use of different kinds of utensils in the two countries e.g. rice is easier to eat with chopsticks, and bread is hard to eat with chopsticks; Chinese people lack knives to spread things on bread	0	1	3	0	4
Americans have more wheat; Chinese have more rice	0	0	2	6	8
It is easier to grow wheat in the US; it is easier to grow rice in China	0	0	2	6	8
Chinese people do not know about bread: they don't know how to make bread, or they lack the materials (materials unspecified) to make bread	0	1	1	3	5
Other (references to culture etc.)	2	2	2	5	11

Food Preparation: Cooking

Students were asked to consider why some foods are cooked and some are eaten raw.

Commonly expressed ideas included the idea that some meats and vegetables must be cooked – without explanation. Cooking makes food easier to eat – soft, not hard and easier to chew. You cook food so that you don't hurt or break your teeth:

"Because some food is cold and some food is warm, and the warm food we could just eat without cooking it and the cold food when we bite on it, it would probably pull out teeth out and you only could get one piece of it…. You have to cook it because it's in the refrigerator…Because the refrigerator's cold and cold stuff is hard and that means the cold stuff is going to have to be cooked because if you don't cook it, then when you bite on it, you'll only get one piece in your mouth" (Gabrielle, 1H).

Students pointed out that cooking makes food taste better. People cook food to make it warm or hot instead of cold. People cook food for (unexplained) health reasons. People cook food so that a person eating the foods will not get sick or die. People cook food to kill germs or bacteria: *"Cause some stuff has germs that get burned when you cook it"* (Denise, 1L).

"Because there could be germs on them and it'll kill them… It heats up and the germs die really fast when they're cooked" suggested Gerard, (1H).

Other students said that people eat food raw because it tastes good already: cooking will make some foods taste bad or will make them unpleasant.

Some of the confusions students had included the notion that people eat some foods raw because they don't want to cook them. Similarly, some foods are not supposed to be cooked. Students suggested that eating food that has been cooked that should not have been cooked can make people ill.

Some of the more uncommon responses included ideas about appearance and texture: *"It [cooking] makes them look better, like meat"* (Amy, KL).

"Cause if you eat it [chicken or hamburger] from the package, it won't come out like a hamburger – it just comes out like strings" (Debbie, 1L).

A few students like Kyle commented on blood, suggesting that cooking got rid of blood which was harmful:

> *"Because meat's got blood in it and you don't want to eat that... Because it might be bad for you coming from other animals to people...* Vegetables don't have blood but we still cook them. *Because they come with meals that maybe you have to cook... It [cooking] sucks up all the water and – well, for blood it sort of evaporates the blood in water"* (Kyle, 2A).

Daniel (1L) suggested that if we didn't need to cook food we would not have ovens etc *"Because it's cooked and if you just ate it without cooking it, there'd be no such things as stoves and electric."*

Other students submitted that physical attributes of the food determined whether it should be cooked or not:

> *"Some vegetables you can, but some people don't want their lettuce cooked. Some people like raw lettuce. Some people don't want their lettuce cooked, and some do, and the reason we don't cook food – my mom cooks strawberries and we can cook apples but not bananas. If you have to peel them, you can't really cook them that way"* (Kim, 2A).

Sam (3A) also talked about the physical attributes of food: the skin of plants, when referring to why some fruits and vegetables are eaten raw:

> *"They're in all kinds of countries, and lots of animals like to eat them [bananas], like monkeys... Because they're already so hot there that they're already getting their heat that they need to keep the germs away, and there's skin that protects, just like our skin that protects us from getting hurt."*

WE EAT SOME VEGETABLES RAW, BUT WE COOK MEATS AND MANY VEGETABLES BEFORE WE EAT THEM. WHY DO WE COOK THESE FOODS?	K	1	2	3	Σ
Don't know/ no relevant response	5	0	1	0	6
They need/ have to be cooked	0	2	2	0	4
So that they will be easier to eat; soft – not hard	3	7	7	6	23
So that you don't hurt or break your teeth	1	2	4	1	8
So that they will taste better	10	12	13	19	54
So that they will not be cold – so that they will be warm or hot	6	11	13	9	39
For "health" – no further explanation	3	3	0	2	8
So that a person eating the foods will not get sick or die	3	6	4	9	22
To kill germs or bacteria	0	2	1	4	7
Other (e.g. looks better)	1	2	3	4	8

WE EAT MANY VEGETABLES AND MOST FRUITS RAW. WHY DON'T WE COOK THESE FOODS?	K	1	2	3	Σ
Don't know/ no relevant response	6	4	2	0	12
People don't want to cook them – no further explanation	0	2	1	0	3
People don't like them cooked or like to eat them raw	2	2	3	2	9
They are not supposed to be cooked	2	8	5	6	21
They don't need to/ have to be cooked	4	4	8	6	22
They taste good already or cooking will make them taste bad.	2	4	9	10	25
Their current state is okay; they're already good	6	2	5	10	23
The changed state will not be good – cooking will change them into something unpleasant e.g. "gross and yucky," too hot	4	6	6	6	22
Eating these foods cooked can make people sick	1	1	1	2	5
Other	3	2	5	9	19

Food Storage: Refrigeration

This question examined the children's understanding of refrigeration.

The most commonly expressed idea was that we put some foods in the refrigerator because they need to stay cold, or should not be warm – these explanations were given without any further elucidation. Students also suggested that foods were kept in the refrigerator because we want to keep them from melting and to keep them tasting good:

> *"We want to keep them fresh. By putting them in the refrigerator we stop them from getting stale or rotten and we stop them from making people sick. So they won't get like rotten or soft. My mom gives the bunny carrots and they just sit out in the food dish and they get all bendy"* (Travis, 3H).

Although they understood the relationship between cold temperatures and food deterioration some students seemed confused about bugs as insects and bugs as bacteria:

> *"So they don't get yucky and bugs don't get on them... cause it keeps them cold and we need it cold so bugs won't get in it and the bugs make it yucky because they eat it. And if you don't put it in the refrigerator and if any bugs go out in the refrigerator they wouldn't eat all of it because they hate cold"* (Emilio, 1A).

A few students described mold growing on foodstuffs however very few students articulated why storing food in the refrigerator preserves it. Tracy (3H) was the only student who did so:

> *"Well, like milk, if you don't keep milk cold and fresh, then it'll spoil and it won't taste very good... Drinking spoiled milk could sometimes make you sick because there's these things called decomposers that if they get into the milk, they can make you sick – like for example, bacteria. That's a kind of decomposer, and so when you get bacteria, you sometimes get really sick."*

WE PUT MANY FOODS IN THE REFRIGERATOR TO KEEP THEM COLD. WHY DO WE DO THAT?	K	1	2	3	Σ
Don't know/ no relevant response	5	2	2	0	9
Some foods need to stay cold or should not be warm	11	12	12	10	45
To save food for later e.g. keep leftovers	2	4	3	3	12
To keep foods tasting good	4	2	6	5	17
To keep foods from melting	4	4	4	6	18
To keep foods fresh	3	0	3	0	6
To keep foods from getting stale or rotten/ decaying/ "yucky"	3	12	16	17	8
To keep foods from making people sick	0	3	6	8	17
Other	1	4	4	7	16

Food Storage Before Refrigeration

Many students suggested that people kept food in cold places before refrigeration. People kept food in cold water e.g. rivers or buckets of water. They kept food in ice. Many of the third graders talked about ice boxes. They kept food in cupboards or pantries. They kept food outside:

> *"I think if they had cold water some places, and they had holders to keep it in, they could have ice sitting outside like with a piece of paper taped on to it, and when it gets cold enough, set it outside. You could leave it outside until you want to cook it"* Dominic (1L).

Common confusions included unelaborated statements that people kept food outside. They kept food in the snow. They just bought food when they needed it.

Two students mentioned keeping food underground or out of reach of animals however these ideas were not commonly articulated. Adam (KL) said *"Underground I guess."* Tammy (3H) elaborated on her first response: *"In ice boxes. They had like these big chunks of ice that took a week to melt.* What about before ice boxes? *They kept them underground where it was still cold."*

Rod's (3L) response illustrated the difficulties students had in determining where people got the ice from:

> *"In an icebox... They would probably wrap it up in a sheet and put it in an icebox.* What about if they didn't have an icebox – before there were ice-boxes*? Maybe they waited in the winter and put them down in the ice – and then they took them out in the summer... They probably had a shipment from either the South Pole or the North Pole or somewhere where they have ice, where it's really cold."*

BEFORE ELECTRICITY WAS DISCOVERED PEOPLE DIDN'T HAVE REFRIGERATORS. WHERE DID THEY KEEP THEIR FOODS THEN?	K	1	2	3	Σ
Don't know/ no relevant response	7	10	4	3	24
They just bought food to eat when they needed it.	0	0	1	0	1
They kept food in storage places – no further explanation.	0	2	0	1	3
They kept food in cold places – no explanation.	1	2	2	4	9
They kept it in cupboards or a pantry	8	3	5	3	19
They kept it in cold water e.g. rivers, buckets of water	4	2	3	1	10
They kept it in ice, ice boxes	1	3	7	16	27
They kept it outside	3	4	6	6	19
They kept food in the snow	3	3	1	3	10
Other	0	1	8	4	13

Food Storage: Canning and Bottling

This question examined the children's understanding of food storage, in terms of canning and bottling.

Students suggested that foods stay fresh in bottles and cans. They pointed out that bottles and cans are closed or that bottles and cans are closed so no air can enter:

> *"Cause they might have a lid on them...If they're left out, they get stale, but if they have a lid on them, it doesn't get stale"* (Gary, 1H). Some of them said that bottles and cans are closed so no bacteria can get in: *"Because the bottles and cans, before you open them, their air tight, and so if you don't drink the things out of the cans or the bottles or you don't eat, it stays really fresh because – like peanut butter; it's in a jar, and if you don't put on the lid, it'll turn stale, but if you do put on the lid, it's air tight and nothing can get in it unless you open up the lid... The problem with having bacteria and things like that getting on to it -- well, I already told you, it would make people really sick, and when you get sick – bad news"* (Tracy, 3H).

Keeping with the idea of cold preserving things, students suggested that keeping food in cans or bottles preserves it because they are cold:

> *"Because if they didn't have any cans or jars they would just have to keep them fresh in water... Because they're cold... Sometimes if you buy them from the store and they're in one of those refrigerators, they could stay cold... They won't stay fresh if they're not cold"* (Beth, KA).

Evan struggled with reasoning through the phenomenon:

> *"There's a reason but I can't think of any. I don't know – Probably because cans are a lot stronger... Cause they have them somewhere to have coldness. But they're not always cold, are they? Probably cause they get really cold on the bottom, like I said earlier* Evan, (1A).

Being sealed was confused with the characteristic of cold. Kieran's (2A) response illustrated this:

> *"Because cans have tops on them and bottles have tops on them, and other foods don't have tops on them, so the foods that are in bottles and cans can stay good because they're in a can with a top on it.* What does it mean by having a top on it? *It would stay cold. I you don't have the top on it, then it would get yucky."*

Another common confusion was how students related liquid to preservation: food in cans stays good because there is always liquid in them. *"Cause maybe because they have... you know, pears have pear juice in them when you open them? Because of that maybe.* If we left pears on the bench, they'd spoil – if we left them in a bowl, and yet we can have them in a can or a bottle and they don't spoil. Why is that? *Because the air can't get to them...when the air gets to them, they dry out"* (Lisa, 2H). Troy (3H) also talked about the role of the liquid in preserving food in cans:

> *"Because they might be in water in there, and it might be cold water that could keep them good... It might be an easier way instead of putting them in the fridge to put them in the shelf or in the pantry."*

SOME FOODS KEEP FOR A LONG TIME IN BOTTLES OR CANS WITHOUT SPOILING. WHY IS THAT?	K	1	2	3	Σ
Don't know/ no relevant response	20	16	7	2	45
Foods stay fresh in bottles and cans– no further explanation	0	0	6	2	8
Cans and bottles are cold	2	4	4	6	16
There is liquid in the cans or bottles	2	1	0	2	5
Bottles and cans are closed – no explanation	1	2	3	8	14
Bottles and cans are closed so no air can get in	0	1	6	8	15
Bottles and cans are closed so no bacteria can get in	0	0	2	3	5
Other	0	1	4	6	11

The Nutritional Value of Food

Students were asked to consider why some foods are considered good for you while others are not. They listed foods then explained why they were nutritious.

Students frequently listed specific foods that are nutritious; specific fruits or vegetables:

> *"Broccoli, salad, fruits and vegetables, bananas, milk, orange juice, grapes, strawberries, blueberries...[are good for you] because it has stuff in it and it comes from flowers and it tastes good"* (Kieran, 2A).

Students listed categories of foods that are nutritious. They attributed the nutritious value of these foods to their ability to keep people healthy or from getting sick:

> *"Fruit, vegetables, green beans, grapes, carrots, meat, milk, apples, bananas...[are good for you] because they help your body. Some can help your eyes and skin, and some can help owies. One never healed on me"* Denise (KL).

Students said that nutritional foods could make people strong; they helped people grow; they helped the body or specific parts of the body, e.g. heart, teeth or bones. Nutritional foods give people energy; they contain healthy "stuff" or they contain vitamins, minerals, proteins, or fiber:

> *"Lots of vegetables and meat and lots of bread and fish... [are good for you] cause they're in the food groups and they have the ABC vitamins... They help your body"* (1A). Lucy (2H) gave a somewhat more sophisticated answer: *"Beans and rice have lots and lots of minerals. If you eat a lot of carrots, it's not good for you because your skin can turn orange... Also there is cucumbers, lettuce, lots of vegetables, and fruits, of course. There are pumpkins, gourds, -- turkey is very good for you, and bread is very good for you, also, and I would recommend those as being very good. If there's like noodles – those are wheat like bread, so those are also good for you... Because they have lots of vitamins and minerals."*

Students often listed specific foods that are not nutritious. They suggested that nutritious foods t don't contain fats or sugars. Like some of his peers, Eric (1A) explained that nutrition was something separate that is found inside food:

"Chicken noodle soup, beans, rice, bread, fish...[are good for you] cause they have nutrition in them... Nutrition is stuff that helps you grow. It's like a kind of vitamin."

Carrie (KH) was unusual in that she commented on the nutritional value of liquids: *"Water cleans your body out and milk helps you get your bones straight."*

Sonia (3A) invoked God in her explanation: *"Apples, bananas, pears [are good for you] Because they are healthy...Because God made them and he makes healthy food."*

CERTAIN FOODS ARE HEALTHFUL AND NUTRITIOUS. WHAT ARE SOME OF THE FOODS THAT ARE ESPECIALLY GOOD FOR YOU?	K	1	2	3	Σ
Don't know/ no relevant response	1	0	0	0	1
Lists specific foods that are nutritious	12	12	8	7	39
Lists specific fruits or vegetables	17	18	18	14	67
Lists categories of food or food groups that are nutritious	4	12	13	12	41
Other	1	0	0	0	1

WHY ARE THEY GOOD FOR YOU?	K	1	2	3	Σ
Don't know/ no relevant response	8	2	2	0	12
They keep you healthy or they keep you from getting sick	3	6	6	6	21
They make you strong	0	2	3	1	6
They help you grow.	4	3	2	2	11
They help the body or specific parts of the body: heart, teeth, bones.	2	2	3	5	12
They give you energy.	0	1	3	4	8
They don't have fats or sugars	1	1	2	4	8
They contain healthy "stuff"	5	4	6	4	19
They contain vitamins, minerals, proteins, fiber etc.	1	2	6	8	17
Other	5	2	2	2	11

The Nutritional Value of Junk Food

Junk food was commonly described as including: candy, chocolate, and popcorn; pop or soda; ice cream and milk shakes; fried foods such as hamburgers and French fries; and baked goods such as cakes, cookies, brownies and donuts; and sugar. Junk foods were generally considered bad for you because they have a lot of sugar or fat:

"What you get on Halloween – candy. I've a lot of it at home. In some ways, ice cream can be healthful and in some ways you can call ice cream a junk food. Why is that? *Because like there's a lot of sugar in junk food and ice cream has lots of sugar in it, but its made out of milk and cream. But it's homogenized milk. With milk... you have ice cream with milk, but you can also use stuff that's not so good and put it into ice cream like sugar and gum. But you can put the good stuff into ice cream too, like strawberries. And you could put chocolate in it, and sugar. But it doesn't taste as good if you don't put stuff in it. Just a little bit of sugar makes it taste just a little bit better. So I think that it could be a junk food AND it could be pretty healthy...Sugar—if you don't have that much sugar in it—cause you need some sugar in your body, but a lot of sugar can make you--you could have a lot of energy"* (Lily,2H).

Students also pointed out that junk foods don't keep you healthy, they are bad for your teeth, and they can give you cavities:

"Like alcohol isn't good for you, some candy isn't good for your teeth... Some candy if you eat a lot, you get rotten teeth. If you eat a little, you don't get bad teeth. Of course, you brush your teeth so you can have good teeth to chew with" (Adam, KL). They can make you hyperactive: *"Chocolate chip cookies, candy bars, chocolate chips, that gum that's not sugarless. Why are these foods not so good for you? You could get hyper and you could faint"*(Leo, 2H).

Students also suggested that they make you fat; they make you sick or vomit.

Students confused junk food with garbage, rotten food, or things associated with "junk":

> *"Rotten stuff.* Around Halloween they talk about junk foods. What do they mean? *It means you gotta check them, and if you don't and you grab them and you get it and you eat it, it'll make you sick or be dead"* (Brenda, KA). Students suggested that junk foods are not good for you because they don't have anything in them such as vitamins and nutrients: *"Milk shakes, chocolate milk shakes, donuts, candy, and sugar, and there is ice cream. Ice cream's in between because it has milk and sugar, and slushies... They don't have the ABC vitamins"* (Evan, 1A).

OTHER FOODS – OFTEN CALLED JUNK FOODS – ARE NOT VERY HEALTHFUL AND NUTRITIOUS. WHAT ARE SOME OF THESE JUNK FOODS?	K	1	2	3	Σ
Candy, chocolate, pop corn	11	22	23	20	75
Pop / soda	0	3	3	3	9
Ice cream, milk shakes	7	5	5	4	21
Fried foods e.g. fries, burgers	0	3	4	12	19
Baked goods e.g. cakes, cookies, brownies, donuts	7	3	4	9	23
Sugar	1	3	0	1	5
Garbage, rotten food, or things associated with "junk"	4	2	0	0	6
Other	2	2	2	2	8

WHY AREN'T THEY GOOD FOR YOU?	K	1	2	3	Σ
Don't know/ no relevant response	4	5	1	0	10
They don't keep you healthy	3	3	2	7	15
They are bad for your teeth, give you cavities etc	5	5	6	5	21
They have a lot of sugar	6	4	12	14	36
They have a lot of fat	0	1	3	10	14
They make you fat.	2	0	0	0	2
They make you hyperactive	1	0	1	5	7
They make you sick/ vomit	2	2	5	3	12
They don't have healthy "stuff" in them, e.g. they lack vitamins, nutrients etc.	2	5	7	6	20
Other	2	3	3	4	12

<u>From the Land to the Hand: Cheese</u>

This question examined the children's understanding of the process of making cheese.

Commonly expressed ideas included that it comes from cows. Cheese is made from milk and that you must leave the milk sitting: *"You put milk—you leave milk sitting there for a long, long, long, long, long time—more than one day...It's cheese"* (Ben, KA).

Some students suggested that you add something to the milk such as smell. Kyle (2A) suggested that cheese is made by adding coloring to milk: *"Milk and maybe food coloring to make it yellow and then in the freezer on a flat piece or something."* Kristin (2A) had a similar response:

> *"I think from milk, and then this thing that flattens it down and there's an orange color thing and then it clears it up and gives cheese a smell."*

Like Kristin other students suggested that it is flattened or shaped in some way. Other students said cheese is wrapped or packaged.

Common confusions included the notion that cheese starts as cheese. Other responses were that a machine makes it. The students who said this gave few details about the actual process of

making cheese. Kim (2A) said *"Cheese is made sometimes—sometimes this machine makes it like in little squares and it goes into theses little boxes.* What do they make cheese from? *Wheat."*

Gabrielle (1H) had an unusually sophisticated explanation:

> *"Well, you need milk and – well first, you have to separate the curds and whey and then you take the whey and you squeeze it into a big ball and then that's how you get cheese."*

Lily (2H) could describe the process in a similar fashion albeit without the precise vocabulary:

> *"You have milk and you stir milk for a long time and you add some things into it, and you like stir it for a long time and it will get sort of buttery. Sometimes it can get all buttery, but if you have those special things in it, then you can make it into cheese, and you press it out and it looks sort of like—I saw this Reading Rainbow on television—and then I think it gets pushed down so all the extra stuff gets out and then you have these big, thick pieces of cheese, and then you can like cut them or put them in the shape that you want.*

Travis (3H) did not know how they made cheese so instead shared information about its nutritional value:

> *"It's dairy—milk and stuff... Usually it has fat in it – fat, milk, sometimes it has a lot of calories. Some has about one gram of protein. I don't really know how they make it.*

HOW IS CHEESE MADE?	K	1	2	3	Σ
Don't know/ no relevant response	13	10	7	6	36
It starts as cheese – you do something to it	2	0	0	0	2
It is wrapped or packaged	1	0	1	0	2
A machine makes it (no details)	0	0	1	3	4
It comes from cows	2	0	5	3	10
It is made from milk	5	10	15	16	46
Leave the milk sitting	1	0	1	1	3
You add something to the milk e.g. cheese smell	0	1	3	2	6
It is flattened or shaped in some way	0	2	5	2	9
Other	5	5	5	4	19

From the Land to the Hand: Apple Sauce

This question examined the children's understanding of the process of making apple sauce.

The students said that you would need apples that you then crushed or stirred to make apple sauce: *"Out of apples...In a grinder... You strip them, and then there's a handle and you push it around in a circle"* (Brendan, KA).

Fewer students said that you need to prepare the apples such as by removing the peel or the core and seeds. Still fewer students talked about the cooking process.

The most common confusion was that students seemed not to understand that you need to cook apples in order to make applesauce:

> *"Out of apples...Store them and they'll turn into applesauce"* (Cameron, KH). *"You have to get a machine and get apples and the machine would probably squash the apple and all the sauce will come out"* (Kieran, 2A).

Many students seemed to be talking about apple cider but when asked they said that they were talking about applesauce:

> *"You take an apple and you would wash it and wash your hands and like peel it. And you would like cut them up and smash them and then have—like we made applesauce in our classroom. And there's like this machine that you would put the applesauce once you stir it and smash it and you would put it in there and you would stir it up and you would put it*

through this machine and pour it in there and would roll it. And you would roll like this handle and it came out like applesauce and it was really juicy. And the other stuff came out—like the bad stuff came out of the other side that had the junk in it. Was this applesauce or apple cider? *Applesauce"* (Tina, 3H).

Kristin (2A) suggested that apple flavorings might be added: *"An apple. I think you peel it and then take all that skin off and crunch it together, I think, and they like put the taste of apple in it, and I think that's how you make applesauce."*

LET'S TALK ABOUT HOW WE GET DIFFERENT FOODS. WE'LL START WITH APPLESAUCE. HOW IS APPLESAUCE MADE?	K	1	2	3	Σ
Don't know/ no relevant response	6	2	1	0	9
Grow, get, use apples	12	15	18	15	60
Crush, mush, stir apples	10	16	20	20	66
Cut up apples	3	7	2	5	17
Remove peel, core, seeds	2	4	7	7	20
Cook apples	2	6	4	8	20
Add other ingredients e.g. sugar, water, cinnamon, sauce	3	7	5	5	20
Use a specified appliance to make the apple sauce	2	2	1	4	9
Store the applesauce -- in a container or refrigerator	5	4	7	4	20
Other (includes magic box method)	1	0	6	4	11

From the Land to the Hand: Bread

This question examined the children's understanding of the process of making bread.

Many of the children pointed out that bread is made from grains such as wheat or corn etc. but they were often unclear of the process:

> *"Bread's made from the farmer's wheat. They grind up the wheat and it makes it into all sorts of kinds of bread... You have to plant it first, and you have to flatten out the ground and.* Okay, so you've got the wheat. Now how do you get from the wheat to the bread? *They put it through this machine, I think, and it sort of grinds it up and then comes out in this white stuff, and then the people just make the bread somehow, and then when you get it, it's all cut up in little pieces like that in a package of bread"* (Tracy, 3H).

The students talked about bread coming from dough. Some students said that people grind wheat to make bread. They talked about people mixing flour, milk, and other common bread ingredients to make bread. In order to make bread you bake dough. A generic machine makes bread. A bread-maker or a specific appliance makes bread:

> *"My dad has a bread maker. You put butter in the pot and you get this dough, put it in the thingy, and it warms it up and then when it beeps, it stops, you pour it out, and you've got a loaf of bread"*(Adam, 1L).

A common confusion arose between making bread and obtaining bread with some students maintaining that bread comes from the store or bakery, sliced or in bags.

A few of the children observed that bread had two parts to it: the inside and the outside: *"By milk, by wheat, by crust"* (Jeff, 2L). They implied that these two parts were made in different ways or from different ingredients:

> *"Bread is make with like white—you know the crust? Well, the crust goes lumpy and they stick it on there, and the fluff is in their hand and they take that and put it around the bread.* What is in bread? What do they use to make it? *Well, they used to make it with fluff. It looks like fluff a little but it's something that has a taste to it and something is inside it that you can figure out. It's kinda hard to figure out"* (Connor, KH)

Rory (3L) was one of the few students to explain that generally bread contains a leavening agent such as yeast:

> *"It's made from wheat and yeast and the wheat is turned into flour which makes the yeast and the yeast makes it come up and then you bake it, cook it. That's mostly all you do to it."*

HOW IS BREAD MADE?	K	1	2	3	Σ
Don't know/ no relevant response	13	7	5	3	28
It comes from the store or bakery, sliced or in bags	0	0	2	0	2
It is made from dough	4	3	2	3	12
It is made from grain: wheat, corn, etc	4	8	14	16	42
Grind the wheat	0	3	5	4	12
Mix flour, milk, and other common bread ingredients	0	8	8	11	27
Bake the dough	3	7	8	11	29
A bread-maker (specific appliance) makes it	1	1	2	3	7
A generic machine makes it	2	1	4	2	9
Other	3	3	3	4	13

From the Land to the Hand: Hamburger Patties

The students were asked to consider how the meat in a hamburger is made, and how the meat is processed from animal to hamburger.

Commonly expressed ideas included the idea that the meat in hamburger patties comes from cows and that the animal is killed and the meat is taken off it. The meat is fried or grilled. The meat is washed and ground up. The meat is shaped into patties.

Students often described the non-meat contents of hamburgers:

> *"A hamburger—hamburger is easy. You've got two breads—one on the bottom, one on the top, and you have lettuce inside, any kind you want inside. That's how they're made... The meat—it's made out of chicken and it turns into meat"* (Earl, 1A).

They said that meat comes from meat or suggested that the meat in hamburgers comes from animals other than cows such as pigs, chicken, turkeys.

A few students said that meat comes from a commercial enterprise such as a store or a fast food outlet:

> *"By cooking the hamburger.* But where did the hamburger come from? *A stove and a pan.* Yeah, but where did it come from before it got there? *It comes from McDonalds and it comes from Burger King.* Uh huh. Where do they get their hamburger from? *McDonalds and Burger King.* Yeah, and where do McDonalds and Burger King get their hamburger from? *I don't know. They make their own"* (Donald, 1L).

A few of the children talked about hunting for the meat:

> *"It's made from animals. You fry it on the grill and you have to make sure there's no red stuff in it because it's the red stuff that's bad for you.* Where does it come from before it goes on the grill? *From the store, and before that it's from animals...maybe cows, bears...They hunt them and then they cut them up and ship them"* (Louis, 2H).

Some students spoke of the animals as objects of potential danger: *"From animals and stuff.* Uh huh. What do they do to the animals? *Um—kill them.* Why do they kill them? *To get the—so they don't kill the person first. And they take them to a factory or something and get the meat out of them* (Jonathan, 2L).

Other students were apologetic about eating the meat of animals:

> "*Well, I hate to say this, but you kill a cow first, and then you get some meat from the cow and you'd turn it. I think you have to add some things to it—salt maybe, and then grease or something, and then you like bake it somehow and it comes out and then you have a hamburger, and you use a grill and make a hamburger*" (Lily, 2H).

Some children focused on the cooking process once they had clarified the origin of the beef:

> "*Well, the hamburger is made from either—I think it's made from beef which comes from the cow, so I think they use a dead cow and they take the meat and they cut [it] into these little pieces, and homemade hamburgers—you just pat it together. I see my mom doing it all the time. She doesn't let me do it. She says I'm too little to do it, and I say "Yeah, right." You put it in a pan or in a cake pan or something, and it's a little like a flap jack. Some times people flip them up into the air to make them land on the other side but my mom uses a – what do you call them?* Spatula. *Yeah, a spatula. I know some people flip them up but I've never heard of anybody who did, but I know they do*" (Tracy, 3H).

Rebecca (Rebecca, 3L) was the only student to identify a career associated with the meat processing industry:

> "*By some cows, cause the farmer shoots them for meat.* How do they get from being the cow to being the hamburger? *All the fat in them, they just cut it out and take it to a butcher. They take it to a butcher and the butcher cuts it out with like a saw thing and they just squash it and it makes the hamburger.*"

HOW IS THE MEAT IN A HAMBURGER MADE? WHERE DOES THE MEAT IN A HAMBURGER COME FROM?	K	1	2	3	Σ
Don't know/ no relevant response	16	9	4	1	30
Describes the non-meat contents of hamburgers	5	3	2	5	15
We get meat from meat	1	0	1	1	3
From animals or from animals other than cattle: pigs, chickens, turkeys	3	7	10	14	34
From cows	4	7	11	17	39
From a commercial establishment e.g. store, fast food outlet	1	2	2	2	7
Other	0	0	0	1	1

HOW IS THE MEAT IN A HAMBURGER MADE? WHAT IS THE PROCESS OF MAKING THE HAMBURGER PATTY?	K	1	2	3	Σ
Don't know/ no relevant response	18	11	10	4	43
Kill the animal	1	8	11	13	33
Cut up the animal or take the meat off it	3	5	7	12	27
Wash the meat	0	1	2	2	5
Grind up the meat	0	1	1	3	5
Fry, grill, cook the meat	6	6	9	13	34
Shape the meat into patties	0	2	0	7	9
Other	3	7	4	9	23

Land to Hand: Chicken

Students were asked why farmers might raise chickens.

Generally the students understood what farmers obtained by raising chickens. Farmers raise chickens in order to eat their meat, eggs, or specific dishes such as scrambled eggs, or chicken legs. We get feathers, bones, fertilizer etc. from chickens as well as baby chicks. Farmers sell chickens to the stores. Tracy (3H) had an understanding of the process of raising chickens:

> "*Well, one reason they raise chickens is to get their eggs. They sometimes put them in separate coops. One's the fertilized coop with roosters in it and one's just with the hens. They have both of these so that way they have one where they can sell the eggs and the*

coop with the roosters, the eggs will hatch so they'll have more chickens which will make more eggs and then more chickens and—you know what I mean."

Some students treated chicken and turkey as the same animal: "*Turkeys. Inside their body is turkey and you put it in the oven. Turkeys have meat inside it and they cut it out and they bake it and they start eating*" (Connor, KH).

One of the more unusual ideas was that we only use animals' meat after they have died naturally:

"Like if they die, they can cut it up and eat it—get chicken from it... When they die, you could like cut them up and then get the parts that are chicken and you could like cook it, and it'll turn into chicken. Is that what's happening all of the time—farmers just wait for the animals to die? *No, they like take care of them and they're kind of like pets"* (Steve, 3A).

MANY FARMERS GROW CROPS BUT OTHERS RAISE ANIMALS. FOR EXAMPLE SOME FARMERS RAISE CHICKENS. WHY DO THESE FARMERS RAISE CHICKENS?	K	1	2	3	Σ
Don't know/ no relevant response	5	1	1	0	7
To eat them or to get chicken meat	13	13	15	16	59
To eat eggs	6	14	13	15	48
To get baby chickens	1	4	2	3	10
To get specific dishes e.g. scrambled eggs, chicken legs	1	2	3	2	8
To get feathers, bones, fertilizer etc.	1	1	1	3	6
To sell them to the stores	0	1	4	8	13
Other	0	3	3	8	14

Land to Hand: Cows

This question examined the children's understanding of why farmers raise cows.

Students suggested that from cows we get milk and meat. We get beef and cuts of meat such as steaks and hamburger. Fewer numbers of students also listed dairy products such as cheese, butter, cream and ice cream: "*Milk-- all dairy products like cheese, milk-- and ice cream"* (Kieran, 2A).

Joel (2L) was the only student to mention leather even tangentially: "*Milk— meat-- skin."*

Within her answer of more conventional responses Tammy (3H) considered rodeos:

"You get hamburger, milk, we get—this is kind of a weird answer, but if you raise enough cows, you can make your own rodeo if you have a horse."

SOME FARMERS RAISE COWS. WHAT DO WE GET FROM COWS?	K	1	2	3	Σ
Don't know/ no relevant response	0	1	0	0	1
Milk	22	22	24	19	87
Butter	0	0	0	2	2
Cheese	0	1	6	3	10
Cream, ice-cream	0	0	1	0	1
Meat	6	8	11	14	39
Cuts of meat such as hamburger or steak	2	1	4	10	17
Beef	0	0	0	3	3
Other	2	0	5	4	11

Land to Hand: Pigs
This question examined the children's understanding of why farmers raise pigs.

Students said that pigs provide us with meat, bacon, ham, pork, sausages, and baby pigs:

"Sausage and meat. What do we call that meat? *Steak—and that's all I know—and bologna is from pigs"* (Alex, KL).

Some kindergarten students mixed up the conditions in which some pigs live with what we get from pigs. They said that we get mud or other conditions associated with pigs from pigs. Students also insisted that hamburgers are made from ham rather than made from the more commonly used ground beef: "*Hamburger-- ham*" (Shane, 2A).

Lily (2H) gave an uncommon response that referred to literature:

"Ham and bacon and some movies...Babe, Georgie, and I know a book about pigs, and it's called Pigs Might Fly, and the main character is a pig named Dig but it has feet like a dog and it can swim."

SOME FARMERS RAISE PIGS. WHAT DO WE GET FROM PIGS?	K	1	2	3	Σ
Don't know/ no relevant response	7	4	6	2	19
Mud or other conditions associated with pigs	4	2	0	0	6
Meat	8	9	7	9	33
Bacon	2	4	5	10	21
Ham	2	6	10	9	27
Pork	0	3	2	8	13
Sausages	2	0	3	3	8
Baby pigs	1	0	0	1	2
Other	6	6	8	10	30

Land to Hand: Sheep
This question examined the children's understanding of why farmers raise sheep.

Commonly expressed ideas were that from sheep we get: wool and "and fabric made from sheep's wool or fur that is used for clothing. Less frequently students referred to meat and specific dishes such as lamb chops: *"Hair from the sheep so we can have clothes... Meat... I think it's turkey, but I don't know"* (Daniel, 1L).

Students often referred to wool as fuzz, fluff, or hair however they did identify it as a material used to make clothing, principally coats. They reassured themselves that using the wool did not hurt the animals:

"Fluff to make them comfortable... Under the fluff they have fur and it will grow back... Wool grows back... Stuff is under the fluff... It doesn't hurt them. It's just like combing your hair" (Connor, KH).

Emily (1A), explained that using the products from sheep for clothing was different than for other animals:

"Coats... You know, coats that you wear. What is it that the coats you war are made from, that comes from a sheep? *Like they shave it off their body and then they layer it real neat on top and they kind of get some of them and sew them together and then you paint them whatever color you want and then you have a coat, and there's that fur on top.* It's like the wool from a sheep. *Yup. It can be any kind of animal but it's dead.* Oh, so it's the skin of an animal, so that's what we get from sheep. *Yeah, but sheep don't die, but other animals die when they get shed.* Say that again. *Sheep don't die when you spread them because they have these special clippers, so you can clip them off, but other animals are wild and you can't really hold them still so you've got to kill them.* So do they

take the skins off the sheep when they're alive or do they take off the wool? *They take off the wool."*

Rachel (3L) raised the notion of sheep giving milk and what she had learned in school about France: "*Wool for clothes... I don't know if they give milk.* Actually we don't normally think of sheep as giving milk, but there's a type of cheese called camembert cheese. *Yeah, I know. Because we're studying France and they have all kinds of cheese."*

Rebecca (3L) was the only student to refer to Scottish haggis:

> "*Linen off their fur, and I don't know what else. Meat maybe... Oh yeah, you make sheep out of mutton and you fill it in with gross stuff and [our teacher] said we [could] make mutton but everybody didn't want to because it was too gross so we didn't.* Was she talking about haggis? *Yeah, you take all the blood out and you fill it with food."*

SOME FARMERS RAISE SHEEP. WHAT DO WE GET FROM SHEEP?	K	1	2	3	Σ
Don't know/ no relevant response	14	6	3	2	25
Meat	2	4	8	10	24
Specific dishes e.g. lamb chops	0	1	0	1	2
Fuzz, fur, fluff, hair	7	5	9	5	26
Wool	3	12	9	16	40
Fabric made from sheep's wool/ fur is used for clothing	5	9	14	12	40
Other	0	5	6	3	14

The Economics of Food Production

The students were asked to consider why some foods cost more than others.

They suggested that cereal has more "stuff" and more expensive stuff in it:

> "*Hum, let's see. Apples are very good for you, BUT cereal is make from grains which have lots and lots of minerals and vitamins and plus there are lots of them in a cereal box so they probably cost more because there's more minerals and vitamins*" (Lucy, 2H).

Students suggested that cereal needs to be made but apples can be picked.

The students' responses to this question reflected many more misunderstandings than had been made to other interview questions. Students often focused on the packaging: a box of cereal costs more than the same weight of apples because it comes in a box not a bag or the box is bigger than the bag:

> *"Cause some people buy more cereal than apples. Some people buy less apples and some people buy more cereal... Cause some apples are smaller. And cereal has a big box"* (Cindy, KH).

There are more pieces of cereal: *"Because cereal has more little pieces... It's because there's more pieces and they're packed with sugar and honey and colors"* (Emilio, 1A).

Other commonly voiced responses included the notion that cereal lasts longer. More people buy cereal. Cereal is better for you. Cereal has a toy in it.

Gabrielle (1H) believed that apples were healthier than cereal however she could not explain how this was related to their price:

> "*Cause apples are healthier, I think, for you than some cereals.* But wouldn't they cost more? *They cost less, I think. But they're healthier.* Cereal costs more than a pound of apples. Can you think of why that might be? *Maybe there's more cereal than apples. If you buy like 15 apples and there's 100 things in the cereal box—"*

Kim (2A) was more explicit than Gabrielle in explaining that you pay more for foods that are bad for you:

> *"Because apples are good for you and cereals aren't in any food groups and they're bad for you so it's going to cost more... Cause it has like sugar and all this expensive stuff so it really is expensive. It only has like no gram of protein, and if it doesn't have any protein, then it must have other bad stuff for you then, and you're going to have to pay for it if you want it."*

Lisa (2H) was one of the few students to focus on the process of producing cereal:

> *"Cause it was harder to get the cereal... because you would have to take the grain off its stem and make it into bread, and then you'd have to cut it in shapes."*

Sam (3A) gave an even more detailed explanation:

> *"Cause more cereal than apples... Because the cereal takes a longer time than to get the apples because the apples—all you need to do is wait for them and then go up to the tree and just pick them... It's a lot more cheaper because it's a lot more easier. All you need to do is get some wheat and some other stuff and just cook it for a couple of hours and then the cereal is done and then you can put it in boxes and ship it away to Meijers or Kroger or other places—maybe Target sometimes... They apples take a lot of time but they're much more easier to pick. With the cereal, you're constantly working and working and working."*

A POUND OF CEREAL COSTS MORE THAN A POUND OF APPLES. WHY IS THAT?	K	1	2	3	Σ
Don't know/ no relevant response	16	8	5	5	34
Cereal has a toy, or toys, in it.	1	0	1	1	3
Cereal comes in a box not a bag, or in a bigger box.	4	5	3	3	15
There are more pieces of cereal.	5	11	12	10	8
Cereal lasts longer than apples.	0	0	2	3	5
More people buy cereal than apples.	1	1	1	0	3
Cereal is better for you than apples.	0	0	2	6	8
Cereal has more stuff and more expensive stuff in it than apples, e.g. sugar	0	2	2	1	5
Cereal needs to be made but apples can be picked.	0	0	3	5	8
Other	1	4	3	4	12

The Economics of Food Preparation

Students were asked to consider why it costs more to eat food at a restaurant than to eat it at home.

Students pointed out that we pay more for food at the restaurant because the people at the restaurant make the food. The people at the restaurant have already bought the food so you must pay for it. You need to pay the people to do the work at the restaurant e.g. serving, cooking:

> *"Because people at the store have to make it and they don't like doing that, so you have to pay that. But at home, your parents can buy it for you and you don't have to pay them"* (Lucy, 2H).

Common confusions included the idea that you pay for food at a restaurant but food at home is free. Danielle (1L) suggested that you don't pay at home because there is no-one there to be paid:

> *"Because in a restaurant, you get it and then you have to pay for it.* Why do you have to pay for it? *Because you got it and if you go out with it, you have to pay for it, or it'll be stealing... Because at home, you have people—you don't have people to give money to, cause in stores people have registers where you put money in."*

Students suggested that you pay to have a greater selection of food at the restaurant. They said that you could eat more food at the restaurant. Some students explained that food at the restaurant is better than the food you eat at home:

> *"Cause they kind of make it better at restaurants, like when you make pizza, you kind of like put a little bit too much cheese or tomato sauce, but the pizza place makes it just right"* (Jeff, 2L).

Other students said that the restaurant is a public place so people like to be there. They proposed that you pay more because the surroundings are decorated specially:

> *"Because you sit down and you hear music and it's really fancy... Your food and the drinks and the table and the seats, and you let people make stuff for you"* (Sue, 3A).

IT COSTS MORE TO EAT A MEAL IN A RESTAURANT THAN IT DOES TO HAVE THE SAME MEAL AT HOME. WHY IS THAT?	K	1	2	3	Σ
Don't know/ no relevant response	19	8	2	1	30
You pay for food at the restaurant but food at home is free	3	11	10	12	36
There is a greater selection of dishes and you can eat more at the restaurant	1	1	0	4	6
Food at the restaurant is better than the food you eat at home	0	1	2	1	4
It's a public place whereas home is not. People like to eat out.	0	2	0	4	6
The surroundings are special.	0	0	1	6	7
People at the restaurant make the food.	2	2	11	11	26
People at the restaurant have already bought the food.	2	0	3	7	12
You need to pay people to do the work in restaurants e.g. serving, cooking	1	1	6	10	18
Other	1	2	7	4	14

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Cereal comes in a box not a bag, or in a bigger box.	4	5	3	3	15
There are more pieces of cereal.	5	11	12	10	8
Cereal lasts longer than apples.	0	0	2	3	5
More people buy cereal than apples.	1	1	1	0	3
Cereal is better for you than apples.	0	0	2	6	8
Cereal has more stuff and more expensive stuff in it than apples, e.g. sugar	0	2	2	1	5
Cereal needs to be made but apples can be picked.	0	0	3	5	8
Other	1	4	3	4	12

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Don't know/ no relevant response	19	8	2	1	30
You pay for food at the restaurant but food at home is free	3	11	10	12	36
There is a greater selection of dishes and you can eat more at the restaurant	1	1	0	4	6
Food at the restaurant is better than the food you eat at home	0	1	2	1	4
It's a public place whereas home is not. People like to eat out.	0	2	0	4	6
The surroundings are special.	0	0	1	6	7
People at the restaurant make the food.	2	2	11	11	26
People at the restaurant have already bought the food.	2	0	3	7	12
You need to pay people to do the work in restaurants e.g. serving, cooking	1	1	6	10	18
Other	1	2	7	4	14

Geography and Agriculture

Students were asked to consider why there were more farmers in Michigan than in Alaska.

Students tended to focus on the temperature differences: it is too cold or there is more snow in Alaska: *"Alaska is colder and parts of it are in the Arctic Circle and frequently snowing... Too much ice and too much snow to plant any crops. It doesn't have any animals unless you want to raise penguins"* (Rory, 3L).

Students pointed out that it is too cold for animals to survive in Alaska. It is too cold for crops to grow in Alaska:

> *"Cause Alaska's really cold and it's usually below zero up there, and they have a real short summer and it's usually dark earlier than it is here, and here it's cold and warm and usually above zero... You can't survive very well up there"*(Tim, 3H).

Some students did suggest that there is not enough sunlight in Alaska to raise crops: *"Because it's cold up there... They don't get a lot of sun... Because the sun is usually down by the equator in winter and summer and stuff. Sometimes they get it, but not usually"* (Jane, 2L).

Common confusions included the idea that there are more farmers in Michigan because more people live in Michigan than in Alaska. There are many predators in Alaska such as wolves and bears so farmers don't raise animals there: *"Because there's a lot of animals like bears that would come and eat like the chickens and stuff"* (Steve, 3A).

THERE ARE LOTS OF FARMERS AROUND HERE BUT THERE ARE NOT SO MANY FARMERS IN ALASKA. WHY NOT?	K	1	2	3	Σ
Don't know/ no relevant response	14	12	5	0	31
Not as many people live in Alaska.	3	4	1	1	9
There are many predators in Alaska such as wolves or bears.	0	0	2	1	3
It is too cold, or there is snow in Alaska.	1	5	11	13	30
It is too cold for crops to grow in Alaska.	1	5	6	14	26
It is too cold for animals to survive.	0	1	1	4	6
There is not enough sunlight in Alaska.	0	0	1	5	6
Other.	5	3	8	13	29

Historical Comparisons in Agriculture

Students were asked to consider how farming today is different from farming 100 years ago.

Commonly expressed ideas included the notions that farming is easier now, or was harder then. Back then farmers did not have the range or quality of plants or animals that we have now. They had smaller farms. They did not have machines or machines like we have now:

> *"Well, I know it was different a hundred years ago, but—well, one thing, they didn't have big machines like tractors, and another thing, they had to do everything by hand except for using little shovels. I think they had little shovels back then, but I'm not very sure. I just think. Another thing, sometimes in the summer they had more rain back then than there is today, so I think it sometimes grew better, or it didn't grow as much. And I think that's about it"* (Tracy, 3H).

Common confusions were that farmers hunted and did not have farms 100 years ago.

A number of students talked about how much more efficient and knowledgeable farmers are today:

> *"This year they make it better... Because they know how to make it better than last year... They know how to make it better because those people were kind of older... They were kind of old people, so they would mess up and have to do it again until they got it right"* (Jason, 2L).

Kyle, (2A) suggested that the quality of the land is different: *"Maybe the ground was harder 100 years ago.... Because there wasn't people working on it and digging in it."*

Evan (1A) gave an uncommon response in that he spoke of the role of scientists:

> *"Probably because there wasn't so [many] scientists around like today... They try to figure some stuff out and then tell everybody else."*

Kate (2A) alluded to the plantations of the South:

> *"It was hard back then and now it's easier because we've got some tools and they had to use their hands and stuff. Like people had to use this smacker thing to get the black people to work because back then the black people were poor and stuff, but he white people didn't really care about the black people. Back then the black people had to work for the white people and the white people treated the black people like the horses, cause they were hitting them and trying to get the black people to work on the crops, but some of them had to die because they weren't working on them.* Was that everywhere in the United States or just in some places? *In some places back then."*

Rory (3L) was also conscious of historical events and tried to use them to shape a response to the question:

> *"Probably in 1898 if you were in the south, if you're a late comer, you might still be recovering from the Civil War... I'm not sure when the Civil War ended, but I think it*

ended before that, 1860 something and you were wounded a lot and the civil War, you might still be recovering from that—your house burned down. You might be building a new house and not have too much time to raise crops or animals."

HOW IS FARMING TODAY DIFFERENT FROM FARMING 100 YEARS AGO?	K	1	2	3	Σ
Don't know/ no relevant response	20	10	4	2	36
I was not born then.	1	1	1	1	4
They hunted and did not have farms.	2	1	2	0	5
They had smaller farms.	0	0	2	1	3
They did not have the range or quality of animals we have now.	0	2	1	1	4
They did not have the range or quality of plants we have now.	0	2	1	2	5
They did not have machines or machines like we have now.	0	3	11	13	27
Farming is easier now or was harder then.	0	2	5	3	10
Farming is easier now, or was harder then.	1	3	5	8	17

Technological Changes in Agriculture

This question examined the children's understanding of inventions that have helped farmers.

Students tended to talk about hand tools such as pitchforks, rakes and shovels:

"Like the one fork that rakes up the things so they don't have to like do it with their hands or something, or like a fence. You could have a fence so animals couldn't get out... And like barns... Rakes, pitchforks" (Steve, 3A).

They spoke of tractors, and crop related machinery such as plowing, planting and harvesting machines. They also listed generic machines or motors as well as different seeds, fertilizers, and technologies:"

"Like machines, a nut machine, a grass machine that picks up grass, and corn picker, and a tractor, and one of the ones that picks up a whole bunch of hay and makes it into a circle...I know one that cows do. They make cow manure, and when they go to the bathroom, it makes soil" (Jeff, 2L).

Students spoke of sprinklers and manure spreaders.

Common confusions included listing different types of animals e.g. horses and cows: "*Combines, tractors, gophers, rabbits"* (Sam, 3A); or buildings:

"*Lights so they can see in their house, hay so they can feed their cows and chickens can have their nests, and they have phones, tables, seats, couches, and beds upstairs"* (Sue, 3A).

Two of the kindergarten students spoke of the farmers' family as inventions: Christine (KH) said:

"The farmer's wife and I think the farmer's children...They help pick the corn."

"I think a wife... She can help the farm grow" said Caroline (KH).

Evan (2A) had a better sense of what an invention was: "*Maybe some computers.*"

WHAT ARE SOME INVENTIONS THAT HAVE HELPED FARMERS?	K	1	2	3	Σ
Don't know/ no relevant response	18	5	3	4	30
Buildings	0	0	0	2	2
Horses, cows, different animals	1	2	2	0	5
Hand tools such as pitchforks, rakes, shovels	2	7	4	4	17
Generic machines or motors	1	3	7	3	14
Tractors	0	10	10	11	31
Crop related machinery: plowing, planting, harvesting machines	0	5	7	11	23
Different seeds, fertilizers, and technologies	0	1	1	2	4
Sprinklers and manure spreaders	0	2	2	1	5
Other	2	1	6	7	16

The Impact of Technologies on Food Production

This question examined the children's understanding of the impact of technology on the production and distribution of food in the move from a rural to an urban society.

Many of the younger students found this question difficult to answer. Commonly expressed ideas included the notion that most food was not invented before or they grow more foods now. Students suggested that crops grow faster now; farms are bigger now; farmers have more equipment:

> *"Because they had to do it by hand back them and work and a lot of crops died before they could harvest them, and now we have a lot of equipment and it makes harvesting a lot faster"* (Keith, 2A).

Other responses included the idea that farmers have more animals. Students explained that farmers have more knowledge, expertise or work better now.

A commonly expressed misunderstanding was that we don't need so many farmers now because we can buy food from stores:

> *"Cause you can buy it from people who have the store. You could hunt for the store and then you can bring it to the store and then they can put it in a plastic jar or something or in a glass jar"* (Beth, KA).

> *"You can just go buy food at the store... Cause we have money"* (Lionel, 2H).

> *"Well, also there are stores. Maybe a few years ago when George Washington was alive, or maybe before that, or after, there were people that had to grow lots of crops. But we had those—fruits and vegetables, and then we invented stores and that's where we put them. So that's why there isn't a lot of crops because we have all the food we need in the stores where you can go buy them... The farmers like give it to them... Back then there wasn't stores or anything"* (Lucy, 3H).

Rachel, (3L) understood that many people long ago did not have stores as we do today and she explained why people might not want to be farmers however she still found it difficult to find an explanation for everyone having enough to eat:

> *"Because back then, there were a lot of wars so they had to save bullets and stuff so they didn't go hunting a lot and they didn't have stores that much – food stores like Meijers and Krogers... [who] either have to buy it from farmers because the farmers have all the animals... My dad said he doesn't want to live on a farm again because it was a lot of work. You have to feed all the animals too, to be a farmer."*

Kevin (2A) explained that foods come from other countries today:

> *"Because they have more places to buy it... They buy seeds and then plant them, and then they grow and then they pick them off and eat them... People have more money and they can buy houses instead of farms, and they can buy food, but some people can't. Where does the food come from? Stores... From companies... From other countries. They get it on a boat and then they sail it over to here and give it to the company and then they give it to the store."*

> *"Well, one reason is because we don't only get our food from America now. Sometimes we get them from different countries, like Africa and like say, sometimes we wouldn't get coffee without Africa because there's these coffee trees in Africa where the coffee beans grow. Another thing, like—okay, you know how a lot of people didn't get to have tea back then?... That's because tea leaves don't grow as much in America as they do in South America. One thing's for sure: no cocoa pods, not one little cocoa pod grew in America back then. Well, maybe a few, but they probably wouldn't be able to survive for long. One thing's for sure, there's not as many as there is in South America... Well, some people say it's experience, but I don't really know. I think a lot of people say it's experience*

because the whole family's been farming. So they just add on to their garden and they get bigger and bigger, and they use big gardens to feed a lot of people. And to have a lot of animals like turkeys for Thanksgiving" (Tracy, 3H).

Tammy (3H) raised the issue of the rising costs of land ownership:

"Because land back then cost a lot of money. It's be about $50 per acre and that's about a bizillion dollars now. Because – I don't know what it was like back then, but now, I mean, $100 for an acre of land – that's cheap. It's cheaper than my portable TV. So you could buy thousands of acres of land and they can harvest it all in one shot... You could with all of those inventions. So then they can have a lot of acres of land because they have the money to do that, and the more acres of land, the more you can plant, and the more you can harvest."

LONG AGO MOST PEOPLE HAD TO BE FARMERS IN ORDER TO PRODUCE ENOUGH FOOD TO FEED EVERYONE. BUT TODAY, ONLY A FEW FARMERS PRODUCE ALL THE FOOD WE NEED. WHY IS THAT?	K	1	2	3	Σ
Don't know/ no relevant response	21	15	9	4	49
You can buy it from the store.	1	1	5	7	14
Most food was not invented before or they grow more foods now.	0	1	1	1	3
Crops grow faster now.	0	2	2	2	6
Farms are bigger now.	0	1	4	6	11
Farmers have more equipment now.	1	0	4	8	13
Farmers have more animals now.	0	3	2	3	8
Farmers have more knowledge, or expertise, or work better now.	0	1	2	3	6
Other	2	3	6	10	21

REFERENCES

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APPENDIX C

Introduction to Questionnaire

The following questionnaire is designed to obtain background information for the study and to provide us with a prompt for talking about social studies in general and in your classroom in particular. The activities and resources listed in the questionnaire come from several elementary social studies methods texts in suggestions for teaching to social studies goals from kindergarten to grade five so you may find that some suggestions are more familiar at your grade level than others.

After you have completed the questionnaire we will revisit it together and we can talk about any ideas or questions that came to mind as you were writing.

Scale:

0	Not at all
1	Rarely or a little
2	Sometimes or somewhat
3	Often or definitely
4	Very often or very much

Social Studies Teacher Questionnaire

Name: _____

Age: _____

Years Teaching: _____

Bachelor's degree: _____

Main disciplinary areas: _____

MA / advanced degree: _____

Main disciplinary areas: _____

Teaching Experiences:	**Grade Level**	**Years (e.g. 1992-98)**

Professional development opportunities in which you have participated:

_____
_____
_____
_____
_____

Social Studies units taught:

_____
_____
_____
_____
_____

A	**The Role of the Teacher in Social Studies**					
	To what extent is your role as a social studies teacher at your current grade level mainly as a...	**0**	**1**	**2**	**3**	**4**
1	Source of academic knowledge					
2	Motivator and coach					
3	Guide to acceptable social behavior					
4	Designer of curricular materials					
5	Facilitator of interaction between students and between students and curriculum					

B	The Purpose of Social Studies					
	To what degree do you consider each of the following to be the main purpose of teaching social studies in the schools?	**0**	**1**	**2**	**3**	**4**
1	Developing skills for well informed citizens such as critical thinking, decision-making, etc in amplification of factual knowledge.					
2	Fostering an educated American citizenry through the study of disciplinary knowledge in history, political science, geography and economics					
3	Fostering American patriotism, and values through the study of role models in history					
4	Fostering an understanding of global perspectives and world interdependence					
5	Fostering an understanding of personal identity and relationships to the broad environment (family, community, society; humanity).					

C	Social Studies Resources					
	How important are the following resources to your social studies program?	**0**	**1**	**2**	**3**	**4**
1	Art					
2	Artifacts					
3	Calendars					
4	CD roms and computer programs					
5	Children's literature					
6	Community institutions e.g. museums, post offices, theaters etc					
7	Current affairs					
8	Family trees					
9	Films/ videos					
10	Internet sites					
11	Invited speakers					
12	Maps and globes					
13	Musical tapes/ compact discs					
14	Newspapers					
15	Trade books					
16	Non-fiction adult oriented resources					
17	Oral histories					
18	Periodicals/ magazines					

19	Posters, charts etc.					
20	Primary source documents					
21	Radio, records, audio tapes					
22	Reference books					
23	Students' interests					
24	Students' experiences out-of-school					
25	Students' family members					
26	Television					
27	Textbooks					
28	Timelines					

D	**Activities in Social Studies**					
	How important are the following activities to your social studies program?	**0**	**1**	**2**	**3**	**4**
1	Analysis of pictures and other visual media					
2	Collecting and interpreting data					
3	Comparing					
4	Cooperative learning					
5	Criticizing and evaluating					
6	Decision making					
7	Debating					
8	Developing methods of investigating a local issue					
9	Discussing ideas as a class					
10	Discussing ideas in small groups					
11	Doing experiments					
12	Examining assumptions					
13	Exploring charts, tables and representations of information					
14	Giving prepared oral presentations					
15	Graphing					
16	Imagining					
17	Interacting with guest speakers					
18	Interviewing					
19	Keeping journals					
20	K-W-L assessments					
21	Letter writing					
22	Library researching					
23	Listening					

24	Making construction projects					
25	Making dramatic presentations					
26	Making posters					
27	Map making					
28	Map-reading					
29	Participating in local, state, national or international projects					
30	Playing simulation games					
31	Questioning e.g. oral histories					
32	Reading the textbook together					
33	Responding to presented material through art					
34	Responding to presented material through drama or music					
35	Responding to prompts and questions in the textbook					
36	Role playing and role enactments					
37	Taking field trips					
38	Teacher presentations					
39	Undertaking individual projects					
40	Using case studies					
41	Undertaking group projects					
42	Using computer programs					
43	Writing and sharing essays or stories					
44	Writing reports					
45	Writing responses to presented material					

E	**Planning in Social Studies**					
	To what extent is each of the following illustrative of your social studies planning? Your social studies planning:	**0**	**1**	**2**	**3**	**4**
1	Expands published textbook units					
2	Follows teacher guidelines of published materials					
3	Involves designing theme or topic oriented units					
4	Is about seizing teachable moments when children raise issues pertinent to the social studies goals for the class					
5	Takes considerable time to conceptualize and organize.					
6	Uses contributions from the lives of you and the students					
7	Uses units prepared collaboratively at the school or district level					

F	**Assessment in Social Studies**					
	To what extent is each of the following an important aspect of your assessment of social studies learning?	**0**	**1**	**2**	**3**	**4**
1	Conferences with students					
2	Discussions with students					
3	Formative assessment (giving feedback throughout a unit)					
4	Observations of student activity					
5	Pencil and paper assessments					
6	Portfolios					
7	Students' self evaluations					
8	Summative assessment (evaluation at the end of a unit)					
9	Work samples					

G	**Food in the classroom**					
	Food is often seen being prepared, eaten, or used as instructional manipulatives (e.g. candy, pasta) in elementary classrooms. To what extent is each of the following common in your classroom?	**0**	**1**	**2**	**3**	**4**
1	Food is shared to mark an event or celebration.					
2	Food is used as a manipulative e.g. pictures made with beans, graphs in math constructed with candy etc.					
3	Food is cooked as part of a unit.					
4	Food is studied in terms of history: e.g. technological change, cultural borrowing					
5	Food is studied in terms of geography: e.g. land use					
6	Food is studied in terms of culture: e.g. rituals					
7	Food is studied in terms of economics: e.g. distribution					
8	Food is studied in terms of land to hand processes.					
9	Food is studied as part of a health or science unit.					
10	Eating or preparing food as a response to literature.					

What does social studies look like in your classroom?

APPENDIX D

PLANNING GUIDELINES FOR TEACHERS

Preparing a Unit Plan around Ideas about Food

Rationale

This is an opportunity to use some of the concepts related to the production, distribution and consumption of food across societies to create social studies unit that will meet the needs of the students in your class with your particular school context.

Introduction to Context

This is a paragraph that describes the context in which you teach; i.e. the nature of the school and students.

Overview of the Unit

This is a two-three page explanation of what you want the students to learn or become familiar with over the course of the unit and why you think these are important ideas upon which to focus. As you create your unit, consider how the classroom learning relates to the district or state curriculum guidelines. Think of what the students can do in order to best understand the concepts you want them to understand. Think of how the resources you have identified can be used most effectively. Think of how to assess their learning. This unit overview can be seen as an outline of the big ideas you want to explore, the ways in which the students will go about doing so, and a general time line of events and learning opportunities.

Literature Review/ Resources

This is a list of the resources that you have found to help you learn and teach about this topic. You will undoubtedly use a range of reference media.

Lesson Plans

Write detailed lesson plans for six - ten lessons (see separate sheet). Please include plans for the lessons that will introduce and conclude the unit among the lessons you select to explain.

Lesson Plans

Introduction/ Rationale
Lesson plans are written so that you can clarify your ideas in words and so that you can share your ideas with others. They facilitate collaboration and reflection on your own practice because after you have taught a lesson the nature of the classroom can make it difficult to remember exactly how you were conceptualizing things as you went in.

Introduction
Where does the lesson fit in the overall unit? Is it the introductory lesson or the fourth time you have met? What prior knowledge is assumed? What will follow it?

Objectives
What do you want the students to learn? What content matter? What skills or processes? What values? *Why are these important to teach?*

Resources
What resources will the students use to assist them in learning what it is you want them to learn?

Actions
What will you as the teacher do?
What will the students do?

Assessment
What will student success look like? How will you know if students have a better understanding of whatever it is you wanted them to learn or experience?

Timing
Place the actions of the teacher and students into a realistic time frame.

APPENDIX E

BRIAN'S ORIGINAL PLAN: REPORT GROUP GRADE ONE

Tracing the origins of wheat

Introduction

In this lesson, the students will have the opportunity to see how wheat is grown, harvested, and prepared for different food production. The lesson also incorporates the use of different media types. This lesson should occur after students have had a chance to classify foods into food groups and explored looking at ingredients on common food items.

Objectives

The main objective for this lesson is to explain the process in which wheat is grown, harvested, and prepared for food production and distribution. This will be one of the lessons that will introduce and reinforce the words *production, distribution, and consumed.* These terms are vital to understanding the economic process of how goods are utilized. The students should have prior knowledge on different food types that require wheat as an ingredient.

Resources

To start the lesson, the teacher can read the book, ***If It Weren't for Farmers.*** This book will introduce students to where agricultural products originate. Also, the students will need access to a computer with Internet capabilities. The teacher can lead students through the process of wheat production at the following website: http ://www.ext.vt.edu/resources/4hlvirtualfarmlmain.html.

Actions

The teacher will:

- Read the story, ***If It Weren't for Farmers.***
- Read the ingredients from a bread package and ask students where they think the ingredients to make bread come from.
- Tell the students that they are going to investigate where wheat comes from.
- Guide the students through a slide show on the website indicated above on how wheat is produced.

The students will:

- Actively participate in taking turns answering the teacher's question(s) in a large group setting.
- Verbally explain their answers.
- Verbally respond to each other's ideas.
- Ask questions about the slide show from the website indicated above.

Assessment

The teacher will assess the students' participation in the discussion by observing who shared ideas and who did not. If desired, the students can write/draw a map showing the different stages of the wheat production process.

Timing

This initial activity should take 1 class period of about 30 minutes.

APPENDIX E

AMANDA'S ORIGINAL PLAN: REPORT GROUP GRADE ONE

Lesson 4
Grade level: 1

Title: Apple Varieties

Objectives:

Students will read a table to gain data. They will taste different apple varieties and choose their favorite. They will use this data to make a *class* graph.

4.4.3 describe how the choices they make impact business decisions.

5.1.1 Locate information using graphs and tables.

5.1.3 Organize information to make and interpret simple graphs of social data drawn from their experience.

Resources:

4-5 varieties of apples (Red delicious, Golden delicious, Gala, Fuji, and Granny Smith)

A class graph

A table of apple usage (could be made into an overhead)

Actions:

1. Hold up the 4-5 different apples. Make a list of some of their external attributes (color, size, etc.) One at a time pass out slices for each type of apple. Ask students to now list attributes about taste, texture, etc. After all apples have been tasted, have students choose their favorite.
2. Make a class graph of favorite varieties of apples. Analyze data. Which one was the most popular? Least? Share with the class the following information: Red delicious are the most popular in the U.S., followed by Golden delicious, then Granny Smith. Do our results reflect that information? Also share that U.S. farmers have been planting more Gala and Fuji because they are able to get more money for them. Will this graph change in 10 years if there are more Gala and Fuji apples? Ask for opinions.
3. Share the table of apple usage with the class. Ask questions from the table (Which apple shouldn't you use to bake? Which apple tastes best pie? etc.)

Assessment:

Were students able to analyze the table to get information? Were they able to answer questions from the class graph?

Timing: This lesson should take 45 minutes.



Apple Usage Table



Variety	Texture	Salads	Pie	Sauce	Baking	Freezing
Red Delicious	Sweet, crisp	Excellent	Fair	Fair	Not recommended	Fair
Golden Delicious	Sweet, crisp	Very good	Excellent	Very good	Very good	Very good
Granny Smith	Tart, crisp	Very good	Very good	Very good	Very good	Very good
Gala	Sweet, crisp	Very good	Good	Very good	Good	Still testing
Fuji	Sweet, spicy, crisp	Excellent	Good	Good	Good	Still testing

Taken from www.bestapples.com A web site from Washington

APPENDIX E

KATE'S ORIGINAL PLAN: REPORT GROUP GRADE ONE

$_{2}$nd lesson--THE HILL OF FIRE, by Thomas Lewis

As the garden matured, the cycle of the growing season dictated the BOOKS WE'VE EATEN"™ timeline. The children brainstormed what they knew about eating and cooking tomatoes. This discussion lead to making salsa. The children decided collectively to prepare and eat salsa and chips. In observance and celebration of Hispanic Heritage month, we found this book (and a very obvious shortage of good books depicting real Hispanic culture). The story depicts the life style of a Hispanic farmer.

Objectives:

1. The children will develop an awareness of authentic Hispanic cultural practices.
2. The children will experience and observe the life cycle of the tomato plant.
3. The children will continue developing an understanding of the dynamics of living systems i.e. Water cycle, soil cycle, photosynthesis.

Resources:

1. Tomato plants
2. The HILL OF FIRE by Thomas Lewis
3. The growing tomatoes in the garden
4. Taco Chips
5. Bowl, knives, paper plates
6. Salsa recipe and necessary ingredients
7. Map of North and South America

Actions:

1. The children will plant, maintain and harvest tomatoes.
2. Teachers will read the story and discuss the chili-tomato-salsa connection with the students, along with a discussion about Mexican fanning with primitive technology.
3. In small groups the children prepared salsa, with the assistance of an adult.

Assessment:

1. The children will take increased responsibility for planning, planting and maintaining our garden plot by watering, weeding and showing interest in the garden care in general.
2. The children will understand that salsa is a food we've adopted from the Hispanic culture.

Timing:

1. 5 months to grow tomato.
2. 30 minutes for reading and discussing the book
3. 1 hour to make the salsa

Lesson 2

LESSON NAME: Land Use and Changes

GOALS AND OBJECTIVES:
Describe how people depend on the land and adapt and change their environment to meet needs.
Seasonal changes - Families working together

GRADE LEVEL: 1-2

TIME FRAME: 60min

LESSON PROCEDURE:

Show the video "Ox-cart Man" and discuss

Read: A Child's Place p. 132-134 (People change the land)
+ Discuss

Read: "Home place" and discuss
food + food storage
long ago and today

Harcourt Brace Poster
2 changing land (2nd)
families working together (1st)

Read: Making a Difference
p. 62-65 using land
p. 148 storing food

WRAP UP AND ASSESSMENT:

Name a way land has changed. Name a way families work together

MATERIALS:
Video - Reading Rainbow
OX-cart man by Donald Hall
Posters
#2 changing land (2nd)
#2 families work (1st) together
"Homeplace" by Anne Shelby
Harcourt, Brace, Soc. St. Bks
A Child's Place" and
Making A Difference

VOCABULARY:
Crop
plowed
Canning
Cellar

EXTENSIONS:

CONSIDERATIONS FOR LESSON PRESENTATION:
Video player and T.V.

APPENDIX E

FELICITY'S ORIGINAL PLAN: REPORT GROUP GRADE TWO

Ask the students to arrange the picture cards in order. Ask: Which food group does orange juice belong in? (fruit/vegetable group)

> Bread production: Read the book: The Little Red Hen to go through the steps of making bread. Then point out: Most bread comes from a grain called wheat. Wheat is a plant that farmers grow. Wheat starts out as a little seed and grows into a plant. Farmers pick wheat using big machines. The wheat is taken to a factory where it is crushed until it becomes flour. Then the flour goes to a bakery where the baker mixes it with other ingredients to make bread. Then the bread is taken to the store where you can buy it. Arrange the picture cards in order and ask what food group does bread belong to (grain group).

Check for understanding: Distribute the "food mix-up" worksheet. Explain the directions to the students. Each row of pictures represents the production of a different food. They should examine the four pictures and number the pictures to show the correct sequence of food production.

APPENDIX E

HELENE'S ORIGINAL PLAN: REPORT GROUP GRADE TWO

Lesson Plan #7

Objective: Describe and discuss where our food comes from. Describe the job of workers involved in the food process. Recogniize that many people work together to supply our daily need.

Materials: (TR) Carolyn O'Mahony- Children on Bread: Responses from Students in the Early Grades to Questions about Food Consumption and Production, (TR) Harcourt Brace text, pupil book/unit big book – text Oranges, by Mary Szilagyi.

Preparation: Read over pages in text, make over-head of flow chart.

Time & Task	Lesson Script (Key questions & main purpose, directions)	Notes (anticipated responses: management notes optional)
Anticipatory Set Class Discussion 10 min	(TR) p.66-Display a fresh apple and hold a jar of applesauce behind your back. Recite the rhyme on page 66A. Ask children how they think apples get from an apple tree to a can /jar of applesauce.	Student responses: they may say that apples are smashed together and put into a jar/can. Some students may not know.
Mini-lesson Read text pages 86-89 15 min	FQ: Think about breakfast food you like to eat. How many people do you think it takes to make that breakfast? Read text aloud- have students follow along with flow chart to see how tomatoes are processed to make tomato juice. Describe how many people work together to get food from the farm to your table.	Have students follow along when introducing the flow chart. Students may be amazed to see all that goes into food processing. 1.Field workers use big machines to harvest the tomatoes- 2.Truck drivers talk tomatoes to cannery- 3. At the cannery, workers make tomatoes into juice- 4. Trains/trucks take tomato juice to market across the country.
Interactive Discussion Wrap-up 10 min	Invite volunteers to describe the scene inside the cannery. Ask students what other foods might come from a cannery.	Student responses: catsup, spaghetti sauce, and tomato soup.
Activity/Assessment Read aloud text – "Oranges" 10 min	After reading the text aloud- revisit how foods go through a process to become something we like to eat or drink. Ex. Corn- Corn Flakes. Have students do Activity page 13- fill in the missing pictures/captions to complete the orange-to-orange-juice flow chart.	Students will complete the flow chart by filling in the missing captions. They will learn and understand that foods that we like to eat go through a process before we get them. This is a difficult concept to teach.

APPENDIX E

GLENDA'S ORIGINAL PLAN: REPORT GROUP GRADE TWO

students that we will discuss how we get our apples in the next lesson. End this session with delicious caramel apples!

Although this part has ended, the process of making caramel apples is a great way to tie in language arts. Be sure to have students observe the helper making some caramel apple slices. Ask students how we could share this experience with someone else- another teacher, the principal, other students, etc. Decide on an audience. Ask students to help you write the materials needed and the steps that were taken. Once the recipe is completed, give it to your intended audience. Help students see that different audiences require different types of writing. For instance, if we wanted to publish our recipe in a book it would look different than if we wanted to write it for other $_2$nd graders to follow. What a great way to reinforce the importance of audience when we are writing.

Session 2

Lead a discussion about where apples come from. Guide students to the realization that apples are grown in an orchard, picked from the tree, packed in crates, shipped to a warehouse, sent to stores and finally purchased by us. Read Apples From Farm to Market by Jason Cooper. This book describes the trip fresh produce takes on its journey to us. Now have students think about applesauce. How do we get applesauce? What steps does it have to take? Read Applesauce by Shirley Kurtz to learn about the steps to make applesauce. Make two lists, one to show the route taken by apples and one to show the route taken by applesauce. Divide the class in half Assign one group to draw the route taken by fresh produce. Assign the other group to draw the route taken by applesauce.

Here is an idea to assess students' understanding. Set up a time to go to the Computer Center. Use the Kid-Pix program to make a slide show to represent the two routes. Pairs will create their own slide show. This is a program that allows the students to use the computer to make a picture and record their voices to create a presentation. It is similar to a Power Point presentation. This program works well with anything that can be shown in sections. For example, the life cycle of a butterfly is ideal. Retelling a story is another process that lends itself to this format. We are fortunate to have someone in our district to direct this project. I realize that everyone is not that lucky. This is a super way to assess students' understanding. If this option is not available to you, you can use the drawings as your assessment.

APPENDIX E

EMILY'S ORIGINAL PLAN: INTERVIEW GROUP GRADE TWO

Lesson One - Introduction

Objectives:

Introduce unit

Pose a question about our local question

Brainstorm resources, ways to answer inquiry

Materials:

Photographs self, mother, grandmother

Dishes from similar time periods

Time frame: 20 minutes

Action:

Teacher shows photographs of self, mother and grandmother all approximately at 2nd grade level (age 7-8). If possible, bring in a table setting from each time period with dishes, silver and place mats.

Teacher reads the following and challenges students to match up who (which photograph) is talking in each snippet. And which table setting matches which picture.

> *Oh boy, dad asked if I would help cook dinner tonight. I got to pick the soup, Split Pea with Ham, to go with the macaroni and cheese. I had to open the can of soup. The electric can opener is broken and the old one hurts my hand) and make sure the water didn't boil over on the stove. After I set the table, I poured milk for my brothers and sister. Since Mom's at work, there are only five of us tonight!*

> *Mom asked me to call the boys in from yard work. Our roast is ready. I smell the boiled potatoes and am very hungry. I wonder what father will tell us tonight. It is hard to stay silent for so long at the dinner table!*

Students make predictions and explain their reasoning.
Discuss clues from the readings. What made it easy to guess? What made it difficult?
Teacher reveals answers and explains more of the details and personal experience.

Teacher introduces unit, launching an investigation *Has dinner in Wedgwood changed over time? Why?*

Ask students if we wanted to find out how dinner in Wedgwood has changed, how could we go about it? (typical answers: look in books, ask people)

What questions should we ask? (brainstorm questions). Teacher has final pick of questions. Type up an interview form.

Food Survey

Interviewer _____

Interviewee _____

This is a survey that asks questions about food when you were in second grade, around age 7 or 8. We are interested to see if dinner has changed in over time.

Time frame (Circle one) 2001-2000 1999-1951 1950-1900

1. Describe the food from a typical dinner that you would have eaten when you were in second grade.

2. Where did the food come from (garden, store-which one? Restaurant, etc.)?

3. Who prepared it?

4. Who ate with you?

5. What were sounds that you might hear while you were eating? (music, talking, animals, television, etc.)

6. What was your favorite sweet treat? How much did it cost?

APPENDIX E

ROSEMARY'S ORIGINAL PLAN: REPORT GROUP GRADE THREE

DAY THREE

Introduction

This is the third of ten lessons in a unit focusing on the basic economic concepts of production, distribution, and consumption. It is assumed, after lessons one and two, that students can: I) distinguish between wants and needs, 2) identify food as a need, 3) explain that foods come to us from all around the world, and 4) have a basic understanding of the food groups that make up the Food Pyramid. This lesson will reinforce the above concepts from previous lessons and further student understanding of interdependence.

Objective

In addition to reviewing the concepts highlighted above, this lesson will be the first of many lessons that will give students an in-depth look at the production, distribution, and consumption of the ingredients of an apple pie. This particular lesson will focus on the production, distribution, and consumption of wheat (and products made from wheat). Not only will this reinforce the concept of countries being **interdependent** for food supplies, but it will shed light on the numerous people involved at each stage of the process as well.

Students will use their knowledge of wheat production and distribution to start distinguishing between natural resources, human capital, and capital equipment. (LU) (R) (0) (PDC) (NHC)

Actions

Anticipatory Set

1) Ask for a volunteer or two. Have that student share about his/her dinner the night before. Write it on the board or overhead for the class to see. Ask students to use their Food Pyramids to help identify the different food groups represented.

2) Take a survey of the class as a whole, by asking them, "Keeping in mind what we have learned about the Food Pyramid, how many of you think you ate a healthy dinner last night." Students can use their thumbs to show you (thumbs up =healthy, thumbs down = unhealthy, thumbs sideways =in between).

(Optional Activity for Multiple Intelligences)
Kick off this lesson with "A Celebration of Wheat." Bring in a variety of products made from wheat (bread, rolls, bagels, crackers, pretzels, etc.). Pose the question: "What do all of these foods have in common?" Have students take some time to look, taste, smell, touch (their ***OWN piece,*** of course) to see if they can figure it out. If students don't seem to be making the connection, have them get their Food Pyramids out to see if they can identify a relationship there.

3) If time does not allow for you to do the optional activity above, introduce wheat by using pictures of the items (bagels, rolls, pretzels, etc), and pose the same question, "What do all of

these foods have in common?" If students don't seem to be making the connection, have them get their Food Pyramids out to see if they can identify a relationship there.
4) Before starting the video, make sure students understand the correlation between these food products--they are all made from wheat. Tell students they will be watching a short video about how wheat is produced, or made, and to pay attention to the different stages it goes through.

Modeling

1) Read *The Wheat* We *Eat, published* by Children's Press. It discusses the growing, processing, and eating of wheat, as one of the most common types of grain in the United States. Review this process briefly before watching the video.

2) Watch the first 10-12 minutes of the Reading Rainbow Video "Bread is for Eating."

3) After the video, ask students to help you draw a diagram of the stages the wheat went through to get from a seed to the store.

(Example)
A) seed → B) planted in the earth → C) sun shines → D) rain falls → E) sprouts come up → F) farmer tills soil → G) harvester cut wheat & catches grain → H) worker loads grain → I) miller grinds grain into flour → J) taken by truck to store → K) store keeper sells flour

3) Once the diagram is complete, help students to identify stages 1-9 as **production**, stage 10-11 as **distribution**, and ask them what they think **consumption** might be (people buying the flour and using it to make food to eat). Write these economic terms over the corresponding stages on the diagram.

(Optional Activity for Multiple Intelligences)
Buy samples of the wheat flour at the different stages from a natural food store. Put them in separate jars or bags with labels so students can pass them around and look at them.

Guided Practice

I) Create a three column data table on the board, an overhead, or an easel. Title it "RESOURCES." You will now use the diagram to guide students through the process of identifying resources and dividing the resources into one of the following categories: natural resources, **human capital**, and **capital equipment**. Put each of these words at the top of a column on the data table.

2) Go over the definitions of these words. (If your students are being introduced to these terms for the first time, you may want to draw a little visual aid next to each one on the data table to help them remember: a tree for natural resources, stick-people for human capital, and a tractor, or other tool, for capital equipment).

(Optional Activity for Multiple Intelligences)
Teach students the song, "We've Been Working on Production," sung to the tune of "I've Been Working on the Railroad." (See appendix page 1.) You will need to explain to students that

capital equipment and **capital resources** are the same, as are **human capital** and **human resources.** The song uses the latter terms for each.

(Optional Activity for Multiple Intelligences)
Read *Agatha's Featherbed* by Carmen Agra Deedy to reinforce the differences between natural resources and capital equipment, as well as to help students understand the concept, "Everything comes from something. Nothing comes from nothing." (See appendix page XIX.)

3) Fill in the data table with the various resources used in the video to produce and distribute the wheat flour.

Independent Practice / Informal Assessment

I) Students will work on filling in the **natural resources, human capital,** and **capital equipment** for a fast food hamburger (in class, if there is time, otherwise this can be assigned as homework). (See appendix page III.)

Closure

I) Ask for volunteers to help you review the following terms from today's lesson: *production,* **distribution, consumption, natural resource, human capital,** and **capital equipment.**

2) Tell students that in the next lesson they will continue learning about the ingredients of an apple pie, and how those ingredients are **produced** and **distributed,** and the resources needed to do it.

Extension

Food-for Thought Journal
Have students choose a food product from home and research the resources (**natural resource, human capital,** and **capital equipment**) needed to **produce** and **distribute** it.

Other Related Books:

Guiberson, Brenda A. *Winter Wheat.* Henry Holt and Company, Inc., 1995.

Children's Press. *Wheat.* Children's Press, 2000.

APPENDIX E

COLETTE'S ORIGINAL PLAN: REPORT GROUP GRADE THREE

*HUNTERVILLE: A HISTORIC AND ECONOMIC PERSPECTIVE

LESSON 1: The Early Settlers

INTRODUCTION: This lesson is designed to stimulate students' interest in the historic past of their community. Presented as an oral narrative, students are invited to imagine a setting of spruce, tamarack, and oak forests with an abundance of wildlife, a river and a lake. Inhabiting this place are the Chippewa Indians. The time is the Sixteenth Century. It is here that the history of HUNTERVILLE begins. It was to be another one hundred and thirty years before a white man settled here.

*Prior Knowledge Assumed: A man named PAUL HUNTER came to our area a long time ago and our town was named after him.

*Follow Up: The oral narrative of Dr. PAUL HUNTER'S arrival continues. The early life of PAUL HUNTER will be described, including his family, profession, and motives for coming here. As other settlers arrive, the lesson will focus on the life of the settlers as they come together to build a community.

OBJECTIVES:

1. Students will learn that from a wilderness inhabited by Chippewa Indians, entered a man who, mourning the death of his wife, sought a new beginning for himself and his children. The hardships endured as they toiled to meet basic needs will be described and discussed.
2. Students will identify the events which led to the development of a viable town which had been wilderness.
3. Students will understand that basic core values, needs, natural resources, (i.e. land, water, forests), and economic principles were important factors in the subsequent settlement of the area known as HUNTERVILLE.
4. Students will identify basic needs: food, shelter, transportation, and work from the point of view of a settler living in the nineteenth century.
5. Students will describe how early settlers of HUNTERVILLE obtained food, what they ate, how food was preserved, and draw the conclusion that foods of early settlers fell into the category of BASIC NEED versus WANT/LUXURY.
6. Students will explain how early settlers lived at a subsistence level and compare it to their own lives in the dawn of the twenty-first century.

Content Matter, Skills,Values to be learned:

1. Economic Principles: Core Democratic Values: Life, Liberty, Pursuit of Happiness,
2. Economic Concepts: Supply and Demand, Scarcity, Natural Resources, Human Resource, Wants, Needs, Goods, Services, Product, Property, Barter, Currency, Exchange, Trade, Loan

* Hunterville and Paul Hunter are pseudonyms I inserted in Colette's text.

3. Historical Perspective: Measurement of time by decades and centuries, placement of events in chronological order, identify events in terms of past, present, and future, summarize the sequence of historical events, recount lives of people described in community history, explain core values, qualities of character, and personal virtue of prominent community members, identify problems encountered by early settlers and evaluate solutions, differentiate between historical facts and historical interpretations.

4, Values: Courage, Integrity, Honesty, Goodness, Fairness, Strong Work Ethic

Values are important because it is the strength of the values of an individual or a people that lead to greatness and success. Students need to recognize and emulate these values if they are to be successful people who will lead a successful nation.

RESOURCES:

I. "The Hill and Below," a written history of HUNTERVILLE, by Birdie Colby and Emma J Jane Wright
2. Photos, sketches, and maps of early HUNTERVILLE and its people
3. Mr. Karl Carl, town historian and frequent guest speaker
4. K/W/L learning document
5. Current HUNTERVILLE Map
6. HUNTERVILLE Business People
7. Timeline materials
8. Economics Booklet
9. Learning Log and Document Folder
10. Drawing Materials

ACTIONS: TEACHER:

1. Facilitate students in completion of the K/W portion of the K/W/L document
   Topic: History of HUNTERVILLE
2. Teacher narration of the beginnings of HUNTERVILLE, from 1600s through 1850
3. Teacher- directed discussions focusing on WHO, WHAT, WHEN, WHERE, WHY, HOW questions as they pertain to early local history
4. Teacher-facilitated small groups which, using discussion, are able to make predictions, draw conclusions, recount important events, identify problems relating to teacher-presented material and brainstorm possible solutions, and summarize material presented.
5. Teacher-facilitated student use of writing to: clarify, define, recount in sequential order, summarize, or react to materials that have been presented
6. Teacher-student collaboration in creation of a timeline of HUNTERVILLE history from its beginnings to the present

ACTIONS: STUDENTS:

1. Complete the KIW/ portion of the KIW/L document: Topic: History of HUNTERVILLE.
2. Actively listen to and contribute to discussions during and following narrative of HUNTERVILLE's History.
3. Write predictions, reactions, summaries, sequential fiicts, definitions, solutions, and draw conclusions as they pertain to the history of HUNTERVILLE and its people.
4. Create drawings of people and events as depicted in the historical narrative.
5. Participate in small group discussions on teacher/and/or student initiated topics connected to the unit.

6. Create a first person writing piece in which you are an early HUNTERVILLE settler. Describe the hardships, the food you eat, your shelter, chores, clothing, dangers that exist, education, and family life. Product could be in the form of a diary or narrative, (with or without accompanying illustrations)
7. Collaborate with classmates and teacher in creating an early timeline

ASSESSMENT:

1. Using the KIW/L document, students will identify areas of prior knowledge regarding unit lesson, construct questions related to the unit that they WANT TO KNOW, and complete the document with a summary of WHAT THEY HAVE LEARNED.
2. Through discussion and debate, students will make predictions, summarize, analyze, draw conclusions, and propose solutions in individual or group presentations to the teacher and other class members on a pertinent topic described in Lesson 1.
3. Students will demonstrate clear understanding of the life of the early HUNTERVILLE settlers through creation of a first person wntten narrative which transports the student back in time to 1836 as a child of an early settler. Narratives will be shared aloud in small or whole group setting.
4. Students will write in Learning Logs which highlight and summarize important unit concepts as well as define key terms. Logs will be shared with a partner or the teacher from time to time and evaluated in terms of accuracy and knowledge.
5. Students will recount important events in the early history of HUNTERVILLE and demonstrate the ability the to place these events in chronological order through construction of a timeline.

TIMING: A realistic time frame for this lesson and planned activities would be approximately four weeks.

WEEK ONE would be devoted to narrative and discussion of early history with K/W completion of K/W/L document, beginning entries in the Learning Log, and distribution of folders for collection and review of written materials. WEEK TWO would focus on review of prior information with expansion of information:(i.e. reading materials about foods and food production of settlers in 1836..exploring the topic further).

Students would write first person narratives in WEEK TWO and share them with class members.

WEEK THREE places students in small groups and pairs for discussions on teacher or student-related topics pertinent to the lesson. This is the time when higher level thinking processes would come into play and students would demonstrate the results of discussions by presenting predictions, conclusions, solutions, etc. to the group.

WEEK FOUR finds the class constructing a timeline of important events in chronological order. Students complete the W portion of the K/W/L document. In addition, they culminate the lesson by writing a piece in their Learning Logs describing what they liked and disliked, their favorite activity, and other activities they would like to have done.

*At any time during the four week period, students could bring in photos. implements, family histories, or diaries of that time to share.

APPENDIX E

SHARON'S ORIGINAL PLAN: REPORT GROUP GRADE THREE

Lesson 2

Objective

Review the roles of various nutrients in our health.

Resource

Michigan Model for Comprehensive School Health Education for Grade 3

Actions

The teacher will write the function of the various nutrients on the board, overhead, or posters.

The students will make a poster depicting the job of one or more nutrients to display in the room.

Assessment

Does the student accurately match the function of the nutrient to its role?

Lesson 3
Objective
Have the students realize that nutrients are available in different foods.

Resources

food cards from the Michigan Model

Actions

The teacher will show the students the food cards from the Michigan Model and indicate that the nutrients provided are listed on the back of each item.

The students would add illustrations of foods containing specific nutrients to the appropriate posters.

Assessment

Did the students place the foods with the appropriate nutrients?

APPENDIX E

CRYSTAL'S ORIGINAL PLAN: INTERVIEW GROUP GRADE THREE

Lesson Plan 3

Objective: Acquaint students with food grown in Michigan.

Resources: Each food actually represented and pictures if able to obtain. Each student's Michigan Food Journal, Michigan poster, Michigan map and pencil, list of the foods, 4th grade Social Studies book.

Actions: Teacher will guide, model and direct the lesson's objective. Student wilt locate where the food is grown on the map and transfer that location to place the city on individual poster then draw a picture of that fruit or vegetable next to the city or cities.

Assessment: Small groups workers will compare their locations with each other and compare work These posters will be displayed for whole class comparison

Timing: One or two days

List: Traverse City: cherries! Sara Lee Fremont: Gerber
Southwest Mich: Fruitbelt
St John's: Mint
Battle Creek Cereal City: Kelloggs
Livonia: Peanut Butter
Chelsea: Baking Mixes
Bay City: Potato Chips
Saginaw: Sugar

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