CURRICULUM AS PRAXIS: FOSTERING NUTRITIONAL LITERACIES

THROUGH ACTION ETHNOGRAPHY

by

PAMELA VERONICA WOLSKI STRATTON

(Under the Direction of Deborah J. Tippins)

ABSTRACT

Health conditions related to diet are an ongoing concern in America. Diseases related to nutrition continue to escalate, not only with adults, but also with school children. Although diet and health are facets of the science taught in school, many students do not make the connection between school science and their homeworlds. To facilitate the construction of nutritional literacies, this study viewed curriculum as praxis and was informed by discourses of relevance. The study focused on community nutritional practice utilizing the anthropological tool of memory banking. A teacher, 10 students and eight community members as co-researchers, explored nutritional practices in a community/cultural context in the rural south. Primary data sources were interviews, focus group discussions of memory bank templates and reflections. The narratives of the researcher-participants contained memories of both contemporary practices and historical community nutritional practices. These collective memories were collaboratively analyzed in the narrative tradition and were portrayed as specific narratives. Additionally, more abstract analysis, primarily by the teacher-researcher, resulted in the creation of four schematic narrative templates that can be viewed as tensions or themes. These schematic narrative templates were: (a) *So(ul) good but so(ul) bad*, which investigated the dichotomous nature of soul or comfort food,

(b) *Necessity has become luxury*, which examined paradoxically, how, in the past, food was hunted, grown, and preserved at the home place, yet now these food products are not common, and are appreciated as pleasurable and prized, (c) *We changed!* which discussed the empowerment of the teacher and a female co-researcher as a result of the inquiry process, and (d) *Accepted authority*, which centered around the phenomenon of how the students honored health and dietary advice from their community elders, yet resisted the same advice in other contexts. This action ethnography was underpinned by an emancipatory pedagogy, and placed the community at the nexus of science learning. Implications for further research, as well as curriculum/classroom applications point to the use of alternative approaches to viewing curriculum, especially by including community funds of knowledge.

INDEX WORDS: action research, ethnography, emancipatory pedagogy, community-relevant education, culturally relevant, nutritional literacies, praxis, funds of knowledge, and science education.

CURRICULUM AS PRAXIS: FOSTERING NUTRITIONAL LITERACIES THROUGH ACTION ETHNOGRAPHY

by

PAMELA VERONICA WOLSKI STRATTON

B.S., Agriculture Education, University of Georgia, 1977

M.Ed., Agriculture Education, University of Georgia, 1981

A Dissertation Submitted to the Graduate Faculty of the University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2007

CURRICULUM AS PRAXIS: FOSTERING NUTRITIONAL LITERACIES

THROUGH ACTION ETHNOGRAPHY

by

PAMELA VERONICA WOLSKI STRATTON

Major Professor: Deborah J. Tippins

Committee: P. Gayle Andrews
J. Steve Oliver

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
December 2007

DEDICATION

To my husband, Chris

ACKNOWLEDGEMENTS

There are many who helped me during this six and a half year journey. These words which I have written below are inadequate to express my deep gratitude and sincere appreciation to those who guided and supported me. My intention in mentioning the following individuals is to recognize and thank them.

I must begin with God, The God of all people. With the entire universe and beyond, You are always there to listen to my insignificant issues that seem all encompassing to me. You provide me with support, motivation, conscience, and direction.

My major professor, Deborah Tippins, provided instruction, guidance, support, and help for me whenever I needed it. She was available and accessible—no matter where in the world she might have been. I could not have found a better match for me and my interests. She not only helped me decide on a topic of study that was interesting and relevant for my pedagogy, but assisted and guided my literature review, made countless suggestions with my writing, and revisions, and helped me graduate when I was finally ready. Deborah served as my mentor, but she also embraced "Barkersville" as well, and facilitated scientific literacy experiences for the entire community through her research and educational efforts. She provided professional learning opportunities for the faculty and staff at the school, and brought university personnel and pre-service teachers to aid in our scientific literacy development. She plans to continue her scientific literacy efforts in "Barkersville", and for that I am grateful. I will never forget what a wonderful advisor you have been, Deborah.

I wish to express gratitude to my 18 co-researchers who were willing to engage in a new way to learn, think hard, reflect, discuss, write, and grow. I could not have researched without you and the generous giving of your time. Thank you so much.

My parents, family, and friends never doubted that I could do this. They encouraged and expressed faith in me and my ability. I needed your confidence so that I could build my own. Savannah and Irma, I am deeply grateful for your help and support. To my dad, who is now in heaven: You always wanted me to be a Dr.; now, I am; just a different variety.

My committee members, Gayle and Steve, both competent and knowledgeable educational researchers, guided me by being available to me and by giving me comprehensive exams that led directly into writing my Prospectus and Dissertation. They made suggestions and gave encouragement, and with the blend of their research interests; middle level education, and rural science education, were the perfect choices for my research. Thank you for always responding to emails and for giving of your time.

Colleagues at my school read portions of my writing and were willing to reflect with me and give opinions and advice. Others allowed me to interview them for qualitative courses as I learned how to become a researcher. I appreciate their time and expertise.

Dr. Laurie Hart, my advisor for three years, assisted me in so many ways. She helped me find courses that fit my interests, taught me in her classes, and was available to answer questions and offer guidance when I needed it.

I have been privileged to know, other special professors who helped me broaden my horizons. These are: Jim McLoughlin, Kathy Raulston, Elizabeth Pate, Jim Weisenbaker, Juanita Johnson-Bailey, and Gary Couvillion. Thank you all so much for sharing your knowledge and time with me.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

WHY STUDY COMMUNITY, DIET AND LITERACY?

The Surgeon General, Vice Admiral Richard H. Carmona, M. D., declared 2005 as The Year of the Healthy Child. The agenda for The Year of the Healthy Child focused on "improving the body, mind, and spirit of the growing child" (Surgeon General, 2005, ¶ 1). Carmona, emphasizing the health education crisis explained, "We know that the health needs of children grow into the health problems of adulthood …. By improving the holistic health of our children, we can ensure a healthier population for the next generation" (2005, ¶ 2). In America today, many teens face problems with their health that were once looked at as only problems of the middle aged and/or older Americans. Diabetes, hypertension and obesity threaten millions of teens and children. These problems in teens are often linked to diet (Satcher, 2005).

The National Governors Association (2005) with Mike Huckabee, governor of Arkansas as its chair, has begun a campaign, the *Healthy America* Initiative, to improve the health of Americans through healthy living habits—proper nutrition, exercise, and avoidance of tobacco products. Over 120 million Americans are overweight and costs for medical expenses that can be attributed to obesity have been tabulated at $78 billion for 1998 (Finkelstein, Fiebelkorn, & Wang, 2003). The *Healthy America* Initiative goes beyond Americans just losing some weight; it is calling for cultural change—Americans 'embracing' healthier lifestyles. To effect this cultural change, the governors plan to use their offices as platforms to raise national awareness about health. They believe that many Americans do not see the connection between unhealthy diet and chronic diseases such as diabetes and stroke. As a result of this perceived disconnect, the

Governors are outlining behaviors and lifestyle changes for communities, workplaces, schools and homes. The Governors believe that certain lifestyle changes, for example, increasing physical activity as well as eating more fruits and vegetables, will help people reduce the risk and complications of many health conditions like diabetes, hypertension, stroke, heart disease, and cancer.

Articles about *diabetes*, defined as a disease involving high levels of blood sugar and its relationship to insulin (Medlineplus, 2007), and its prevention are becoming prevalent in newspapers. The syndicated column, *Dear Abby,* printed a letter from R. Rizza, M.D. of the American Diabetes Association, explaining that diabetes and related health problems are often associated with obesity and can be prevented and controlled through "awareness" (2006). Rizza explains that today in America there are approximately 20.8 million people living with diabetes and that about 6.2 million of those 20.8 million people are unaware that they have diabetes and probably won't find out until one of its devastating complications develops. He adds that an additional 41 million people are at risk for developing type 2 diabetes.

Rizza used the newspaper column as a means of highlighting this national health problem. A feature article in the food section of the local newspaper recently featured recipes that are both delicious and appropriate for diabetic individuals. The article explains that there are different types of diabetes, but that knowledge, moderation, and portion size are the essential keys to sustaining health (Mason, 2006).

Diet, Poverty and Health

Many studies in recent years have established relationships between people who live in poverty and a disproportionate amount of health issues (Kawachi, Kennedy, & Wilkinson, 1999; Stunkard, Thorkild, & Sorenson, 1993). Drewnowski and Specter (2004) highlight the

connection between poverty and health problems in the United States. One connection is related to the fact that healthier versions of food often cost more. Drewnowski and Specter note:

> There is no question that the rates of obesity and type 2 diabetes in the United States follow a socioeconomic gradient, such that the burden of disease falls disproportionately on people with limited resources, racial minorities, and the poor. Among women, higher obesity rates tend to be associated with low incomes and low education levels. (p. 6)

It is widely accepted in the medical and scientific community that both obesity and poor health are related to socioeconomic status and yet the relationship is complex (Isaacs & Schroeder, 2004). In a study conducted by Regan, Lee, Booth & Reese-Smith, (2006) specific factors of economically impoverished environments were looked at to see how they might contribute to obesity. Their study investigated the obesity rate in 14 urban public housing areas. The results of the study indicated that a higher percentage of the residents of the housing areas were overweight as compared to the general public. The researchers also found that often neither physical activity resources nor grocery stores were located near the housing. However, fast food restaurants and convenience stores were readily available to the residents. These venues, which often do not contain fresh produce and healthy food choices, were commonly used as food sources by the residents of the housing areas.

Isaacs and Schroeder found that poor neighborhoods do not offer residents chances to improve their health, education, safety, or housing. They suggest that the realities of a substandard and dangerous environment are often coupled with the stresses of unemployment or a low prestige/paying job (2004). They also suggest that poor health seems to have a strong relationship to a low socio-economic status (SES). Isaacs and Schroeder call for health reform that addresses social class as well as insurance coverage, nutrition, and healthy behaviors.

Kleinfield writes that the disease of diabetes and those that suffer from it reflects an inverse relationship to income (2006). He believes that people who live in poverty often do not have the economic means to purchase fresh, healthier forms of produce, canned goods, and proteins. Northeast Georgia public health officials are focusing on the growing problem of diabetes (Shearer, 2006). It is not only the sixth leading cause of death in Georgia but also contributes to other health conditions like stroke, kidney failure, blindness, and heart disease. According to Shearer (2006), Type 2 diabetes, the most common form, used to be thought of as an adult disease and was known as adult onset diabetes. Type 2 diabetes is now being diagnosed in children. More than 90% of those diagnosed with Type 2 diabetes are overweight.

Need for the Study

I am the agriculture and family and consumer sciences teacher at a Title 1 school (Borman, 2000) located in rural northeast Georgia. Many of my students are overweight, often bring junk food to school for snacks, and have family members who suffer from diabetes as well as hypertension (informal student survey, 2005). I am interested in health issues both in my personal and professional life.

Barkersville School (pseudonym) is located in a rural county in northeast Georgia that is ranked lowest in the state in terms of personal income (Boatright & Bachtel, 2006). A year-round, K-12 charter school, Barkersville, serves the majority of students in this county. The school is comprised of 89% minority students. More than 94% of the students qualify for free or reduced lunch. (R. P. Brown, personal communication, March 11, 2005). Many of the state mandated standards for the Family and Consumer Sciences courses I teach are related to food, nutrition, and health. As I have observed firsthand, my students seem interested in the fruit and

healthy food I bring to school, but they bring unhealthy junk food for their own snacks. Many of my students are overweight, lethargic, and physically inactive (school nurse's observation, 2005).

The majority of students attending Barkersville School live in poverty (Boatright & Bachtel, 2006). While most people, regardless of socio-economic status face health issues at some point in their lives, as pointed out earlier, there seems to be a link between people who live in poverty and poor health (Drewnowski & Specter, 2004; Isaacs & Schroeder, 2004; Kawachi, Kennedy, & Wilkinson, 1999; Kleinfeld, 2006; Lynch, Kaplan & Shema, 1997; Regan, Lee, Booth & Reese-Smith, 2006). The International Council of Nurses (2005) explained:

> Poverty is a disease that saps people's energy, dehumanises them and creates a sense of helplessness and loss of control over one's life. Illiteracy, ill health, malnourishment, environmental risks and lack of choices contribute to the perpetual cycle of poverty and ill health. (¶ 1)

Health problems are faced by many people in the Barkersville community (school nurse's observation, 2005). In the last six years, we have had three staff members and one board member die from illnesses that could be connected to hypertension. Their ages ranged from 31-52 and all were Black people who grew up in this area. I believe that healthy eating habits could help cure/prevent some of these health issues. As a teacher and active member of this community, I want to develop students' *nutritional literacies* through the process of creating community-relevant nutrition curriculum. The concept of *nutritional literacies* was central to a study conducted by Calabrese Barton, Hindin, Contento, Trudeau, Yang, Hagiwara, et al. (2001). In this study the researchers examined urban mothers' connections between home and school science, as realized through food and nutrition. Barton et al. (2001) suggested that by building

connections between home and school science (as shown through the development of nutritional literacies) positive implications for children, mothers, and teachers can result.

For the purpose of this study, nutritional literacies is defined as having knowledge about and proficiency in healthy eating and the belief that one can control one's nutrition to positively affect the body's health. It is about seeing the connection between science and health. One aspect of nutritional literacy is the belief that one can make a difference in the health of oneself through nutrition—what Bandura (1997) refers to as *diet self-efficacy.*

The U. S. Department of Health and Human Services Centers for Disease Control and Prevention (CDC) has published resources and strategies for schools to help promote healthy behaviors in children. The recommendations are based on scientifically reviewed interventions that are most likely to increase healthy behaviors in school children (1996). Although many schools are implementing strategies to promote healthy eating (CDC, 1996), studies have found that the children's health does not seem to be improving. For example, Kolata (2006) found that although schools in New York City and Los Angeles have replaced whole milk in cafeterias with lower fat varieties, statistics show that the children are continuing to become overweight. She also reported on a $20 million, eight year study sponsored by the National Heart, Lung, and Blood Institute that involved over 1700 third graders in Southwestern schools (2003). These children were randomly divided into groups. Half the children received anti-obesity interventions while the other children served as a control group. The researchers found that the children in the intervention group could better recite rules about proper nutrition and healthy eating, and also ate less fat in their total diet—27% vs. 34% than the children in the control group. However, there was not a significant difference in the weights of the children of the different groups at the end of the study. Perhaps strategies to help combat childhood obesity and the health problems that often

follow need to be implemented not only during the children's school day but also in the home life of the children. Maybe these strategies should embrace the children's culture and community and involve not only students and teachers, but also family and community members. Or perhaps there are other dynamics involved with this issue.

In this study, a teacher and her students along with community members collaborated to find ways to develop nutritional literacies that incorporated local knowledge and cultural practices. In the process of viewing curriculum as praxis, connections between school science and the day-to-day science in everyday lives were developed. Ultimately, through action research, the study sought ways to enhance student learning and foster the development of nutritional literacies which may lead to the adoption of healthy dietary habits.

Purpose of the Study

The purpose of this study was to see what happened when my students and I collaborated with interested members of the community to develop a community-relevant science/nutrition curriculum. The study was conducted as an ethnographic action research (Donald & Grosling, 1995; Fusco, 2001; Kemmis & McTaggart, 2000, Spindler & Spindler, 2000) project utilizing the anthropological tool of *memory banking* (Nazarea, 1998). As a research tool, memory banking was developed by Nazarea for use in collecting and documenting local knowledge and practices that related to the preservation of heirloom seeds. Nazarea was concerned that even though heirloom seeds were preserved, the history and culture associated with the seeds was disappearing. To preserve history and culture, memory banking was used to document the local knowledge and practices of a particular region, along with its heirloom seeds.

In a study of community-based science teaching, Nichols, Tippins, Morano, Bilboa, and Barcenal (2005) adapted the idea of memory banking by conceptualizing 'seeds' as cultural

facets or practices of the community. In their study, 'seeds' consisted of political, religious, economic, health, environmental, and sociocultural local knowledge. In this study, memory banking, as adapted by Nichols et al.., was used as an ethnographic tool. In the spirit of ethnographic inquiry, together with action research, this study sought to "uncover meanings and perceptions on the part of the people participating in the research, viewing these understandings against the backdrop of the people's overall culture" (Crotty, 2003, p.7).

This study was about a teacher and her students looking at curriculum as praxis (Grundy, 1987). Together, they were engaged in the process of constructing a nutrition curriculum that is relevant to the community and at the same time consistent with the Surgeon General's agenda for 2005 and the National Governors Association's *Healthy Initiative* (2005). In this study, action research was used to explore and foster nutritional literacies through the construction of nutrition curriculum

Research Questions

This study explored and embraced community knowledge and practices by viewing curriculum as praxis. Nutrition and food are a part of everyday home life as well as an important part of science curriculum at school. However, many students do not recognize the importance of science in their everyday lives (Charron, 1991; Costa, 1995; Fusco, 2001; Hammond, 2001; Jegede & Aikenhead, 1999) and thus do not value the knowledge. Many believe that science is a course in school or a textbook to study. Perhaps by involving food, family, and community in learning, science will gain relevance (Ladson-Billings, 1995). Accordingly, the following Research questions guided the study:

1. What does memory banking (Nazarea, 1998) reveal about local nutrition practices and knowledge?

2. What notions of nutritional literacies are constructed as the participants collaborate during this study?

3. What happens when students, teachers, and community members collaborate to create a community-relevant nutrition curriculum through action research?

4. What tensions are created when trying to develop nutrition curriculum in this school and community?

In this study we addressed tensions that were created between local knowledge and nutritional practices and school science. We considered the tensions as we collaborated to generate a community-relevant nutrition curriculum.

Rationale for the Study

This study is significant because it focuses on the education of children who are often overlooked in today's policies and research (Arnold, 2005; Beeson & Strange, 2003; Lewis, 1992). Rural poverty affects millions of children, a higher percentage than children living in urban areas, yet the majority of research focuses on the challenges of students who live in urban poverty (Hardy, 2005). Save the Children, an international organization, and a "global, non-profit, child assistance organization" (Save the Children, 2002) released a report called *America's forgotten children: Child poverty in rural America* (2002). It lists risk factors related to a child's growth and development that ultimately affect academic achievement. These factors include many of the issues faced by Barkersville students; foremost among these factors is their nutritional practices. This collaborative action research (Donald & Grosling, 1995; Fusco, 2001; Kemmis & McTaggart, 2000) inquiry was intended to address this gap in the literature.

A report produced by Save the Children (2002), with its mission of making a positive impact on the lives of children, sheds light on the reality of rural poverty. It explains,

> Regardless of where they live, life is extremely hard for children growing up in poverty in the United States. Opportunities to grow and thrive are limited by inadequate education, health care and parental work opportunities. The resulting damage can leave a deep scar on children and decrease their chances of succeeding in school, getting good jobs, and living a healthy life. Because the plight of poor children in the inner city is well-known, many Americans may be surprised to learn that for the past several decades, child poverty rates have been higher in rural than urban areas. In fact, approximately 2.5 million children live in poverty in rural America. (p. 2)

Beeson and Strange (2003) were concerned about the lack of attention rural schools are given when federal policies are made. They analyzed descriptive data on rural schools that serve students in communities less than 2,500 people. They found that 21% of American school children attend rural schools in these small communities and face unique challenges. Arnold (2005) believes that while the United States Department of Education has created a Rural Education Task Force to improve the plight of rural schools, it is under funded. He writes that he cannot find any achievements made by this task force and has found no activities except a virtual town hall meeting about technology and how it helps to meet the goals of No Child Left Behind. Farmer, Irvin, Thompson, Hutchins, & Leung (2006) studied rural African American adolescents who live in poverty and cited a gap in the literature for this population. They call for further research with these students.

Children who live in rural poverty can have healthy and rewarding lives. These students' teachers can have an enormous impact in helping them strive to meet the goal of a successful future. However, this education can not be achieved in isolation from the home lives of students.

Teachers must involve the students, themselves, and their community in issues of teaching and learning. The tenets of culturally-relevant pedagogy and its many facets could serve as a guide.

The teacher-researcher chose to study nutrition with her students and other interested community members because food and eating are an integral and basic part of life and are deeply rooted in cultural practices. Nutrition is a facet of science, yet many students do not connect school curriculum science with everyday living (Charron, 1991; Costa, 1995; Fusco, 2001; Hammond, 2001; Jegede & Aikenhead, 1999). She wanted to help her students make the connections and see the importance of science in their lives. She also wanted to encourage healthier eating habits.

In this study, students, community members, and teachers from Barkersville collaborated to develop a community-relevant nutrition curriculum. Because of health problems that can be traced to diet, there was and continues to be an urgent need to co-construct community-relevant curriculum. This was an ethnographic/action research project whose participants were seeking to help foster nutritional literacies. Nutrition and science were viewed as an important part of everyday living through this process. The teacher-researcher has chosen to use the term *community-relevant curriculum* after much thought. She originally planned to use the term *culturally-relevant curriculum,* but because the researchers—her students, this community, and the teacher, brought different cultures to this study and they wanted this action research project to benefit the community, it was framed in relation to community-relevant curriculum. Although this research serves as a model for how to co-construct nutrition curriculum for other communities, any plans and ideas developed are particularly relevant for Barkersville.

During the course of this study, the teacher-researcher was in the unique position of teaching Agriculture, Family and Consumer Sciences and middle school Science classes at the

Barkersville School. In her classes, they not only grew food, but they planned and cooked meals. They also studied food preservation. She and her students often worked with younger classes on food science projects. Thus, curriculum that emphasized community-relevant nutrition could potentially impact the entire student body and community. Developing nutrition curriculum, and by extension, nutritional literacies, using local practices and knowledge, might also increase student interest in learning science and demonstrate the relevance and importance of science in everyday life.

Epistemological Stance and Theoretical Framework of the Study

This ethnographic action research study and the methods used to collect data were situated in a constructivist epistemological framework (Habermas, 1972; Oldfather & Thomas, 1998). This framework is rooted in notions of emancipatory curriculum. How can curriculum serve as liberatory or emancipatory? Habermas (1972) wrote of the *emancipatory cognitive interest* that is a fundamental interest in empowerment. According to Habermas (1972), people who are empowered might begin to engage in autonomous action that arises from critical, authentic insights about society. By studying nutrition practices and wisdom in the Barkersville community through ethnographic action research inquiry perhaps nutritional literacies will be developed in the participants and thus they may become empowered. This empowerment in the Habermasian sense may manifest itself into nutritional autonomy or a sense of self-efficacy in the participants when faced with eating and other nutritional decisions.

Grundy (1987) drew from Habermas' ideas to explain how an emancipatory pedagogy confronts reality and gives rise to self-directed responsible action that can serve to "liberate people from dogmatic dependence" (p.16). This study sought to empower the participants through study and reflection of community ideas and practices. The theoretical framework was

drawn from the integration of assumptions surrounding constructs of a) culturally relevant pedagogy (Ladson-Billings, 1994, 1995; Matthews, 2003), b) practical and emancipatory curriculum (Freire, 2001; Grundy, 1987; Grundy & Hatton, 1995; 1998; Habermas, 1972), c) funds of knowledge (Hammond, 2001; Moll, Amanti, Neff, & Gonzalez, 1992), and d) cultural memory banking (Nazarea, 1998; Nichols et al., 2005). The pedagogical practice that was informed by and in turn informed this study is emancipatory in nature and seeks to both involve the community and draw on community knowledge (Moll et al.; Nazarea; Nichols et al.) in an effort to co-construct nutritional literacies. Any literacies constructed by the participants should serve to aid in empowering the participants to develop socially, politically, culturally, and intellectually (Freire, 2001; Zahur, Calabrese Barton, & Upadhyay, 2002).

This liberatory/constructivist framework in the study provided a useful theoretical tool for the process of constructing nutrition curriculum in context—a curriculum mediated by Barkersville knowledge—(Tobin & Tippins, 1993) and thus congruent with community beliefs and values. Cobern (1993a) describes this variety of constructivism as *contextual.* He explained, "students construct knowledge appropriate to the context that is meaningful to them" (p. 110). Contextual constructivism recognizes the production of knowledge through both individual reflection and social interactions but also portrays culture as a central force in the development and organization of a person's ideas. The emancipatory pedagogical practice encompassing the study allowed the participants to be agents in their own learning and as a result, the curriculum constructed (practical and realistic in the context of the Barkersville community) was not so much a product but praxis (Grundy, 1987).

For the purpose of this ethnographic/action research study, *praxis* was defined as reflexive action in the social realm (Grundy, 1987). In essence, curriculum was a negotiation

through discourse between the teacher, students, and community members—the participants in the study. This praxis consisted of the participants acting to become informed through the context of community and current scientific knowledge. Reflection and collaboration along with the anthropological tool of memory banking facilitated the process.

Methodological Framework of the Study

The study was ethnographic in nature and was grounded in the methodology of a participatory action research design (Donald & Grosling, 1995; Grudens-Schuch, 2004; Kemmis & McTaggart, 2000). As an action research inquiry, it involved collaboration among students, parents, teachers, and members of the community in the roles of co-researchers. In this study, action research was defined as pursuing research for social change (Fusco, 2001). This inquiry was guided by the ideas of Guajardo and Guajardo (2002). They described their work as an engagement in a "hybrid version" of critical ethnography that seems closely related to action research. They noted, "as we paint the picture of a people and their community, we have given them a brush to paint with us as we simultaneously legitimize their knowledge that in turn creates power" (p. 285). This Barkersville study was further guided by the ideas of Kemmis' and McTaggart's conceptions of action research (2000). They explained, "Three particular attributes are often used to distinguish [participatory action research] from conventional research: shared ownership of research projects, community-based analysis of social problems, and an orientation toward community action" (p. 568).

In this study, constructing science curriculum was a way of "giving brushes" (Guajardo & Guajardo, 2002) or empowering the participants to become informed about nutrition and then develop nutritional literacies through the context of community. This ethnographic/ action research study was also about curriculum as praxis (Grundy, 1987) and curriculum as inquiry

(Short, Schroeder, Laird, Kauffman, Ferguson, & Crawford 1996). Viewing curriculum as praxis and inquiry is emancipatory in nature (Freire, 2001; Grundy, 1987) and, in this study, was meant to foster the development of thinking, speaking, writing, reading and listening skills. This process involved teachers, community members, and students using their life experiences to question, research, and then reflect to construct knowledge through their own perspectives. They were all shareholders in this study with the meaning making involving the social construction of knowledge and negotiation of curriculum.

Methods of the Study

This action research inquiry was an ethnographic case study (Guajardo & Guajardo, 2002; Merriam 1998, Spindler & Spindler, 2000). The study reflected the stories and lives of a group of students, their teacher, and other community members as they attempted to construct community-relevant nutrition curriculum, and corresponding nutritional literacies. Ethnographic methods were used to construct data. These ethnographic methods were: (a) memory banking (Nazarea, 1998), (b) document analysis, (c) observations of food preparation and nutritional practices, (d) focus group discussions, (e) written and oral reflections, and (f) posters created with data from interview transcriptions to inform the public at a community science night.

Participants.

The sample of participants for this study was chosen purposefully and can be described as *typical* (Merriam, 1998; Patton, 2002). The sample was seen as typical because the participants were viewed as average Barkersville citizens, not outside the norm for the area. The 18 participants were selected so that what they described and illustrated reflected nutritional practices that are usual in the Barkersville community. They all were familiar with community

events and norms. The age range of the participants was from 11 years old to 82 years old. Both males and females, and Blacks and Whites participated both as interviewers and interviewees.

Data Construction/Analysis

The data constructed through this inquiry process was looked at as both primary and secondary in nature. The primary sources were interview transcripts, memory banking templates, field notes, and reflections written in response to the interviews and the focus group discussions. Secondary data sources included journals from participants, and artifacts such as newspaper articles, and cookbooks.

Analysis of the data was an ongoing process throughout the study (Silverman, 2000) and began with reflections after interviews as well as focus group discussions. These reflections, both oral and written were scrutinized for common themes and ideas. As the study progressed, transcriptions and memory banking templates were constructed and examined as well as ideas from initial reflections to construct commonalities from amongst the stories and practices. This inquiry addressed the tensions created while trying to integrate community knowledge with state mandated standards. Both specific and schematic narratives (Wertsch, 2002) were used to illustrate what was learned in this study.

Subjectivities Statement

I do not live in the community in which my study took place. This community is impoverished economically and I do not live in an economically impoverished community. I am White. Many of the co-researchers of this study are Black. I have graduated from college and many of the participants that I included in this study have not finished high school. I am middle aged and many of my co-researchers were teens. I did not grow up in the South, yet I am

studying a southern community with its customs and traditions. Although I did not grow up in Barkersville and do not live there, I have known my students and their families for six years.

I believe that my status with the co-researchers can best be described as *insider/outsider* (Merriam, Johnson-Bailey, Lee, Kee, Ntseane, & Muhamid, 2001). While I am a familiar and accepted figure in the Barkersville community, I am still not included when some situations arise and are discussed and am not privileged to certain information. I am still sometimes seen as a "White woman" and a teacher from the school by my students and their parents.

I feel like I belong to this community because I have served as the school and community's agriculture/family and consumer sciences teacher for six years. I have visited many of my students' homes and have been involved in community and family issues with my students. I have traveled both in and out of state with my students as we competed in FFA (the youth organization for students studying vocational agriculture, formerly known as Future Farmers of America) career development events. I feel like an outsider because my race, age, address, and income are different from that of my co-researchers. I know that a healthy diet based on scientific research is a priority in my life but, at the beginning of this study, I did not feel that my co-researchers placed a similar value on healthy eating habits. However, I think that the work we did together in this action research study served to solidify my relationships with people in this community and increased my insider status.

I chose to study community-relevant curriculum because I believe in curriculum as praxis. I sought ways to involve the community and include local knowledge and practices in the students' school learning. I think that many students do not see science in their everyday lives. I think that many people believe that science is a course in school or that science is a textbook to study. I also believe that nutrition plays a vital role in health. Food, family and community are

very important to my students and I believed that by including these components of my students' lives in their school curriculum, science learning would gain relevance.

Overview of the Dissertation

Chapter 1 presented an overview of an ethnographic/action research study which emphasized the development of nutritional literacies in the context of community wisdom. It began with compelling facts about the status of nutrition in America today which serve as the rationale for the study. The purpose and research questions were explained and situated in the Barkersville community. The epistemological and theoretical frameworks which guided the study were introduced. The methodological framework of this inquiry was introduced and briefly discussed. A subjectivities statement was written to reveal personal ideas and biases.

Chapter two detailed the epistemological stance and theoretical perspective that informed this study as well as the relevant literature. This chapter was organized into four major categories: (a) a discussion of the socioculturally constructivist epistemological framework that guided this study, (b) a discussion of how the integration of constructivist and critical perspectives informed the emancipatory pedagogy, (c) a discussion of curriculum viewed as praxis together with a review of models of student-centered curriculum that subscribe to this notion in relation to various discourses of relevance in the education of children, and d) a review of research related to community-based/community centered science education which included studies of rural communities as well as those that focused on issues of nutritional literacies.

Chapter three described the hybrid design and methodology of this ethnographic/action research inquiry. The participants and their roles, as well as the specific methods used to construct data were thoroughly explained. The narrative tradition used to make sense of the data as utilized in this inquiry was discussed.

Chapter four explored the data constructed from both the primary and secondary sources. Memory banking templates were developed from interviews, reflections, and excerpts from journals. Four community nutritional practices were depicted in these memory banks. In addition to each memory banking template, specific narratives were written about each practice from a synthesis of the collective memories of the researcher-participants and were presented and discussed. Then, additional analysis of the data was described in the form of constructed schematic narratives templates. These served to highlight the underlying tensions and themes of the study.

Chapter five presented the findings and conclusions constructed from this action ethnography. These were presented in the context of the research questions and relative literature. Also in this chapter, implications drawn from this inquiry for further research and application were given.

CHAPTER 2

REVIEW OF RELEVANT THEORY AND LITERATURE

This study began as an effort by a teacher and her students as co-researchers to document what happened as they attempted to construct community relevant nutrition curriculum while focusing on tensions and literacies formed throughout this journey. The inquiry lasted seventeen months and during these months, the co-researchers collaborated as a whole group, in small teams, and as individuals to construct data. They then reflected, discussed, debated, and analyzed, then continued to reflect to try to make sense of their findings. During these months of being involved in this study, the researchers also studied science with university professors and pre-service teachers who came to their school. These interactions with the people from the university facilitated the action research process which guided this study.

This action research ethnography was guided by the following questions:

1. What does memory banking (Nazarea, 1998) reveal about local nutrition practices and knowledge?

2. What notions of nutritional literacies are constructed as the participants collaborate during this study?

3. What happens when students, teachers, and community members collaborate to create a community-relevant nutrition curriculum through action research?

4. What tensions are created when trying to develop nutrition curriculum in this school and community?

This chapter highlights significant and applicable literature that served to focus the epistemological framework and emancipatory theories which informed this inquiry. This chapter

also reviews relevant studies on curriculum, nutrition, literacy and discourses of relevance in science curriculum. This chapter is divided into four main sections and these sections are then further subdivided. The first section explains the constructivist epistemological stance and describes the ideas and concepts of social/contextual constructivism which guided this study. This is followed by an explanation of how with a critical perspective, the teacher-researcher integrated the tenets of contextual constructivism and theories of memory to construct a theoretical framework. In the third part of Chapter 2, literature that pertains to notions of emancipatory curriculum and discourses of what it means to teach in a relevant manner are discussed. The final section of this chapter focused on what research says about community-based science and the issues of connecting science to everyday life.

Epistemological Stance

This inquiry is guided by the belief that learning is a social activity, yet one that is deeply personal. In addition, a basic premise of the study is that learning takes place in a cultural context (Habermas, 1972; Grundy, 1987; Wertsch, 2002) and involves both intrapersonal and interpersonal actions. (Oldfather & Thomas, 1998). To guide this study, I drew from a social constructivist perspective (Cobern, 1993a; 1993b Habermas, 1972; Grundy, 1987; Dilworth & Brown, 2001; Fosnot, 1996; Howe & Nichols, 2001; Oldfather, 1995; Tobin & Tippins, 1993; von Glaserfeld, 1996; Vygotsky, 1987; Windschitl, 2000).

Audi (2001) wrote that *constructivism* is a term that is often "associated with such figures as Piaget and Lev Vygotsky, who see learning as a process in which subjects actively construct knowledge"(p. 855). Constructivists view students as dynamic human beings with experiences and ideas and not as people with brains like empty containers waiting to be filled with knowledge imparted by the teacher. Vygotsky (1987) distinguished between brains and minds.

He explained that a brain is formed through biological sources but a mind is culturally mediated. Fosnot (1996) further explained that learning is a process of invention which involves making connections between facts and past experiences and then reflecting on these connections to bring about resolution to a cognitive conflict. Fosnot (1996) pointed to assimilation and accommodation as the building blocks of constructed knowledge. According to Fosnot (1996), learning is a process which involves reflecting, making connections between present and past knowledge, and then resolving a cognitive conflict. The process of constructing nutrition curriculum and its corresponding nutritional literacies caused the researchers in this study to confront tensions that developed and to seek ways to resolve these tensions through dialogue and compromise. Sometimes these resolutions required a shift in perspectives. Past knowledge as well as newly acquired ideas were reflected upon, reconciled and assimilated in order to build literacies.

Cobern (1993b) explained that when viewing learning through a constructivist lens, one should always consider students as active agents in learning through the very nature of having to interpret and then negotiate the knowledge through discourse (p. 61). These interpretations vary due to the students' past life experiences. A basic tenet of constructivist epistemology is the assumption that students come to the classroom with ideas and skills and use this knowledge to make sense of new facts and ideas. Although the learning may take place in the same environment with one teacher explaining identical information, often the knowledge that is gleaned from the learning experience varies from student to student. This phenomenon of students departing from the same educational encounter with different versions of knowledge and learning experiences makes perfect sense in the constructivist paradigm. Implicit in Cobern's

conception of this model is the agency of the students because of discourse and negotiation which in turn lead to understanding. This knowledge is then considered deeply personal.

Tobin & Tippins (1993) maintain that while all humans construct their own knowledge, it is mediated by the context in which it is constructed. Cobern (1993a) describes this variety of constructivism as *contextual.* He explains, "Students construct knowledge appropriate to the context that is meaningful to them. The result can be a radical schism between teacher and student" (p.110). In order for teachers to help students construct canonical science knowledge, they must comprehend the students' perspectives and the ways in which past experiences contribute to the formulation of new understandings. According to Cobern (1993b) reflection and dialogue can facilitate this process of understanding and help to resolve conflicts and mediate meanings.

Social interactions are not the only basis of knowledge construction; contextual constructivism emphasizes culture as a central force in the development and organization of students' ideas. In Barkersville, the participants in this study attempted to construct nutrition curriculum that made sense to them, but the act of constructing this curriculum was a collaborative effort, and as a result, the nutritional literacies constructed reflect social/community knowledge.

As a researcher, the teacher used constructivism as a referent (Tobin & Tippins, 1993) to conceptualize her position in the study. By using constructivism as a referent, she understood her role as researcher to be one as a learner in this study. As she collaborated with the co-participants, she tried "to make personal sense of (the) experience(s) and, in a socially mediated way, to build knowledge in (my) … field" (Tobin & Tippins, 1993, p. 15). She sought to co-construct knowledge of nutritional literacies that was both practical and realistic in the context of

the Barkersville community. The participants in this study actively sought to construct nutrition curriculum that made sense in their context and reflected the beliefs and valued practices of the Barkersville community. All the research-participants both constructed and analyzed the data collaboratively and negotiated meaning and concepts.

Theoretical Framework

This ethnographic action research including the methods used to both construct and make sense of the data, was situated in a social contextual epistemological framework (Cobern, 1993b; Habermas, 1972; Grundy, 1987; Dilworth & Brown, 2001; Fosnot, 1996; Howe & Nichols, 2001; Oldfather, 1995; Tobin & Tippins, 1993; von Glaserfeld, 1996; Vygotsky, 1987; Windschitl, 2000). The theoretical framework that guided this study was rooted in notions of emancipatory pedagogy as well (Freire, 2001; Grundy, 1987; Habermas, 1972). It was drawn from the integration of assumptions surrounding constructs of a) practical and emancipatory curriculum (Freire,2001; Grundy, 1987; Grundy & Hatton, 1995; 1998; Habermas, 1972; Smith & Lovat, 1991; Zahur, Calabrese Barton, & Upadhyay, 2002), b) culturally relevant pedagogy (Hammond, 2001; Ladson-Billings, 1994, 1995) c) funds of knowledge (Hammond, 2001; Moll, Amanti, Neff, & Gonzalez, 1992), and d) cultural memory banking (Nazarea, 1998; Nichols et al., 2005). This study was framed as an emancipatory pedagogical practice that sought to draw on community knowledge (Moll et al., 1992.; Nazarea, 1998; Nichols et al., 2005) to co-construct nutritional literacies and empower the participants to develop socially, politically, culturally, and intellectually (Freire, 2001; Zahur, Calabrese Barton, & Upadhyay, 2002).

The participants of the study were viewed as agents in their own learning. Likewise, curriculum was conceptualized as praxis (Grundy, 1987) rather than product. Grundy (1987) viewed curriculum through a cultural lens and wrote that it is not something one might find in a

book. She looked at curriculum as experience, and as a way "of organizing a set of human educational practices" (p.5). It seen as a journey, not a set of prescribed steps to check off.

In this study, praxis consisted of participants acting to become informed through the context of community and current scientific knowledge. Reflection and collaboration along with the anthropological tool of memory banking facilitated the process.

Memory banking and the notion of collective remembering.

This section provides an overview of memory banking (Nazarea, 1998; Nichols et al.., 2005). It includes a survey of literature pertaining to the theory of sociocultural analysis (Wertsch, 2002) and the notion of collective memories (Misztal, 2003; Wertsch, 2002) as they help to frame the study.

Nazarea (1998), in her work with rural farming communities, collected what she described as *heirloom seeds.* These seeds were neither genetically modified, nor hybrids. In other words, these seeds occurred naturally; they were not formed from the work of plant geneticists. These heirloom seeds were from plants and crops that had been grown for years in different areas and were becoming scarce. Nazarea was alarmed that local knowledge and practices in agriculture seemed to be disappearing along with varieties of crops. She developed the research tool of *memory banking* (1998) as a response to her concerns.

Memory banking was first used to document indigenous knowledge about crop varieties. It allowed the researcher to preserve both plant genetic resources and cultural practices. Local agricultural knowledge was documented and seeds were saved with the goal of safeguarding diversity. Nazarea (1998) explained:

> Memory banking addresses the cultural dimensions of biodiversity. It is meant to "capture" memories in a way that runs parallel to, and thereby complements, the

> preservation and documentation of landraces, wild relatives, and other crop cultivars in germplasm conservation centers around the world. Focusing, in the present work, on a less glamorous and often neglected aspect of biodiversity—the genetic diversity of agricultural crops—it hopes to call attention to the role of local cultures in nurturing and conserving an important component of plant genetic resources. (p.xii)

In an area of the Philippines, Nazarea (1998) used memory banking to document the cultural knowledge and practices surrounding the sweet potato crop. She described the memory banking process as follows:

> A combination of biological and anthropological methods and rural appraisal techniques…to systematically collect information on technologies and beliefs associated with traditional crop varieties, and to identify key features that formed the basis for local nomenclature, classification, evaluation, and utilization. (p.12)

Key informant interviews as well as participant observations were part of the process of gathering information about the growing of the sweet potato crop. Nazarea focused on time of planting, preferences about where to plant, procurement of plant materials and fertilizers, management of pests and weeds, and harvesting and storage of the crop. The key informants made diagrams of different varieties of sweet potatoes, both varieties currently being cultivated, and those no longer in cultivation, but remembered from the past.

Nazarea used the tool of memory banking to conserve information and plant materials for the purpose of documenting and preserving agricultural diversity. Other researchers (Nichols et al., 2005) have adapted the tool of Memory Banking to gather information about people or a community without necessarily including an agricultural component. The “seeds” in the adapted

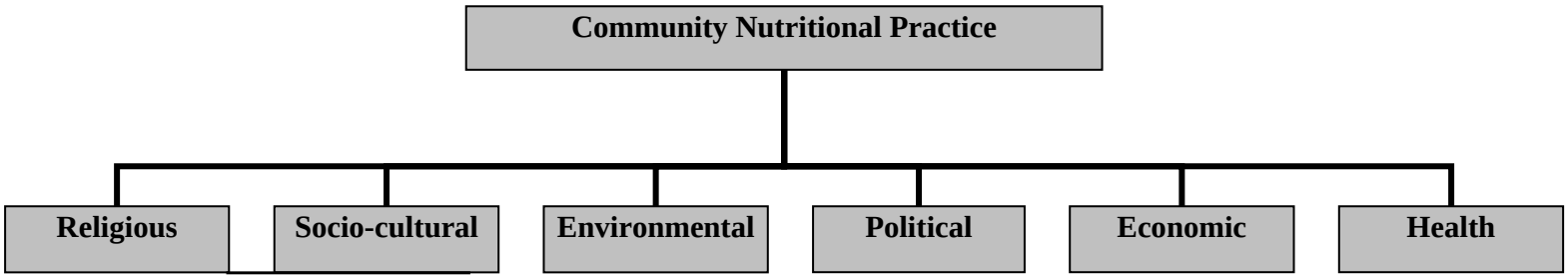
version of memory banking were facets of the culture such as community practices both past and present that were of interest and could illuminate norms and typical ways of living in a place.

Nichols, Tippins, Morano, Bilbao, and Barcenal (2005) demonstrated possibilities for science teaching that go beyond culturally relevant or culturally responsive. Their ways of teaching science were shown to be community-based and relevant to the community as a whole. They used memory banking as a research tool to collect stories and other data about the accepted local practices. They "look[ed] at memory banking as a means for envisioning science education as a sociocultural practice" (p.3). They were able to envision and implement a science curriculum and way of teaching that honors local knowledge and traditions by involving teachers in documenting and critiquing community practices.

In this action research ethnography, the co-researchers used an adapted version of the memory banking template developed by Nichols et al. to construct data about community nutritional practices. Below is an example of the memory banking template used in this inquiry. Although this template appears to be linear, it is in actuality quite fluid. The teacher-researcher found that with working with young student-researchers, a linear representation was a better match for the nature of children. This way of showing the different aspects of nutritional practices served to allow the student-researchers to consider additional facets of the phenomena. The roles of the people portayed and their practices are placed into a category but these groupings are in reality messy, or blurred, and could be represented differently on the template.

The interview questions asked to construct the different categories and the data in each of these categories were open ended and were often followed with additional questions like, "Why do you think that might be," or "Do all folks do it that way," or "Really?" These follow ups usually helped our adult researchers draw on additional memories to add to their stories.

Table 2.1. The memory banking template.



The embodied nutritional practices common in the Barkersville community were metaphors for Nazarea's seeds. While generating data through interviews, artifacts, focus group discussions, and reflections, the ways of making sense of and understanding the cultural and sociological phenomena were guided by memory banking and the ideas of memory (Misztal, 2003; Wertsch, 2002) and sociocultural analysis (Wertsch, 2002).

Sociocultural analysis (Wertsch, 2002) and Misztal's (2003) and Wertsch's (2002) theories of collective memory were used to generate and then understand the narratives produced from the interviews of community members. The making sense of group and individual reflections and insights were also guided by these philosophies. Wertsch (2002) considered sociocultural analysis as a general theoretical framework that facilitates the study of collective memory. He acknowledged that humans use cultural tools, or mediational means (for example photos, the internet, or ways of speaking), that are provided to them by the specific sociocultural settings. He also explained that to use these tools involves an "irreducible tension" between the active agent (the person remembering) and the tool used (for example: a cookbook). Wertsch also explained how "remembering is an active process that involves both sides of this tension. And because it involves socioculturally situated mediational means, remembering and the parties who carry it out are inherently situated in a cultural and social context" (p.11). This way of viewing the process of data construction was a good match with the constructivist epistemological framework of this study. This inquiry was guided by the belief that meaning making occurs in context but that it is always mediated by culture (Cobern, 1993; Habermas, 1972; Grundy, 1987; Dilworth & Brown, 2001; Fosnot, 1996; Howe & Nichols, 2001; Oldfather, 1995; Tobin & Tippins, 1993; von Glaserfeld, 1996; Vygotsky, 1987; Windschitl, 2000).

Misztal (2003) described collective or social memory as, "a group's representation of its past, both the past that is commonly shared and the past that is collectively commemorated, that enacts and gives substance to that group's identity, its present conditions and its vision of the future"(p. 158). As local people were interviewed with the memory banking template as a guide, the co-researchers were aware that cultural tools or "mediational means" (Wertsch, 2002) were provided by the particular sociocultural setting or context of the events described. The researchers understood that the narratives they collected were not so much history, as collective memories. The table below explains Werstch's (2002) views on the differences between collective memories and history (p.44).

Table 2.2 Contrasting collective memories and history.

Collective Memory and History

Collective memory is subjective	History is objective
Collective memory focuses on unchanging group essence and is unself-conscious	History focuses on transformation and takes a critical, reflective stance
Collective memory links the past with the present and reflects a particular group's social framework	History differentiates between the past and the present and supposedly reflects no particular social framework
Collective memory shows a commitment and is impatient with ambiguity and interpretation	History shows a distance from events and allows for and recognizes ambiguity and different interpretations

The constructed data from the study reflect the tenets of collective memory and not so much history. Our co-researcher community members seemed to be very much emotionally

attached to the memories they shared and were personally committed to the information they recalled and told (personal communication, co-researcher, March 26, 2007). The practices that were the spotlight or starting point for the interviews and narratives were and continue to be an important part of the Barkersville community today. Because of these phenomena, the co-researchers considered the data to be collective memories.

This cultural aspect of collective memories was illustrated in Wertsch's (2002) study of adults who lived in the former Soviet Union. Wertsch (2002) analyzed questions and essay responses that were a part of a larger empirical study conducted in collaboration with Dr. Kosyaeva, a researcher at the Institute of Economics of the Siberian Branch of the Russian Academy of Sciences. Their study focused on people's perceptions of various aspects of World War II. Wertsch found that the participant responses reflected a perspective which differed significantly from how people from other nations viewed significant events of the war and their meaning. The participants in Wertsch and Kosyaeva's (2002) study did not mention D Day or the Americans liberating survivors of the concentration camps as significant events. Wertsch and Kosyaeva (2002) emphasized that if Americans were the study participants, different significant events like D Day or the liberation of survivors of concentration camps would stand out in the participants' minds. Wertsch and Kosyaeva (2002) found through this study that context and culture helps determine collective memories.

In this same study, Wertsch and Kosyaeva (2002) found that not only was there a difference in the data of the narrative texts between the people from the former Soviet Union and what one would expect to find from people from nations other than the former Soviet Union , but there were different narratives based on generational differences. The narratives from the older generation used phrases like, '"routed Fascist Germany" and "well deserved rebuff"' (Wertsch,

2002, p. 161). These phrases caused Wertsch and Kosyaeva to wonder whose voice they were hearing. The younger generations' narratives did not contain many specific facts or events. In addition, the narratives from people schooled in the Soviet Union showed a belief in the events learned from history books, whereas the narratives from the post-Soviet generation reflected individual constructions from "facts" from history books. Even though the phrases of the post-Soviets (the younger generation) were not the echoes of government dogma found in those of the Soviet educated generation, Wertsch noted that the overriding general theme or what he called the *schematic narrative template* was the same. This narrative template of "triumph over alien forces" (p.161) remained fixed in the culture even though the words had changed.

Wertsch believed that the younger generation viewed history texts and other narratives with agency and treated these narratives as "thinking devices" (Wertsch, 2002, p. 165). The younger generation did not passively accept the government's perspective but engaged with the history they were taught in order to construct a memory that made sense to them. In this same way, the researchers in this study to construct nutrition curriculum engaged with the memory banking templates and collective memories to form their own nutritional literacies.

Relevant Literature

The purpose of this review was to examine literature relevant to the questions of this inquiry. It contains studies and writings that are based on the constructing of literacies through notions of emancipatory curriculum. (Freire, 2001; Grundy, 1987; Habermas, 1972; Smith & Lovat, 1991). This examination of emancipatory curriculum was then divided into sub-sections that contain relevant studies related to a) student-generated curriculum (Alexander, Carr, & McAvoy, 1995; Nesin & Lounsbury, 1999) that draw on the history of the middle school movement and the notion of *coherent* curriculum (Beane, 1993), b) the notion of democratic

classrooms (Meier, 1995, 2002; Pate, Homestead, & McGinnis, 1997), and c) culturally relevant pedagogy (Ladson-Billings, 1994, 1995; Matthews, 2003). Within this section of cultural relevance, the teacher-researcher examined and synthesized studies that relate to various discourses of relevance including a) *Funds of Knowledge* (Hammond, 2001; Moll et al.., 1992), b) *thinking critically about the world and knowledge* (Calabrese Barton, 2003; Osborne & Calabrese Barton, 1998), c) *cultural border crossings* (Aikenhead, 1998; Costa, 1995; Jegede & Aikenhead, 1999), and d) *creating a practicing culture of science learning* (Fusco, (2001).

The second section of the literature review examines studies related to Community-based/Community-centered Science education. It concentrates on literature focused specifically on connecting science and students' lives outside of school (Calabrese Barton, 2003; Charron, 1991; Costa, 1995; Fusco, 2001; Hammond, 2001; Jegede & Aikenhead, 1999; Osborne & Calabrese Barton, 1998; Zahur et al., 2002).

It is the expectation of the researcher that this study will contribute to the literature by highlighting the efforts and tensions of a rural southern community in its attempt to construct community-relevant nutrition curriculum. This action research ethnography will also call attention to the process and relationship of an emancipatory pedagogy to the development and fostering of nutritional literacies while using the tool of memory banking and thus add to the literature focusing on curriculum as praxis.

Curriculum as Praxis

Curriculum has many definitions (Smith & Lovat, 1991). Some meanings of curriculum concentrate on products while others focus on the process. This study focused on the process of constructing community-relevant nutrition curriculum. To further understand the process of making curriculum, this study was informed by the concept of curriculum as praxis.

Habermas (1972) explained a framework for exploring curriculum practices in terms of three *cognitive interests*. These include the technical, the practical and the emancipatory interests. According to Habermas, all three of these interests are present in all subject areas. Smith and Lovat (1991) further explained the Habermasian notion of cognitive interests as "a part and parcel of the human mind" (p.68). Grundy (1987) wrote that these cognitive interests can also be viewed as orientations toward knowledge.

The technical interest is linked to the empirical, analytic sciences and is seen as interested in controlling the environment. The technical interest arises from inclination, not reason (Grundy, 1987) and in this sphere there is false autonomy−people are treated as objects. The practical interest is associated with "the production of knowledge through the making of meaning…with the historical-hermeneutic sciences" (Grundy, p.13). The emphasis in the practical realm is on making meaning through consensus but, as Habermas explained, this consensus could be deceitful due to power structures and coercion. The action taken as related to the practical interest is seen as being **with** the environment not **to** the environment as in the technical sphere. The third interest, the emancipatory interest, is concerned with guaranteeing one's own autonomy. This interest is concerned with empowerment. In terms of emancipatory interest, self reflection as informed by knowledge gives rise to critical theories and authentic insight. (Grundy, 1987). The action associated with the emancipatory interest is described as "autonomous, responsible action based upon prudent decisions informed by a certain kind of knowledge" (Grundy, p. 18). The action in the technical interest is associated with control, while the action in the practical interest is on understanding. The action associated with the emancipatory interest centers on empowerment—self reflection, critical insights and authentic autonomous action. The participants are agents in their own education and it is meaningful.

How can curriculum be emancipatory? As a social construction, curriculum can be viewed as emancipatory when the teachers and students realize that they are acting autonomously in directing their learning and engage in self reflection to guide their journey.

The process of constructing curriculum in this action research ethnography was guided by the emancipatory construct of curriculum as praxis (Freire, 2001; Grundy, 1987; Habermas, 1972; Smith & Lovat, 1991). For curriculum to be praxis, the learner must be actively involved in his/her learning, the learning must be meaningful to the learner, and the content of the learning should "have a critical focus" (Grundy, 1987, p. 101). Although the teacher decided the central focus of this study, the students as participants had a voice in constructing the nutrition curriculum, and corresponding nutritional literacies. All participants actively determined the direction and content of the nutrition curriculum. Thus, the curriculum is viewed as having a critical focus since it was co-constructed to be relevant to the Barkersville community and reflects the various viewpoints brought to the study by the participants. In considering praxis, Freire (2001) wrote of the relationship of humans with their world. He explained that unlike other animals, humans live in a place that is not only in the present, but has historical significance. Humankind's daily interactions are formed and shaped and can form and shape their existence. Critical consciousness is the force that Freire believed could transform lives and culture. This ability to analyze one's world or this *critical consciousness* often is the result of education and reflection. Because of this ability and the desire to analyze and transform, Freire believed that education is never neutral. He believed that education allows for action. Smith and Lovat (1990) called for teacher curriculum work to "always be based in *action which is informed by critical reflection,* not only by teachers as individuals, but, just as importantly, through collective dialogue and collaboration" (p.ix). All affected by the curriculum should be involved.

The oppressed in Freire's work did not stand for only un-formally-educated peasants. Freire (2001) explained that the middle class is also silenced and fearful of transforming their world. Emancipation to Freire meant the act of finding one's voice. As a research framed as curriculum as praxis, this study was intended to focus on the act of constructing the curriculum, the interactions of the participants, and the knowledge of taking control of one's own learning (having voice). This transformation in the way the researchers interacted with the curriculum was intended to be empowering.

Grundy (1987, p.104) elaborated on the concept of praxis as explained by Habermas (1972). She made the following points as she defined praxis:

1. The constitutive elements of praxis are action and reflection.

2. Praxis takes place in the real world—not a hypothetical or imagined world.

3. Praxis is a form of interaction which means acting with, not upon others in the sociocultural world.

4. Praxis takes place in the constructed or transformed world, not the natural world.

5. Praxis is about meaning making which is understood to be socially constructed meaning, not absolute meaning.

The teacher-researcher is a co-researcher in this study as well as the classroom teacher of the student-researchers. Giroux' concept of a teacher as a public and political intellectual is relevant to this study. Giroux (1999) calls for teachers to become public intellectuals and "address the imperatives of citizenship" (p. 43). He believes that teachers must create conditions in schools for students to become viable social agents for change in our democracy. He calls for teachers to join forces with others in communities to work in solidarity to effect change in educational practices. Curriculum as praxis in conjunction with the research models examined in

this literature review will allow both teachers and the students to become viable "social agents willing to struggle" (Giroux, p.43) for change. It is about critical collaborative efforts.

Some educators believe curriculum models based on the notion of *coherent curriculum* (Beane, 1993) are the best fit for young adolescents to become agents of social change. While viewing curriculum as praxis, this idea of coherence takes into account the needs and interests of the learners, and is intended to provide for rigorous and relevant learning that prepares students for life in a democratic society. This review of literature is limited to models of curriculum that fit with Dewey's (2001), Giroux' (1999) and Beane's (1993) vision of teaching and learning. While the models contain differences, all models are alike in their respect for diversity, democratic principles, and active learning strategies. Each model advocates for the importance of the individual as well as the importance of collaboration and relationships. In these models, the teachers have extremely important roles with respect to guiding and mentoring of students. In addition, these models emphasize respect for each other as well as social action and high expectations with participation in democratic environments. Finally, a climate of a strong work ethic coupled with an ethos of compassion is evident in each of these curriculum examples.

Student-generated Curriculum

Curriculum for students has been discussed and debated for hundreds of years and continues to be both a sensitive and important issue in schools today. Socrates said that learning should be moved "from the shadow of reality to reality itself" (National Association of Secondary School Principals, 1974).

Dewey (2001) believed that education is for the future and since the future is uncertain, the fundamental goal of education should be to help one develop critical thinking skills and not just to convey information. He stressed the Child and the experiences and interests of the

students as the commencement of curriculum. *This we believe* (National Middle School Association, 1995) echoes Dewey's beliefs as it calls for a challenging, integrative and exploratory curriculum that takes into account the individual differences of children and helps them make sense of their individual life experiences.

Many agree that student-generated curriculum (exploration of issues of interest to the students) is the answer to coherence—education that is useful for the future and is based in reality. The literature explored in this section discusses curriculum made by and with students and looks at how these models have been implemented and what has happened as a result of teaching and learning in this way. It then focuses specifically on what research says about student-generated curriculum in the middle grades classroom.

When Alexander, Carr, and McAvoy (1995) wrote *Student-oriented curriculum*, they advocated for a curriculum based on problems faced and questions asked by young adolescents. Their concept took into account what students wanted to learn, and how students learn best, but they also argued that we must trust teachers to attend to mandated curriculum standards.

Two middle school teachers in Georgia along with their university education professor chronicled their pursuit for a coherent curriculum (Pate, Homestead, and McGinnis; 1997). Themes as articulated by the students were used to guide the learning. Authentic assessment through the use of rubrics and conferences was used and block scheduling was implemented along with an advisory program. This curriculum study was reported in a book which highlighted both successes as well as frustrations. Some of the challenges, as described by the authors, included the amount of work needed to both connect the curriculum and include state and county standards and the fact that there were students who were used to success in a teacher-centered environment, and thus did not want to direct their own learning or have a voice in classroom

proceedings. Furthermore, parents were worried that students might not be learning what they needed for high school. When the middle school team decided to teach Math separately in order to respond to the needs of students at widely different levels, a concern with how to integrate all the required objectives gained significance.

The teachers used guided reflections and feedback from the pupils to respond to the needs of the students and provide clarification and direction. As a result of this quest, the students believed that their learning was more fun and relevant. They took an interest in different topics and expanded their learning. As the study illustrates, reflection is an important component of curriculum as praxis. It is how our critical consciousness is honed (Freire, 2001; Grundy, 1987; Habermas, 1972; Smith & Lovat, 1991).

When beginning the year of integrated curriculum, Pate, Homestead, and McGinnis (1997) were guided by somewhat current research and educational writings. As they continued to study they found "a long history of educators seeking better schooling for students through democracy and authentic learning" (p.135). For the most part, these educators stressed that student-generated curriculum does not have to be an all or nothing choice for teachers and that it will look differently in different classrooms or even in the same classroom at different times. Pate, Homestead and McGinnis (1997) found "coherence" for the curriculum of this 8th grade team through making it student-centered.

Grace (1999) worked with pre-service teachers and classrooms of students from grades one through five to generate curriculum. Unlike in the Pate, Homestead, and McGinnis (1997) study, these pre-service teachers worked with small groups of children (2-3 students/group) and only for one and one half hours once a week. Grace found that creating student-generated curriculum was difficult as the interests of the students were unpredictable; therefore, teachers

needed to be very flexible, confident, and life long learners themselves. She was working with pre-service teachers who were not experienced classroom teachers. She listed 10 considerations that she believed to be important for learning when constructing student-generated curriculum: (a) garner support and start small, (b) use library resources, (c) give up the guides and get ready to model, (e) develop assessment tools, (f) allow for noise, (g) schedule record keeping, (h) don't panic; a routine will come, (i) be a learner, (j) communicate unanxious expectations, and (k) gather data weekly.

Grace explained that "constructing curriculum with students is a lively process that can lead to high levels of independent learning and great leaps of individual knowledge" (p.52). She also reported that through her work with over 200 pre-service teachers she has seen many learning scenarios including the one where the student is a resistant or reluctant learner whose curiosity is underdeveloped or has somehow been thwarted by frustration. She wrote that usually students are bursting with enthusiasm and can hardly wait to tell what they've learned. Grace found and emphasized that the opportunity for students to generate curriculum can lead to independent learning and the construction of individual knowledge.

Pate, Homestead, and McGinnis (1997) generated curriculum with a whole team of students (two classes). By contrast, Grace (1999) and her pre-service teachers worked in small groups with students to construct curriculum. In yet another notion of how students might generate curriculum, the Met, a group of six high schools in Providence, Rhode Island was examined. This model, which is co-directed by Dennis Littky has adopted a philosophy of "one student at a time" (Littky & Allen, 1999). It is a school in which every student has an individual education plan centered on his interests. The entire school is organized around the interest of the students and each student is nurtured and expected to meet his or her goals and learn. As a result

of students generating curriculum that is meaningful to them, the Met students have a daily attendance rate of 94% as compared to an 80% attendance rate for similar schools in Rhode Island. The graduation rate for Met students is 95% which is significantly higher than the 55% rate for schools within this area. Although 75% of the Met students are low income, 99% got accepted to college and 70% have either graduated or are still enrolled (Castleman & Littky, 2007).

Each senior at the Met is required to give a speech at graduation during which they reflect on their individual learning and development during their time at school. One student told in his senior speech how **he**, as a person, not just the amount of work required, was important at the school. He explained how his advisor helped mold him into the type of person who was ready for "whatever the future was scheming behind our backs. My work was important, sure, but so was how I was feeling, how I was coping with the world around me" (Joe in Castleman & Littky, 2007, p. 61).

Just as Dewey (2001) stressed the Child and his/her interests as a fundamental building block of curriculum, Joe, a student at the Met, explained how getting himself back on track was accomplished by a caring advisor who fostered his interests. Student-generated curriculum is about the present interests of the student to prepare him/her for an uncertain future. It is about finding coherence (Beane, 1993).

In this section of student-generated curriculum, the teacher-researcher explored three studies that differed in how the students were divided to learn. One study had a team of middle school students who worked as a group to develop their curriculum; another separated the students into small teams to pursue interests; and in the third model, individual students decided what to study. Each way of students generating curriculum resulted in the researchers reporting

meaningful learning and high interest on the part of both teachers and students. Also, the researchers, Grace; Littky and Castleman; and Pate, Homestead and McGinnis, each found this way of constructing knowledge to be meaningful and valuable for both students and teachers.

Place-based Curriculum

A curriculum model that is closely tied to the local community and school is known as place-based curriculum. Smith (2002) explains,

> Place-based learning adopts local environments—social, cultural, economic, political, and natural—as the context for a significant share of students'educational experiences. Schools using this approach include many that are associated with state or national efforts…and many other homegrown versions that have arisen from the work of creative teachers. Not wishing to replace national or international explorations in the curriculum, proponents simply seek a better balance between the local and the distant. (p.30).

Place-based learning, like other curriculum models does not look the same nor will it be the same in different places. It is based on the specific community, teachers and students and is driven by their problems, interests, and creativities. Students and teachers become producers, rather than consumers of knowledge. Research has shown that place-based education is correlated with higher grade point averages, improved discipline and self control, and increased pride and motivation in studying and projects (Blank, Melaville & Shah, 2003).

Gruenewald (2003) argues for a framework that is a synthesis of the traditions of place-based education and critical pedagogy. He believes that the blending of these two discourses could provide a perspective that will guide educators as well as policy makers to not only think about how and what is taught, but also to look at the local ecology and how it might be affected.

As Gruenewald (2003) analyzed the tenets of critical theory (Freire, 2001; Giroux, 1999), he determined that while the social aspect of human relationships was considered and challenged, an ecological perspective was missing from this framework. The place or area inhabited by the people was ignored. He said, "Place becomes a critical construct not because it is in opposition to economic well-being (it is not), but because it focuses attention on analyzing how economic and political decisions impact particular places (p. 3).

While critical theory has a long-standing tradition, place-based education does not. Gruenewald (2003) believes that this lack may be due to its nature of being so context specific. Place-based education is usually associated with experiential, rural and ecological education. Although critical pedagogy started with the efforts of Freire to increase the literacy of the rural poor in Brazil, it has now largely shifted to focus on urban contexts (Gruenewald, 2003).

Pedagogy of place is the synthesis of critical theory with place-based education (Gruenewald, 2003). It serves to guide the thinking of educators as well as policymakers when considering the social/human condition so that the ecological setting is not ignored. It takes into account the total context and allows for more comprehensive thinking about conditions.

Brandt (2004) explored the role of pedagogy of place while teaching an ethnobotany seminar. She defined ethnobotany as, "the study of plants as used by human cultures" (p. 93). The goal for her class was to include studying traditional knowledge of cultures of the Southwest in order to bring an ecological and historical context to Western science. By the second time she led the seminar, many ecojustice issues were found to be connected to the study of ethnobotany. Farmers spoke of the loss of traditional knowledge and their struggles to maintain these ways in their communities. The common theme of water and the rights to it was spoken of in every one of these narratives. As more cycles of seminars were held, the students questioned the dominant

ideologies about who gets use of the water and how it should be used. Many students remarked that this was the first time they ever thought to question and think critically about the social and political aspects of academic science. In informal gatherings, Brandt noticed, "how often the students talked about their shifting identities, the multiple subjectivities in their life, much like the changing landscapes they wrote about in their autobiographies" (p. 103).

Brandt (2004) explains that through these conversations and reflections, the students were beginning to recognize the many locations from which science is constructed. The students began to use their experiences to share their own funds of knowledge (Hammond, 2001; Moll et al., 1992). Brandt told how the use of diverse cultural perspectives in the seminar also supported students into crossing the borders (Jegede & Aikenhead, 1999) into Western science.

Brandt (2004) found that ethnobotany served as a vehicle for teaching ecojustice and argues that a transformative curriculum can be constructed when allowing the focus of science to be on critical pedagogy of place. She writes how the classroom expanded to include, "farms, kitchens, urban markets, and riparian systems" (p. 104) and in this way allowed students to construct, envision and analyze how place is related to Western science. She notes that the conversations became complex and demanding but, as a result of mixing place, lives, and science, they were "rewarded with the alchemy of education—a transformation that astonished us all" (p. 104).

In one research study on place-based curriculum, Smith (2002) observed two classes of middle school students once a week for half of a year at the Environmental Middle School in Portland, Oregon. These students were involved in testing water quality, purifying wastewater, and surveying wildlife and plants in a wetland habitat. Smith reported that place-based learning in this inquiry, allowed students to explore questions of their own, and to achieve and fulfill their

desire to be valued by others. Many students who struggled academically and socially in a traditional setting thrived in this place-based environment. Learning was finally meaningful.

Springer (1994) wrote *Watershed a successful voyage into integrative learning.* In this book he tells the story of how he, fellow teachers, and seventh graders have successfully integrated the seventh grade curriculum at a Pennsylvania school through their study of all the ecological considerations of their watershed. On standardized tests, the Watershed students scored the same as other students in Math, but in Reading, the Watershed students outscored their non-Watershed peers. Springer (1994) writes of the fulfillment, frustrations, learning, and conviction that have come from educating children using an integrated and place-based curriculum model. He wrote of a cooperative tone in the room that came from ownership and active learning by the students (p. 43).

The Foxfire Tradition (Wigginton, 1991/1992) is a rather well known example of place-based education that began in the 1960s and continues today. It has developed into a not-for-profit organization that originated in Rabun County, Georgia. Foxfire emphasizes a community and learner-centered educational system that is grounded in Southern Appalachian culture. Unlike the Watershed (1994) project, and Smith's (2002) study in the preceding paragraph, Foxfire as a place-based curriculum model goes beyond environmental education.

Foxfire was started by a high school English teacher, Eliot Wigginton, who wanted to teach his students basic English skills. As Wigginton tried to teach he noticed that students in his classes were disinterested, disruptive, and not learning. In order to try to learn and teach in a meaningful way, Wigginton and his students turned to the local community for knowledge. The students in his classes interviewed local people about everyday customs and habits and wrote about their findings. This local knowledge was documented by students and first was published

as a magazine and later as a series of books. Wigginton found that his students became engaged in learning (Howley & Eckman, 1997) and became eager researchers and writers. As a result of the Foxfire method of curriculum, the students began to understand how local knowledge made sense in their world and contributed to their lives, and how valuable it was to them. Not only the students benefited from this place-based curriculum model, the community as a whole was pleased with the efforts of the pupils and became very supportive of the school.

As a reform approach, Foxfire traditionally worked with individual teachers, but more recently was adapted to work as a school wide improvement model. Its guidelines are similar to both action research and the concept of coherent curriculum. The Foxfire guidelines or 11 core practices are listed below:

1. All the work teachers and students do together must flow from student desire, student concerns.

2. Therefore, the role of the teacher must be that of collaborator and team leader and guide rather than boss.

3. The academic integrity of the work must be absolutely clear.

4. The work is characterized by student action, rather than passive receipt of processed information.

5. A constant feature of the process is its emphasis on peer teaching, small group work and teamwork.

6. Connections between classroom work and…the real world outside the classroom are clear.

7. There must be an audience beyond the teacher for student work.

8. As the year progresses, new activities should spiral gracefully out of the old.

9. As teachers, we must acknowledge the worth of aesthetic experience.

10. Reflection—some conscious, thoughtful time to stand apart from the work itself—is an essential activity that must take place at key points throughout the work.

11. The work must include unstintingly honest, ongoing evaluation for skills and content, and changes in student attitude. (Howley & Eckman, 1997, p. 49)

Teachers in 38 states are currently using this curriculum model. The Foxfire Tradition is an approach to learning and teaching that calls for active, collaborative, learner-centered education that stresses an appreciation of local culture, community, and people. Foxfire teaches that essential educational tools are local knowledge and respect for community culture. Other aspects of this tradition include enthusiasm for family involvement, and the use of networking to increase knowledge.

The discussion of a critical pedagogy of place (Brandt, 2004; Gruenewald, 2003) as well as the place-based models of curriculum explored in the section above detail involving the community in context for authentic learning that engages students. The following section discusses another model of teaching and learning, democratic classrooms, that fosters autonomy (Jackson & Davis, 2000; Meier, 1995) and is consistent with our American form of government (Dewey, 2001).

Democratic Classrooms

A democratic classroom (Pate, Homestead, & McGinnis, 1997) allows for student-generated curriculum which embraces the notion of a practical/emancipatory curriculum. In democratic learning, the curriculum is not preconceived; students and the teachers co-construct knowledge. According to Pate, Homestead, and McGinnis (1997), teachers and students practice democratic learning when they come to consensus when determining what and how to learn.

In *Turning points 2000: Educating adolescents in the 21st century*, Jackson and Davis (2000) strongly advocate for a theme-based democratic curriculum. They explain how it is possible to follow state mandated standards and at the same time, allow the students to decide how and what else to learn. Jackson and Davis (2000) stress that these themes should incorporate state and local standards in ways that best meet the needs of a particular group of students. Meier (1995) notes that in a democratic classroom all students know they have a voice and understand that they will be heard and respected. Additionally, Meier emphasizes, in a democratic classroom, students and teachers view diversity as strength.

Many adults view education as a way to prepare students for productive and responsible citizenship. Beane (1993) emphasizes that in a democratic classroom, students not only learn about democracy, but also participate in enacting democratic principles. Students take part in a democracy through involvement in decisions about classroom rules and topics, cooperative learning, heterogeneous grouping, and taking responsibility for their own behavior and learning. Beane (1993) points out that in the American educational system, people in power, like elected officials, who often are not involved directly with public schools, determine the curriculum. Most teachers and students do not have opportunities to give input about what should be learned. By contrast, the curriculum is not preconceived in a democratic learning environment. The students and the teachers work together to determine the learning goals. Giroux (1999) argues for democratic classrooms where students and teachers learn to become activists. Giroux (1999) points to the need for schools and communities where teachers and students have the knowledge and courage to work for social justice in all aspects of "economic, political, and cultural life" (p.41).

The League of Professional Schools, founded in 1989 by Carl Glickman, is premised on the idea of democracy as a vision for the reform of schools. A three-part framework is used to articulate this vision. One part of this framework is democratic governance of the school by the staff, parents, students, and community members. Other parts of the framework include articulating a covenant for guiding the schools' efforts for educating children, and a commitment to using action research in making decisions for the school.

The Council for School Performance at Georgia State University (Harkreader & Henry, 1997) performed an independent evaluation of elementary schools that had belonged to the League for at least three years. The researchers concluded that schools in the league improved student achievement. This conclusion was based on the results of the study that looked at various achievement indicators. The researchers found that schools participating in the league scored higher on all indicators and significantly higher on one third of the indicators. Another study found that the dropout rate in League schools fell from 12% to 6% over a three year period. An additional study found a slight but positive increase when looking at academic performance in League schools. While this finding was not statistically significant, it provided evidence to show that higher academic performance was observed in schools that had strongly implemented the League's philosophy.

Another example of democratic education in action is found in the Central Park East elementary school, Central East Park Secondary School, and Mission Hill Schools. These schools are sites of democratic, active learning where teachers are given autonomy and everyone is held to high standards. Fliegel (1994) found that since 1979, 90% of the students attending the Central Park East schools in the sixth grade scored at or above grade level on standardized tests. In addition, while the dropout rate for other New York City schools stood at 40%, the students

who attended the above mentioned schools posted an impressive 99% graduation rate. Over 90% of these graduates attended college. Meier explains that these schools operate and are guided by what we know about how humans learn and with a deep respect for all parties involved—children, parents, teachers, and other community members. The students are given choices, allowed to move about the room, and are encouraged to explore objects in the room that are interesting to them. The teachers know that they are caregivers, encouragers, curriculum writers, and authentic assessors.

Fliegel's analysis (1994) found that the students who attend the Central Park East schools excelled both academically and as members of communities. Meier (2002) insists that the power of schools lies in human relationships and sense of community and calls for more hard work and patience in transforming schools into centers of authentic, democratic learning.

A curriculum based on a democratic classroom model can serve to guide teachers in honing their teaching which Eisner (1999) spoke of as an "art and craft." He said, "Even when we succeed in shaping our students' surfaces, unless we touch their souls we will be locked out of their inner lives" (p. 85). In this sense, research suggests that through a collaboratively planned curriculum with high standards, and much reflection and flexibility, teachers and students will become highly engaged learners and possibly agents for political change and social justice. This is what curriculum as praxis could look like.

One of the central tenets of curriculum as praxis is the notion of culturally-relevant pedagogy. The following section reviews literature which adds to the researchers' understanding of the notion of community-relevant nutrition and science curriculum and how it can be applied.

Culturally Relevant Pedagogy

Culturally relevant pedagogy is a way of seeing the world in which a teacher not only respects, but embraces the customs, traditions, and home worlds of others (Hammond, 2001; Ladson-Billings, 1994; Moll, et al., 1992). A pedagogy that embraces the notion of cultural relevance adheres to the belief that students bring knowledge of the world into the classroom and that these ideas should be incorporated into the curriculum. Teaching and learning in this way celebrates diversity and uses the teachers' and students' differences to broaden educational contexts.

Ladson-Billings (1994) argued that a curriculum that is culturally relevant must be connected to local knowledge and ways of producing that knowledge. This connection would encourage the development of a community of learners. This community of learners in turn creates a positive learning environment that allows students to develop multiple identities. Through these multiple identities, Ladson-Billings (1994) believes that enhanced self-esteem develops. Ladson-Billings' concept of multiple identities is tied to the notion of *codes of power* (Delpit, 1995). Delpit advocated that while respecting home language and mannerisms, one must also teach the traditions or codes of power of the dominant culture. In this way the students are able to call on their multiple identities and are able to negotiate between social situations or worlds.

Noddings (2001) wrote of the importance of establishing a classroom climate of caring. She emphasized that when one feels cared about, one is safe to explore and take chances both physically and intellectually. Respecting a person's culture and way of life and valuing one's opinion is a way to show caring. According to Noddings (2001), a culturally relevant classroom helps students feel both safe and inspired to learn. In turn, Oldfather (1995) found, students

become empowered and find their voice when allowed to become collaborators with their teachers. In a study of students and their classroom teacher, Oldfather (1995) wrote,

> …one of the key concepts coming out of our research: *honored voice.* One of the most important qualities in Sally Thomas's classroom was the deep responsiveness to students' ideas, feelings, needs, and interests. Their voices were invited, responded to, acted upon and honored…. We realize now that being co-researchers in this project has been another means through which the students' voices were honored. (p. 135)

This action ethnography aims, like Oldfather's study, to foster literacies through giving the students voice. This respect is a component of a culturally relevant pedagogy.

The studies reviewed below which focus on the investigation and effectiveness of culturally relevant practice, pertain particularly to the middle school level. When middle school classes in mathematics became less traditional and infused with cultural knowledge, Matthews (2003) found that critical mathematical thinking skills were fostered. He determined that while the teachers had a difficult time letting go of traditional methods, the students embraced a culturally relevant climate and became empowered.

Dilworth and Brown (2001) explored extensive research on teaching minority students of all races and found that:

> Issues of strict discipline, high expectations, and mothering are just a few of the things that find their place in the repertoire of effective teachers of youngsters placed at risk and are open to all educators for consideration as they craft and define their own practice. (p. 662)

A classroom in which a teacher uses culturally relevant pedagogy could be defined by the issues found in the Dilworth and Brown (2001) study. Dilworth and Brown (2001) suggest that by

incorporating home world knowledge into the development of curriculum, teachers and classrooms could foster more effective learning. This in turn could empower those "at risk."

Gutstein and Lipman, (1997) contributed to a theory of culturally relevant teaching with Mexican America students and mathematics. Their purposes included helping teachers use what they knew about their students' culture to improve learning and to help students develop critical approaches to their learning and knowledge so that they might be equipped with the tools to be agents of social change. Hermes (2000) in her work with Ojibwe Native Americans and the use of mother tongues, concluded that "an understanding of culture-based curriculum must emerge that does not dichotomize a deeply cultural or traditional identity from an intellectual one" (p.394). Hermes found that many Native American students believed that they can either be intelligent and well educated, or they can be true to their culture/roots. The students believed that one is mutually exclusive of the other. She calls for community/cultural relationships with the school so that the "either/or" dichotomy of culture in communities will no longer be the reality. She does not believe that minority cultures should have to resist or assimilate. She argues for a definition of culture-based curriculum that reflects a teaching of both indigenous and Western traditions.

Beane, in his book, *A middle school curriculum, from rhetoric to reality* (1993), explained his vision of the middle school curriculum based on an integrated model with opportunities to enhance knowledge and skills through general education. Beane's conception of curriculum includes respect for diversity, collaboration firmly rooted in democratic principles, and active learning through the exploration of significant social issues and themes. This way of conceptualizing curriculum is consistent with culturally relevant pedagogy which seeks to help develop students socially, politically, intellectually, and culturally. Ladson- Billings (1994)

emphasizes that in the culturally relevant classroom relationships are based on mutual respect; knowledge is viewed as constructed, shared, and "recycled", and teaching and learning is both active and about concern for one another.

To summarize some of the diverse ways researchers are conceptualizing and studying culturally relevant pedagogy, various discourses of relevance are discussed in the following sections. This literature highlights various approaches to relevance—learning that is authentic and a match with the students' lives. It is reviewed according to four categories: a) funds of knowledge (Moll et al.., 1992; Hammond, 2001), b),creating a practicing culture of science learning (Fusco, 2001; Hapgood and Palincsar , 2007), c)cultural border crossings (Aikenhead, 1998; Costa, 1995; Jegede & Aikenhead, 1999), and d) thinking critically about the world and knowledge (Calabrese Barton, 2003; Osborne & Calabrese Barton, 1998; Roth & Barton, 2004).

Funds of knowledge.

Funds of knowledge is a part of the pedagogy of community and cultural relevance. It involves soliciting and incorporating community knowledge and self-help strategies into the curriculum. Family and community members are respected and invited to participate in the learning and their community history and ways of knowing assume importance (Hammond, 2001; Moll et al.., 1992).

Freire (2001) noted that often people who live in economic poverty have no voice in decisions due to hegemonic influences in our society. Moll (1992) believed that teachers and society will begin to more readily see the potential of these often "misjudged" students (p.20) through a relevant education.

According to Moll (1992) a valuable tenet of the funds of knowledge construct is that regardless of the formal education level of a person, he or she has acquired information and skills

throughout his or her life. Households and communities are made up of people who have gained wisdom and skills and use these insights and practices in their every day lives. This phenomenon was recognized by Moll, Amanti, Neff, and Gonzalez (1992) and they embraced this way of working with people.

Moll, Amanti, Neff and Gonzalez (1992) explain that the idea of community funds of knowledge is a way of viewing people with the belief that everyone involved in a child's life has something to contribute to his/her education. This concept explains that people of all walks of life have skills, talents, and wisdom that could be utilized to improve children's education. As a result, these researchers worked collaboratively with teachers for the purpose of planning more meaningful learning for Latino students. The researchers and teachers increased the relevance of the concepts taught to students at school by employing home world skills and knowledge. The researchers called the information that they learned from the participating families, students, and community members, *funds of knowledge*.

Moll, Amanti, Neff and Gonzalez (1992) did not believe in looking at working class students and their families from a deficit model which might give rise to beliefs of both economical and cultural poverty. Moll and his associates believed that households and individuals have "historically accumulated and culturally developed bodies of knowledge and skills" (p. 133) which should be integrated into the school curriculum to better engage students in learning and to provide a vehicle for dialogue between the school and the families of the students.

The funds of knowledge construct is a research perspective that values home and community skills and cultural knowledge, but is not a new term for *culture*. Gonzalez (2005) suggests that we think of culture as a "set of inquiries." She explains that throughout the work of

Moll et al.., culture has been viewed as a set of inquiries because of the "hybridity of funds of knowledge" (p.39). Funds of knowledge or the information gained from lived experiences on the part of the students, their families and the community can be seen as hybridization or a cross between shared group behavior and individually constructed skills and ideas. Gonzalez (2005) emphasizes that respect is an integral component of this perspective. Respect for the community as a whole, and for community practices, and individual ways of doing and opinions is needed to embrace this concept.

In her study, Gonzalez (2005) found that not only did students benefit from the pedagogical practices that were guided by funds of knowledge but family and community members were also transformed. She wrote of one parent who decided to return to school to complete her education after encounters with teachers interviewing for funds of knowledge. The parent felt validated and realized different possibilities through education. Other parents in this study were changed in life affirming ways through discourse. They reported that they felt respected, valued, and realized that they had knowledge to offer that was important.

Hammond (2001) used the construct, Funds of knowledge, in working with bilingual/multicultural teacher-educators, teachers, preservice teachers, students and community members in a California urban school context. In the study, Hammond, and the co-researchers gathered community knowledge to teach and learn classroom science and produced a Mien-American garden house. Although this science curriculum was guided by what was important to the stakeholders, it adhered to the standards-based curricula.

In the study (Hammond, 2001), a school garden project was undertaken in an area of California that is rife with poverty, fast food restaurants, motels and stores that were once used by tourists but now are sites of prostitution, drug deals, and X rated movies. Many of the

businesses are now owned by Central Asians who rent rooms to individuals and families on the verge of homelessness. The project was coordinated by Hammond and two preservice teachers of Laotian ethnicity—one Hmong, and one Mien. The preservice teachers did not have gardening or building experience in Laos—they emigrated as young children and served as translators and "bridges" (p. 989) to the groups. The house was built on school land that was used for both school and community-member garden plots. A USDA grant was used to fund the curriculum, so parents were able to be paid for their expertise and labor.

Hammond (2001) found that working through tensions (misunderstandings about materials, human ways of interacting, and time constraints), created an evolving "common culture" (p.997) among the community members that consisted of mutual respect and trust. Understanding was constructed through working together. The children and their families were motivated to participate in school and many parents began attending school functions. The parents began to use school computers to record stories and culture and thus literacy was fostered. Hammond stressed that the Mien and Hmong parents came from an oral tradition, so the use of computers in writing was the result of two years of work and motivated by helping their children remember their cultural history.

Creating a practicing culture of science learning.

Fusco (2001) noted that "As I see it, students must not only actively participate in the culture of science: they must have opportunities to be producers of science and culture—to explore multiple methods of talking, thinking, and doing science" (p. 861). Fusco used urban community gardening to create a learning environment in which science became relevant to the participants. Food is interesting to most people and being able to grow it, and understand the

processes involved, and then to involve local customs and traditions around this food served as a powerful motivational tool for learners in Fusco's research. Thus, science becomes relevant.

Hapgood and Palincsar (2007) researched two instructional models that incorporated science inquiry in authentic and relevant contexts using real-world situated questions. These models, *Science Ideas* (Vitale & Romance, 2007) and what the researchers call *Guided Inquiry Supporting Multiple Literacies* are content rather than strategy based. While students interact with science material, teachers model how to question information and how to find answers through research to their questions. These models serve to allow students to be makers of science. In this way, the students become connected to science and science becomes a part of their world. Hapgood and Palincsar (2007) found that these models fostered science literacy as measured by increased student interest, motivation, and an increased use of discussions with science vocabulary to question theories.

"Making science" on the part of students was seen by Fusco as important for learning. In the following section, helping students learn science by providing them with the tools to *cross borders*—that is make the transition from their home cultures into that of school science is discussed.

Cultural border crossings.

Aikenhead (1998) explained that science is a subculture of Western culture. He further explained that school science is congruent with this subculture. Because of these phenomena, many students who are not of the Western culture feel a disconnect with school science. For these students to learn science when taught from a Western perspective, they need to travel from their everyday life world into the "alien" world of school science (Jegede & Aikenhead, 1999).

Jegede & Aikenhead (1999) reported that some students effortlessly make this crossing but many others experience "cognitive conflict" (p.47) and as a result experience clashes and problems. Jegede & Aikenhead (1999) found that some students felt that learning would make them give up their identity, while others learned superficially just to get by. Because of this cognitive conflict, both teachers and students suffer in the quest to make science learning meaningful.

Costa (1995) also studied this cognitive conflict phenomenon that students experience when trying to cross epistemological, linguistic, and other borders. She developed a model based on previous research that categorizes students as "border" crossers. In order to construct the model she interviewed and observed 43 students. She also had access to student record data. The Costa model (p.316) is illustrated below.

Table 2.3 Costa's conception of border crossers.

Label or Category for Student	Description of Label or Category
Potential Scientist	Worlds of family and friends are congruent with worlds of both school and science
Other Smart Kids	Worlds of family and friends are congruent with world of school but inconsistent with world of science
I Don't Know Students	Worlds of family and friends are inconsistent with worlds of both school and science
Outsiders	Worlds of family and friends are discordant with worlds of both school and science
Inside Outsiders	Worlds of family and friends are irreconcilable with world of school, but are potentially compatible with world of science

As a result of her study, Costa (1995) developed ideas for reform to make science meaningful for all students. She called for active reflection on the part of all students concerning

why science matters in their lives. Costa suggested that these reflections should be a centerpiece for curriculum planning. Costa also called for curriculum to be generated from questions that are compelling to the students. She noted that it has been a common practice in science education to wait until students are in advanced science courses at the university level to allow students to generate curricula and experience the excitement that this type of learning creates. Costa urged educators to become involved in science policy decisions. She hoped that through understanding, interesting curriculum, and the integration of life worlds and school science worlds, all students would ultimately be able to negotiate science knowledge.

Jegede & Aikenhead (1999) conducted a study with high school pupils in Australia to investigate the belief that students do not have to be from a minority culture to experience rough transitions into school science from their homeworlds. They found that many students who belong to the majority culture experience incongruence with Western science. They explained that science education should be sensitive to cultures and different ways of knowing such that teachers through respect and understanding can help make the border crossings smoother. They wrote of the possibilities for science learning that would be informed by many cultures if all the students were engaged.

Thinking critically about the world and knowledge.

This discourse of relevance, thinking critically about the world and knowledge, not only embraces the traditions of funds of knowledge and Freirean ideals but actually emulates Freire's tradition of transformation through reflective and empowering education. This section focuses on the critical work conducted by Angela Calabrese Barton alone, and with different colleagues including current efforts in science and environmental education with Wolff-Michael Roth.

Calabrese Barton and Yang (2000) discussed the need for science educators to become involved in sociocultural issues as a result of their case study of a homeless inner city boy, Miguel. Through interviewing and getting to know Miguel, they concluded that there is a disconnect between enthusiasm and love of science, and the restrictions to an education in science. They raised questions and called for further research to promote reform that would encourage the welcoming of and participation of all students.

In a related study of another inner city homeless youth, Kobe and Calabrese Barton (2003) described how science can be looked at as *contested terrain.* Kobe (pseudonym picked by the youth in honor of the basketball player, Kobe Bryant, because the youth in the study hoped to become rich through professional sports) became involved in an after school science program for children who lived in a homeless shelter. He did not attend high school very often and when he did, had a serious conflict with the science teacher. Kobe was the primary caregiver for his three younger siblings, was a member of a gang, and admitted to Barton that he had a hard time staying away from drugs and alcohol. He was reluctant to become involved in the science program but agreed to video tape his friends reclaiming a vacant lot. He was skeptical about the project and believed that rats and vandals wouldn't allow for any good to come from the efforts. Kobe not only videotaped, but also became involved with a gardening project and agreed to be interviewed by Calabrese-Barton. He reported that science in school was boring, no one cared about him and that the teachers were mean. His reflections caused Calabrese-Barton to wonder about the meaning and place of "science for all" in the National Science Education Standards.

Calabrese-Barton concluded that the vision of *science for all* put forth in the National Science Standards is restrictive because it does not take into account (a) that science is situated and needs to take into account the life experiences of the children (b) that science is exclusionary

because it embraces the traditions of the ones who are in the powerful positions of creating it, and (c) that doing science is problematic. She called for the makers of science policies to listen and be influenced by youth.

Calabrese-Barton, Koch, Contento, and Hagiwara (2005) also studied high poverty urban youth to determine how children learn science, what they know about science (specifically food science), and how they used their scientific food knowledge in their everyday lives (scientific literacies). The researchers were guided by a critical pedagogy of feminism and believed that science education should be both project and community-based. They maintained that topics that matter to students were important in fostering learning and interest. Food and food systems were topics that the children were familiar with and had an interest in exploring further.

In an earlier though related study, Calabrese-Barton, Hindin, Contento, Trudeau, Yang, Hagiwara and Koch (2001) found that the mothers of urban poverty youth looked in one way at science as a subject to be studied in school but also in another way as one in which they were intimately connected to at home. The researchers constructed three main themes when they looked at the mothers' definition of science: (a) science is a process that is challenging, (b) they are environmentally connected to science, and (c) mothers do science with children. Calabrese-Barton et al. (2001) found that the mothers felt particularly comfortable in the area of food science. The mothers began to make connections between school and home science when asked how they thought they might use food to teach science to their children. As a result of conversations between the mothers and the researchers, it was found that the mothers understood science as a process and that it was something they were capable of doing.

"Citizen science" (Roth & Calabrese-Barton, 2004) is explained as science literacy that helps people cope with their own lives and also helps people become active citizens and

contribute to the knowledge available in their community. In a three year study, Roth and Calabrese-Barton worked with the people, both students and adults, of the Oceanside community in the Pacific Northwest. The researchers worked together on water quality issues and came to understand the importance of watersheds and small feeder streams on the health of a larger body of water. Making science in this study consisted of writing and reading newspaper articles; collecting, recording, analyzing and publishing data; interpreting data; presentations from environmental groups as well as tribal elders; fieldwork; and socially interacting to understand and explain the environmental issues.

Roth and Calabrese-Barton (2004) found as a result of involving the community and working toward improving the health of Henderson Creek and in turn Pat Bay and Georgia Straight, the students and the community members became motivated to become active citizens in their areas and were also able to connect science to everyday life activities. Roth and Calabrese-Barton call for an approach to teaching science that allows for negotiating issues faced by the students and community whereby various types of knowledge is considered and used to solve problems. This way of teaching and learning science echoes the traditions of place-based curriculum (Brandt, 2004; Gruenewald, 2003; Smith, 2002), democratic learning (Meier, 1995, 2002; Pate, Homestead, & McGinnis, 1997), student-generated curriculum (Alexander, Carr, & McAvoy, 1995; Beane, 1993; Nesin & Lounsbury, 1999), culturally relevant pedagogy (Ladson-Billings, 1994, 1995; Matthews, 2003), and thus is curriculum as praxis (Grundy, 1987).

In these four sections, the teacher-researcher has shown how discourses of relevance, although closely connected to the discourse of culturally relevant curriculum, have their own unique ideologies. As was the case in the above studies, developing scientific and/or nutritional literacies and empowering the participants is also at the heart of this study, in the attempt to co-

construct a community-relevant curriculum. The next section examines studies that have drawn from various dimensions of emancipatory pedagogy and synthesized ideas to construct science in community that engaged teachers, community members and students.

Community-based/Community-centered science education.

After studying and reflecting on the many tenets of emancipatory pedagogy as informed by discourses of cultural relevance, the goal of involving the community in making and learning science seems not only completely natural but necessary. The diagram below is a representation of this way of doing science and shows how community-centered science is informed by these constructs.

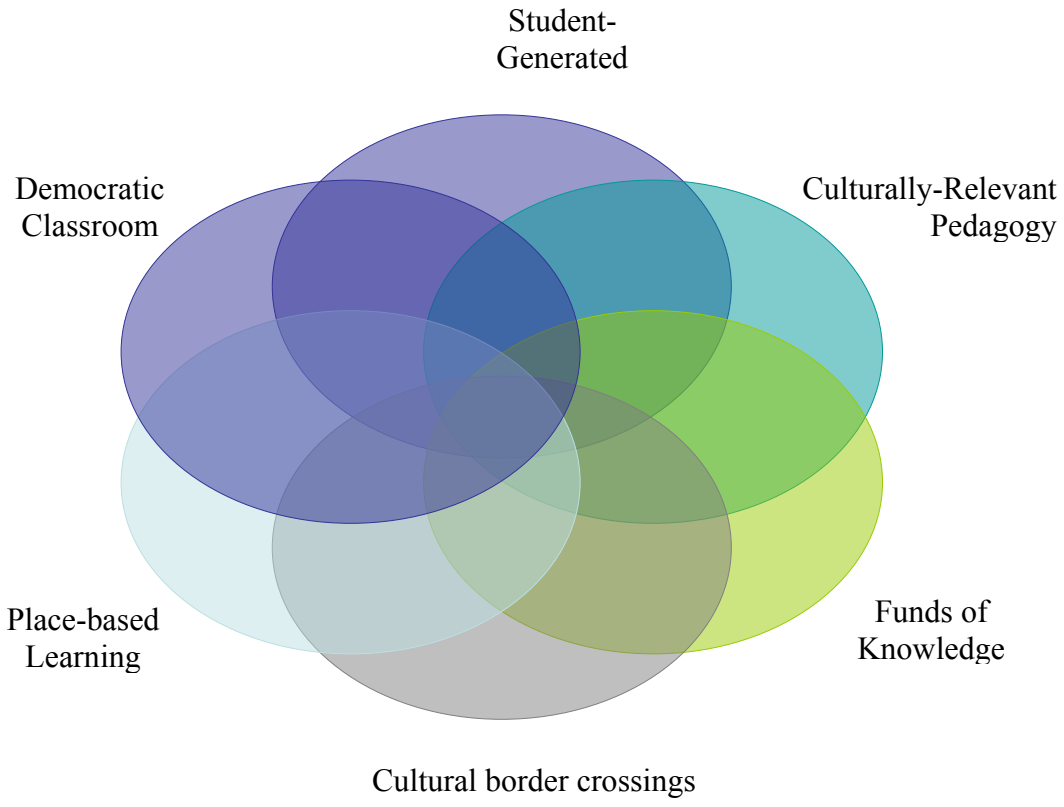


Figure 2.1 Tenets of community-centered science

The concept of community can have different definitions. The way the researchers understood community in this study was informed by the characteristics explained by Howley and Eckman (1997). They explained that rural communities contain the "virtue of smallness" and have "purposes peculiar to rural places" (Howley & Eckman, 1997, p.1). The Barkersville community is very small—243 students in a pre-K-12 school, and 2000 residents in the entire county (school registrar, 2007), and in this inquiry, the co-researchers investigated through memory banking (Nazarea, 1998) peculiar customs and traditions with food.

This final section of the literature review examines studies that looked at how science was viewed by students and community members and then considered how to connect science to everyday life in different community contexts. Charron (1991) studied a rural western school and community to determine how science was taught and learned. As a result of her inquiry, she found that the students and adult community members of the Owens' county schools were largely unmindful of the connections to science in their daily lives. Although most people were cognizant of and interested in health issues, gardening, automobiles, weather, and nutrition, they did not deem these topics to be science. They felt that science came out of a textbook or was conducted by scientists in laboratory settings.

To increase student motivation and learning in science, the Alaska Science Consortium published a science curriculum (Stephens, 2000) to be used as a guide by any educator attempting to integrate community wisdom with the dominant culture information in the teaching of science. The project found that when local knowledge is incorporated into the curriculum, achievement by the indigenous student populations studied rose.

In a study that not only included but showed great respect for community wisdom, Nichols, Tippins, Morano, Bilboa and Barcenal (2005) demonstrated possibilities for science

teaching that very much go beyond culturally-responsive and are truly community-based. They used the research tool of memory banking as developed by Virginia Nazarea (1998) to collect everyday life stories and other data from a Filipino barangay to determine what science is meaningful in the Filipino context on the island of Panay. These stories included fishing issues, health rituals, as well as the feeling that the community has become out of balance due to land clearing and political ordinances. As a result of the collection and analysis of stories from local people, they were able to envision and implement a science curriculum and way of teaching that honors local knowledge and traditions. Their work helped develop the Casay Environmental Education and Indigenous Studies Center.

Developing Nutritional Literacies

Students participate in health courses in schools, our government provides free, reduced priced, or regular priced breakfast and lunch to children at public schools (depending on parents' income), and yet 16% of children are overweight in the United States (Hedley, Ogden, Johnson, Carroll, Curtin, & Flegal, 2004). African American and Latino children have a higher incidence of being overweight than children of other cultural groups (Thorpe, List, Marx, May, Heigerson, & Frieden, 2004).

In a previous section, the disconnects between home worlds and school were shown to thwart authentic science learning. However, the respect for home knowledge was shown to have a positive effect on school learning (Moll et al.., 1992). Food was also shown to be an important part of life and learning (Calabrese Barton, 2003; Fusco, 2001; Osborne & Calabrese Barton, 1998; Roth & Barton, 2004). Rituals and celebrations, both religious and secular, often include special foods and meals. Grocery stores in the United States contain produce and foods to tempt any palate, yet, food and nutrition in the United States seems to be working against, not for, a

healthy lifestyle. Nutritional literacies need to be fostered and developed (Calabrese Barton, et al., 2005) so that food is seen as nourishing and used in a healthy way, while remaining an important part of life and culture.

Action for Healthy Kids, a nonprofit organization, released a report in 2004 that linked inactivity, poor nutrition, and academic achievement. This report cites extensive research that found academically better students tended to be well nourished. Satcher (2005) did an extensive review of nutrition research and as a result of his studies, suggests that schools take these basic steps to create healthy environments and at the same time, promote student achievement; (a) form a school health advisory council, (b) develop a comprehensive wellness policy, (c) integrate physical activity and nutrition education into the regular school day, (d) incorporate nutrition education, healthy snacks, and physical activity into after-school programs, and (e) encourage staff to model healthy lifestyles (p.28). Satcher (2005) wrote that schools can act as a catalyst in changing the health of children since parents and other community members are interested in what happens at schools and often learn from children.

We Can! is an example of a science-based, behaviorally oriented nutrition education program sponsored by the National Institutes for Health. It taught children to follow a diet low in cholesterol and saturated fats. After three years, the children who participated in this nutrition education project were making healthier food choices as opposed to children who did not receive the We Can! education. The children from this study were acting on their nutritional literacies to make a difference in their own lives.

This chapter detailed the sociocultural/contextual constructionist epistemological framework (Freire, 2001; Grundy, 1987; Habermas, 1972) that underpinned the entire ethnographic action research inquiry and literature review. It described how an emacipatory

pedagogy that views curriculum as praxis drew from the integrations of notions relating to a) practical and emancipatory curriculum (Freire, 2001; Grundy, 1987; Grundy & Hatton, 1995; 1998; Habermas, 1972; Smith & Lovat, 1991; Zahur, Calabrese Barton, & Upadhyay, 2002), b) culturally relevant pedagogy (Ladson-Billings, 1994, 1995; Matthews, 2003), c) funds of knowledge (Hammond, 2001; Moll, Amanti, Neff, & Gonzalez, 1992), d) cultural memory banking (Nazarea, 1998; Nichols, Tippins, et al.., 2005), and e) collective memories (Misztal, 2003; Wertsch 2002) and sociocultural analysis (Wertsch, 2002).

This review of relevant literature began with the examination of studies related to emancipatory pedagogy and various discourses of cultural relevance. It then focused closer to the research agenda by exploring community-based science making. These studies included both rural communities as well as those that focused on the constructing of nutritional literacies and connecting science and students' lives outside of school (Calabrese Barton, 2003; Charron, 1991; Costa, 1995; Fusco, 2001; Hammond, 2001; Jegede & Aikenhead, 1999; Osborne & Calabrese Barton, 1998).

As the co-researchers collaborated to explore nutritional experiences in the community, the history and collective memories of different groups were used to develop meaningful nutrition curriculum. These life experiences, histories, and home knowledge and skills may serve as an empowering tool to the co-researchers in the Freirean notion of dialogue as an emancipatory pathway (2001). In the next chapter, the teacher-researcher explains the research methodology of this hybrid qualitative study.

CHAPTER 3

RESEARCH METHODOLOGY

To attempt to understand, characterize and then transform the nutritional wisdom inherent in the Barkersville community into meaningful learning activities, a hybrid, qualitative inquiry was conducted. This collaboration among students, teachers, and community members to "consciously build(s) a curriculum" (Oliver, 2007, p. 364) that reflected the knowledge and traditions of the Barkersville community drew from a plethora of frameworks.

The study was conducted by a teacher whose emancipatory pedagogy provided the focus for the construction of curriculum. Various discourses of relevant pedagogy as well as curriculum as praxis and students as curriculum makers served to inform the inquiry. In this chapter the research methodology as well as methods used by the co-researchers to construct and analyze data is detailed.

The following research questions guided the study:

1. What does memory banking (Nazarea, 1998) reveal about local nutrition practices and knowledge?

2. What notions of nutritional literacies are constructed as the participants collaborate during this study?

3. What happens when students, teachers, and community members collaborate to create a community-relevant nutrition curriculum through action research?

4. What tensions are created when trying to develop nutrition curriculum in this school and community?

The co-researchers/participants confronted tensions that were produced by examining Barkersville wisdom and practices alongside the nutritional science taught at school. They considered these tensions as they collaborated to generate nutritional literacies.

Design of the study

This study was qualitative in nature (Crotty, 1998; Denzin & Lincoln, 2005; Merriam, 1998; Patton, 2002; Silverman, 2000) with an "…avowed humanistic and social justice commitment to study the social world from the perspective of the interacting individual" (Denzin & Lincoln, 2005 p.xvi). It was situated in the Barkersville community with the explicit purpose of seeing what happens when nutrition curriculum is viewed as praxis (Grundy, 1987; Habermas, 1972). This inquiry was framed as an action ethnography (Donald & Grosling, 1995; Fusco, 2001; Kemmis & McTaggart, 2000, Spindler & Spindler, 2000). The harmony of methodologies allowed for the researchers to construct a snapshot of cultural nutrition practices in the Barkersville community while further developing their own nutritional literacies. Tensions recognized served to facilitate reflection so that through collaboration ideas were voiced and knowledge was constructed. The spectrum of voices heard throughout the data testifies to the collaborative nature of this study. In the following section, tenets of the ethnographic tradition that informed this study are discussed.

Educational ethnography

Wolcott (2002) explained that ethnography must be corroborative, based on first hand experience, holistic, cross cultural, conducted in the natural setting, and the result of intimate, long term acquaintance. He describes the researcher as both an insider yet an outsider to the culture he/she is studying. In this sense, culture can be thought of as the traditions, beliefs, behavior, knowledge, and ideas of a particular group of people. This inquiry used the

methodology of ethnography as a research tool (Mertens, 1998) to study, describe, and analyze the nutritional practices and beliefs of Barkersville. The information gained through interviews and conversations was not just a description of nutritional phenomena in the Barkersville community, but an in depth study of the nutritional practices of the co-researchers, as well.

Spindler (2000) believes that with the changing demographics in America, ethnographic studies can help guide teachers in the education of children from home cultures that are different from the mainstream. He cites a school in the Midwest that celebrates cultural diversity and allows students from 28 ethnic traditions to be educated in the conventional American tradition without damaging their cultural identity. The use of an action ethnography methodology was grounded in the belief that constructing nutritional curriculum congruent to the knowledge and traditions of the Barkersville community might aid in the fostering of nutritional literacies and acceptance of healthier eating habits.

In agreement with Spindler, Zou and Trueba (2002) wrote, "Educational ethnography with the help of anthropology and psychology, is venturing into methodological approaches that can best help us make sense of other worlds, and of children from those worlds in our own classrooms"(p.2). Because how best to teach in ways which empower students and help them learn gnaws at the teacher conducting this study, curriculum was viewed as praxis in this inquiry. It involved the construction of knowledge that considers ideas from both the community and from mainstream science. Action research combined with ethnographic methods—interviews, focus group discussions, reflections, observations, and conversations that allowed for collaborative meaning making, was a methodological approach that helped the researchers align their home-worlds and knowledge with the science taught at school. This way of action/ethnographic way of viewing curriculum gave the teacher a glimpse into the nutritional

knowledge and traditions in the community so that she could help the students construct nutritional literacies in a way that was congruent to their lifeworlds. Knowledge that made sense.

This ethnography focused on the making of meaning in the realm of nutrition in the Barkersville community. It did not study all the customs in Barkersville and did not attempt to describe all aspects of day to day life. In the sociological tradition this study would be categorized as a micro-ethnography (Berg, 2001). Micro ethnography focuses on a particular aspect of a group of the community (in this case, nutritional practices) while macro ethnography, which is sometimes referred to as general ethnography, is an investigation of the entire group. Both have as their goal the description and understanding of "everyday community life from the perspective of the participants" (Berg, 2001, p.136).

This action ethnography is a hybrid inquiry, informed by the work of ethnographers, Guajardo and Guajardo (2002). They explain the "hybrid version" of critical ethnography as one that seems closely related to action research. To help explain what is meant by hybrid, they explain, "as we paint the picture of a people and their community, we have given them a brush to paint with us as we simultaneously legitimize their knowledge that in turn creates power" (Guajardo and Guajardo, 2002, p.285). As the researchers in this study interviewed and discussed, the community knowledge was then used to construct nutritional literacies relevant in the Barkersville context. In the following section, the methodology of action research as it relates to an ethnographic approach and this study is examined and discussed.

Participatory action research

Action research is a qualitative research methodology whose purpose is to solve the problems faced by a community or an organization in a democratic society (Grudens-Schuch, 2004). It is based on the assumption that those who face the issue or are involved with the

dilemma are capable of finding solutions to the issues by researching the problem themselves. In this way action research respects the abilities of the participants and serves to foster agency and empower them (Cano, 2004; Kemmis & McTaggart, 2000). This way of studying and problem-solving fits with the notion of emancipatory pedagogy (Freire, 2001; Grundy, 1987; Grundy & Hatton, 1995; 1998; Habermas, 1972; Smith & Lovat, 1991; Zahur, Calabrese Barton, & Upadhyay, 2002) that frames this study.

Fusco (2001) defines action research as pursuing research for social change. Fostering the construction of nutritional literacy and generating curriculum through the utilization of Barkersville knowledge and practices served to effect change on the part of the researchers. The changes perceived are discussed in detail in the chapters that follow. Cano (2004) stresses that "action research is decidedly not a fad" (p.2). He explains that teachers are the authorities on what works best in their classrooms and have always looked at the effects of their teaching on student learning. They may not have viewed themselves as researchers, but they have always reflected and developed action plans.

Jane Addams, Nobel Peace Prize winner, helped define action research through her efforts with the poor. She is called the mother of social work and was an influential reformer and sociologist. She was a friend and colleague of the philosophers of the Chicago School, which included George Mead and John Dewey. These pragmatists stressed reflective action as opposed to routines (H. J. McLaughlin, personal communication, January 13, 2003). They believed that theory should be tested in practical reality and that taking action and experiencing its consequences should be the guiding principal for research. They also believed that research should be conducted to bring about better conditions for mankind. Reflection along with the testing of practical solutions to problems is a large part of action research.

Kurt Lewin, a psychologist and Jewish refugee from Europe, was another pioneer in the development of action research in America. Lewin (1997) worked to solve labor problems in American factories in the 1930s and 1940s by using psychological research. He conducted practical research to sort through everyday problems between management and laborers. His work was instrumental in helping to define the basic tenets of action research (Grudens-Schuch, 2004). In this action-ethnography, realistic research was used to facilitate the construction of nutritional literacies.

The League of Professional Schools, as discussed in Chapter 2, has as one part of its framework the commitment to using action research in making decisions for schools. But many other schools, in addition to those that belong to the League of Professional Schools, use action research to effect reform. In describing a study concerning racial issues among teachers at a school, Donald and Grosling (1995) wrote:

> …the purpose of the action research was to generate personal knowledge (to which commitment could be bound) and local knowledge (from which undeniablility could be extracted)—we are like that, our kids do these things. Action research of this kind is about generating personal and local knowledge that can be translated into the leverage of power. Or, to put it in a more sophisticated kind of way, it is about the power already inherent in those kinds of new knowledge, in that kind of redefinition of the problem, in that changed recognition of ourselves as professionals. (p. 272)

While not all educational institutions have action research as part of their schools' culture, many individual educators who instruct pupils in places without this culture engage in a reflective practice with students and their families to solve classroom issues. Although reflection is only a part of action research, these teachers are using this practice while probably not even being

cognizant of the theory behind their practices. They are recognizing problems and trying to form solutions, and then thinking about the consequences from these possible solutions and actions.

Zarafshani, Azadi, and Monfared (2004) use a cycle diagram to explain their conception of the action research process. The action research cycle, as conceptualized by these authors is shown in the following diagram (p.15).

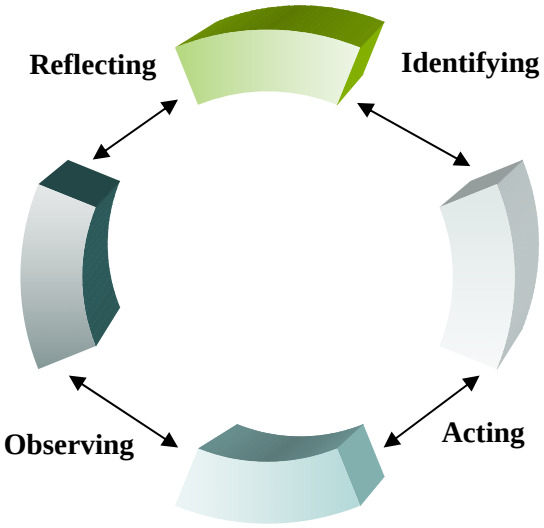


Figure 3.1 Action research cycle.

The cycle begins with the identification of a problem and subsequent development of a plan. During the implementation of the action research, the participants often move back and forth within this cycle.

Zarafshani, Azadi, and Monfared (2004) explain that action research must involve praxis rather than practice. They define praxis as

> informed, committed action that gives rise to knowledge rather than just successful action. It is informed because other people's views are taken into account. It is committed and intentional in terms of values that have been

> examined and can be argued. It leads to knowledge from and about educational practice. (p. 16)

Praxis was at the heart of the work of well known international action researchers like Paolo Freirre and Orlando Fals-Borda. These men worked with oppressed people to bring about social and political change in their communities. The participatory action research model based on their work has central to its tradition certain issues of building power and promoting liberation and social justice (Upshur & Barreto-Cortez, 1995).

In order to effect change and promote empowerment, teachers use action research to study educational practices. These practices may be as basic as their own classroom procedures or may have to do with school or system wide issues. Kemmis and McTaggart (2000) warn against limiting the research methods and techniques to a certain tradition or methodology when studying a practice. They assert that the research questions should drive the approaches used and believe that, "…what makes participatory action research 'research' is not the machinery of research techniques but rather an abiding concern with the relationships between social and educational theory and practice" (p. 574).

In this study, a variety of ethnographic methods (which will be identified and discussed in detail in a later section of this chapter) were used to facilitate the action research process and determine nutritional traditions in the Barkersville community. The results were reflected upon both individually and in group settings to work through tensions and construct individual knowledge. In keeping with the spirit of action research (Kemmis & McTaggart, 2000; Zarafshani, Azadi & Monfared, 2004) this study tried to improve teaching and learning by viewing curriculum as praxis (Grundy, 1987; Habermas, 1972) and reflecting on the knowledge constructed.

Setting for the study

This action ethnography was conducted in an economically impoverished, small, rural community (Boatright & Bachtel, 2006) in northeast Georgia, Barkersville (pseudonym). Barkersville ranks 143 out of 159 Georgia counties in land area, making it one of the smallest counties in the state. Only 56% of all adults in the community have achieved at least a high school diploma, and thus the county ranks 157th for having a large percentage of its citizens receiving public assistance (Boatright & Bachtel, 2006).

The students involved in the study attend a charter school that is classified as a Title I school. All students receive free breakfast and lunch, as well as a snack for those that attend the no cost after school program.

Many middle-class White students from the Barkersville area attend private schools, thus most students in the school are African-American—88% (school registrar's ethnic distribution report, 2007). During the years of school integration (1960s-1970s) the tradition of segregation continued in the county. This segregation was facilitated by county commissioners authorizing and funding a bus to transport White students to a public school outside of Barkersville in the neighboring county. This legacy exists today as evidenced by the racial demographics in the County Charter School. The proportion of Black students to White students in the school does not mirror the actual demographics of the county. While 88% of the children attending the school are Black, only 60.5 % of the county's citizens are Black.

The school is currently a "Needs Improvement" (Georgia Department of Education, 2007) School as classified from the standards of the Federal *No Child Left Behind* Act. It consistently has a high teacher turnover—this year eight certified personnel out of 22 left. While 10.3% of teachers in high poverty schools are not highly qualified, in Barkersville the statistic is

higher—23%. This may be due to lower pay in the form of the county supplement, the reputation of the school, or the rural nature of the area and the smallness of the school.

The data was constructed both at the school building and at various homes in the community. The researchers met both as a whole group and sometimes in small groups. Reflections were constructed both individually and in small groups.

"A Heart Full of Science" was a school/community science night planned by teachers, university faculty, and pre-service education majors. This event that focused on health and nutrition, served as a catalyst in the slowly evolving data analysis process. It also provided a forum for the student-researchers to display and discuss their emerging nutritional literacies

Participants

The sampling for the study was "purposeful" (Patton, 2002, p. 40) and "theoretical" (Silverman, 2000, p. 105). Silverman explained that the terms are often used interchangeably. He also stated that the theory that drives the study is what helps the researcher determine who should be asked to participate. There were 19 co-researchers in this study. The teacher chose the topic of the study because of her interest and the nature of the disciplines that she teaches at the school in Barkersville. She is currently teaching agriculture, family and consumer sciences, and middle school science. The 10 students in the study were members of the Barkersville community that had an interest in being a part of nutrition curriculum making and volunteered to be a part of this inquiry.

When beginning the study, the teacher asked for volunteers from the entire middle school (87 students) and the members (6 in number) of the current (at that time, February, 2006) high school nutrition class. Six female students and four male students chose to participate in the study. Eighty percent of the student participants identify themselves as Black and 20% identify

themselves as White. These participants (the students and the teacher) came to consensus through a process of nomination of which community members to involve in the inquiry. The community members were chosen to mirror the demographics of the school community. Seven female adults and one male adult were participants. Other males were asked to participate but declined the invitation. The adults interviewed ranged in age from 24 years to 82 years old. Sixty-two percent were Black and 38% were White. Each adult community member had lived all of his/her childhood in the Barkersville community and only two of these participants had moved away to pursue careers and upon retirement had moved back 'home'. One of the adults is currently a teacher at the school and another works in school food service, as lunchroom staff. The other adults are either retired or currently work in the Barkersville community. The table on the following page provides a more coherent view of each co-researcher.

When viewing the 19 researchers, one could describe them as 10 students and nine adults, all interested in food and nutrition. Thirty-two percent of the researchers belong are White, 57% are Black, and 11% are racially mixed. An overwhelming majority of the participants in this inquiry are female (74%) even though an equal number of males and females were asked to participate. These percentages may say something about gender and nutritional interests, but that is beyond the scope of this study. Following the table, in the following section, the means and techniques used by the researchers to construct data are explained.

Table 3.1 The co-researchers.

Pseudonym	Gender	Age	Race	Occupation	Formal Education Level	Lived only in Barkersville	Recruited For study by whom
Freida	Female	82	W	Parental caregiver	High school	Yes	Teacher/ researcher
Gloria	Female	63	B	Babysitter/ Maid	Grade school	Yes	Student/ researcher
Helen	Female	55	B	Military/ Business	4 Yr. College	No	Student/ researcher
Virginia	Female	76	B	Babysitter	Grade school	Yes	Teacher/ researcher
Amelia	Female	22	W	Elementary teacher	4 yr. college	Yes	Student/ researcher
Irene	Female	57	B	food service worker	High school	Yes	Teacher/ researcher
Eugene	Male	70	W	Military	High school	No	Teacher/ researcher
Veronica	Female	43	B	Clerk	High School	No	Student/ researcher
Mario	Male	15	B/W	Student	High School	Yes	Teacher/ researcher
Sarah	Female	15	W	Student	High School	No	Teacher/ researcher
Trish	Female	15	B	Student	High School	Yes	Teacher/ researcher
Taylor	Female	12	W	Student	Middle School	No	Teacher/ researcher
Deavon	Male	13	B/W	Student	Middle School	Yes	Teacher/ researcher
Kita	Female	15	B	Student	High School	Yes	Teacher/ Researcher
Tasha	Female	15	B	Student	High School	Yes	Teacher/ Researcher
La'Tia	Female	15	B	Student	High School	No	Teacher/ Researcher
Jacob	Male	16	B	Student	High School	Yes	Teacher/ Researcher
Joseph	Male	17	B	Student	High School	Yes	Teacher/ researcher

B=Black W = White B/W=Mixed Race

.

Methods and tools used in data construction

The design of this qualitative study was action-ethnography. Accordingly both traditional ethnographic and action research methods were used to construct data. The constructed data from this hybrid inquiry was categorized by the researchers as primary or secondary data. Primary data sources considered included transcripts of individual interviews, transcribed focus group interviews, constructed memory banking templates, observations, field notes, records of conversations, and reflections. Eight interviews with the community adult co-researchers, as described in the chart and narrative in the previous section, were conducted by the teacher and student-researchers. The researchers used the anthropological tool of memory banking (Nazarea, 1998) as adapted by Nichols et al. (2005) to collect and categorize artifacts and document community knowledge. The number of researchers involved in each interview process ranged from two to eight. Other interviews (not with the selected community members)—27 in number, were held between the teacher and student-researchers to glean insights about nutrition knowledge and newly constructed nutritional literacies.

The transcribing of audio-taped interviews was performed by the teacher-researcher. Initially, the transcribing was envisioned by the teacher-researcher as a shared chore, but the students became overwhelmed (most had never been taught keyboarding) quickly, and it was essential to ensure accuracy and completeness. However, the analysis of the transcriptions was a shared activity. At times the analysis of the transcriptions seemed to be an ordeal, because the student-researchers spent much time complaining about, “already having read that one” and “why do we have to re-read it, everyone knows what she said.”

The teacher-researcher observed and took field notes during focus group discussions on community nutrition practices. The observational note-taking also occurred when the student-

researchers were analyzing data to identify patterns, construct themes and note similarities and differences. All the student-researchers reflected both by writing as well as during conversations. At one point during oral reflecting, the teacher was asked to do an administrative task by the school registrar. The students paired up to study interview transcriptions, and in a few minutes, two of the student-researchers were performing a "play" with the interview data. This "play" consisted of the researcher interviewing, the adult community/participant/researcher being interviewed and speaking about community food practices, and a new character who was culturally reflective of a preacher who was advising the two "actors" on nutrition knowledge. Everyone in the room quit doing their task on hand to watch this performance. The girls had exaggerated southern accents and the cadence and rhythm of the words was reminiscent of a gospel revival. This spontaneous role playing brought smiles and interest from everyone in the room and reminded the teacher of the ideas of Greene (1999). She wrote of the power of social relationships and the arts and humanities to inspire learning. The active learning and enjoyment during this "play" was a special moment in the career of the teacher-researcher. From that point forward, other interview transcripts were turned into "plays".

The reflections both in oral and written form served as a crucial source of data. They were used both to identify themes from those interviewed and in constructing knowledge in the form of emerging nutritional literacies. Response sheets about student/researcher nutritional knowledge were filled out three times during the study—at the beginning, in the midst of interviewing and constructing data, and towards the end while analyzing constructed data.

Secondary data sources consisted of artifacts in the form of cookbooks, newspaper articles, journal entries and data found on the internet. These data were read and re-read and

discussed many times throughout the study. Both students and the teacher reflected on the data to construct ways to present their constructions. Below is a table that lists the data sources by categories.

Table 3.2 Data sources.

Table illustrating data construction sources

Primary data sources	**Secondary data sources**
Interviews and the construction of memory bank charts about community nutrition practices	**Journal entries from participants**
Field notes from focus group discussions	**Internet**
Field notes from observations of researchers studying interview transcripts	**Cookbooks**
Reflections	**Newspaper articles**
Response sheets to nutritional ideas	**Impromptu dramatizations while analyzing**
Conversations among researchers	

Procedures of the Study

This study was about the process of constructing nutritional curriculum and the resulting literacies by viewing curriculum as praxis. Its purpose was to see what happened during this process. The researchers focused on learning about community food traditions and practices while using the anthropological tool of memory banking along with ethnographic methods described in the previous section. The steps below specify the procedures used in this inquiry.

1. The teacher-researcher presented a prospectus to her university doctoral committee and they approved the research proposal.

2. The Institutional Review Board at the University of Georgia granted permission to conduct the study.

3. Students were informed of the study and invited to participate.

4. Participant permission slips were obtained from all co-researchers.

5. A response sheet asking questions about nutritional habits was given to all student/co-researchers.

6. The teacher and student-researchers participated in two brainstorming sessions to decide on the community practices to focus on.

7. The teacher-researcher and student-researchers studied the tool (memory banking template) which would guide the interview questions.

8. The technique of interviewing was studied and practiced.

9. Community members were identified and nominated as possible participants.

10. The teacher-researcher and student-researchers obtained signatures on permission forms from community participants.

11 Specific questions were decided upon to guide the interviews.

12. The teacher and student-researchers conducted interviews.

13. The teacher and student-researchers transcribed interviews.

14. The teacher and student-researchers met to validate interview data.

15. Students shared reflections about nutrition and participated in nutrition response sheets.

16. The teacher and student-researchers read and re-read and re-read and re-read the interviews. Common patterns, themes, and words of those interviewed were noted to be further analyzed.

17. The teacher and student-researchers met to discuss the interim texts that the teacher constructed.

18. The teacher and student-researchers negotiated the specific and schematic narratives that would be portrayed in the dissertation.

Although I have depicted the procedure as steps, the research process did not always proceed in a linear fashion. Clandinin and Connelly (2000) write of the negotiation that takes place while conducting narrative inquiries. They explain that texts are revisited and reread and stories are revised as the narratives are reflected upon and discussed. In this study, the teacher-researcher met with the student-researchers and reflected with them on the interim texts that she and the students wrote. These meetings were designed to give voice and ownership of the study to the student-researchers (Denzin & Lincoln, 2005).

This section attempts to explain how the co-researchers interviewed. The questions were open-ended and began with the focus on the two nutritional practices of interest—church homecomings and family reunions. A question to open an interview might have sounded like this, “Please tell us what you think of when remembering family reunions.” Once the interviews began, the adult-researchers told their stories without hesitation. The interviewers asked very few questions because the adults were so willing to share. The students and teacher, however, did use the categories in the memory banking templates as a guide to gain information concerning all aspects of the phenomena. For example, when interviewing about family reunions, a hypothetical question under the economic grouping might have been, “How does this event get paid for?” Another question asked to solicit information might have been, “So, where is it held?” In some cases when constructing the memory banking templates, the student-researchers went back to those interviewed to gain more information. The memory banking template with the different

categories helped the researchers look at various aspects of a practice. Although the data in the templates seems fixed, in reality, the boundaries are blurred. The following section describes the analysis process that was used in making sense of the data constructed. A blend of analytical traditions seemed a good match for an inquiry that was a cross of both ethnography and action research methodology.

Data analysis

Patton (2002) explains that the stories produced as a result of an inquiry methodology may be used as "pure description of experience, worthy as narrative documentary of *experience*…or analyzed for connections between the psychological, sociological, cultural, political, and dramatic dimensions of human experience" (p. 116). The analysis of the stories was very important in this inquiry and was dependent on the emancipatory pedagogical frame of the researcher and her students. If a different framework for data analysis had been used, the stories would have been interpreted differently.

The traditions of culturally responsive pedagogy (Hammond, 2001; Ladson-Billings, 1994; Moll, 1992; Noddings, 2001; Oldfather, 1998), narrative inquiry (Clandinin & Connelly, 1990; 2000), and collective memories (Misztal, 2003; Wertsch, 2002) guided the writing of the research texts and the interpretation of all data. In addition to these notions of culturally responsive pedagogy, narrative inquiry, and collective memories, the analysis was patterned after the Nichols, Tippins, Morano, Bilboa, and Barcenal (2005) study in the Philippines which looked at taking science education beyond culturally relevant to a truly community-based practice. In this study the researchers used the anthropological tool of memory banking (Nazarea, 1998) to construct data through interviewing community members and then analyzed that data to construct both specific and schematic narratives (Wertsch, 2002). In addition to the theoretical

notions discussed in the above paragraph, the interim texts and the subsequent construction and analysis of additional data for this action ethnography also relied on the research questions which guided this inquiry.

To analyze the constructed data in light of the research questions, the analysis process proceeded inductively, and occurred throughout this study—before, during, and after the interviews and other data construction. While collecting the data we reflected both in written form and in conversations and returned to the reflections and interview transcripts and read, re-read, wrote, and rewrote interim texts. During focus group discussions the teacher-researcher took field notes and in this way analyzed (Silverman, 2000) what was transpiring when the student-researchers planned construction of and looked at already constructed data. We narratively coded the data (Clandinin & Connelly, 2000).

Silverman (2001) suggests that as researchers code their data, they realize that,

> "…the research 'cake' can be legitimately sliced in many ways: there is no 'correct' kaleidoscope through which to view all data….they examine how far the categories they are using can be shown to be used by the participants in their ordinary behaviours" (p. 293).

As we met and again thought, discussed, reflected and wrote about our coded data, we revised our narratives, and began further interpretion using an adapted version of the constant comparative method (Glaser & Strauss, 1967).

The constant comparative method (Glaser & Strauss, 1967) is traditionally used for generating grounded theory. This hybrid inquiry had as its purpose to see what happened when students and their teacher collaborated with community members to develop a community-

relevant science/nutrition curriculum. It was interested in knowledge constructed in context, so was not concerned with generating grounded theory. But, as Merriam (1998) explains:

> …because the basic strategy of the constant comparative method is compatible with the inductive, concept-building orientation of all qualitative research, the constant comparative method of data analysis has been adopted by many researchers who are not seeking to build substantive theory. (p.159)

In using this method, we constantly compared the data we had constructed. We looked at the memory banking templates and the interview transcriptions, and chose an occurrence from one data set and compared it to another occurrence in the same interview/template and then to occurrences in different data to determine patterns and construct themes. This process of looking at data occurred in different ways. At first, the teacher made copies of the interview transcripts and with the student researchers began by everyone looking at the same transcript to code it together. The students and the teacher-researcher had very little experience in data analysis for a study so they worked together to learn at first. Then, in subsequent session, pairs or small groups focused on the transcriptions and memory banks. When someone needed clarification or had a question, he or she would just call out to the group and sometimes everyone would stop and discuss, or sometimes, only a few would start to work on the issue. The classroom where the analysis took place with the students and teacher together looked very messy. Papers were in piles, the marker board was written on, pens and pencils were strewn throughout the room, and desks and tables were grouped and regrouped. Oftentimes, one or two students would be baking snacks or pouring drinks for the group to enjoy together.

Patton (2002) writes of "doing justice to each individual case" (p.449). In following this advice, the co-researchers read, studied, and then re-read each interview transcript and memory

banking template. We negotiated (Clandinin & Connelly, 2000) patterns we realized from interim texts many times before we constructed the themes and tensions that the teacher-researcher would focus on to construct the specific and schematic narratives from the data (Wertsch, 2002).

The researchers were guided by Merriam's (1998) ideas on how to construct categories from the data. The tenets of her guidelines follow:

1. Categories should be the answers to the research questions.

2. Categories should be "*exhaustive"* (p. 184). This means that all data that the researchers chose as important should be placed in a category or a sub-category.

3. Categories should be "*mutually exclusive*" (p. 184). This means that a certain data component should only fit into one of the categories.

4. Categories should be "*sensitizing"* (p. 184). The name of the category should explain what the data contained within is about.

5. Categories should be "*conceptually congruent*". All categories should be at the same level of abstraction and may contain sub-categories to help fit each data component.

The researchers considered all data collected—comprehensive data treatment (Silverman, 2000). After negotiating the themes, the teacher-researcher along with some of the student-researchers wrote specific narratives (Wertsch, 2002) to reflect these themes and allow the co-researchers' stories to be heard. These narratives were edited by the teacher-researcher, student-researchers and by the community participants.

We began to understand and see how plots to the stories told were shaped by culture. We realized that we could make meaning by hearing and studying the stories, then weaving narratives. Our interpretation of both the story plots and how to form the categories facilitated

the process of writing the specific narratives. The students and teacher recalled skills from past experiences to help organize the data. Construction of topic sentences, finding main ideas, comparing and contrasting, as well as using a thesaurus and other reference materials all aided in analyzing data.

While working with the data from the templates, interviews, interim texts, and specific narratives, we engaged in an adapted version of what Merriam calls cross case analysis (1998). This type of analysis was useful in this study to construct the abstract, schematic narratives (Wertsch, 2002) from the identified themes and tensions. The construction of the schematic narratives was largely the work of the teacher-researcher. This more abstract level of analysis was not of interest to the student-researchers. They complained to the teacher, "We already did this," or "This is getting so boring," and "Why are we doing the same stuff over and over again." Perhaps and most likely probably this higher level of analysis was beyond the skill of the students at this time. Or maybe it was just boring to the students. The student-researchers were however, very willing to give feedback and suggestions about the schematic narratives, once the teacher-researcher presented them to the co-participants.

When choosing narrative inquiry, and specifically by using Wertsch's (2002) conception of specific and schematic narratives as a means to represent data, the researcher plans to present the data from the study in story form. This narrative way of knowing (Fosnot, 1996) fosters understanding through feelings and emotions. It is not much concerned with logic and reasoning. The analysis of the data considered the community members' collective memories (Misztal, 2003; Wertsch, 2002) and was guided by the Nichols et al. (2005) study. To form the schematic narrative templates, the teacher-researcher reflected over the course of the 17 month study.

Maintaining Rigor in the Study

To ensure that this action ethnography be assessed a credible study, the participants focused on the viability or meaningfulness (Patton, 2002) of data construction and findings. The research questions served to guide all efforts in the construction of data. In this way the findings were about what the study set out to explore.

Validity, often referred to as viability in qualitative research, was viewed as both internal and external (Merriam, 1998). The internal validity was made possible through the use of multiple data sources, both primary and secondary; constructing the data together and negotiating all patterns, themes, tensions, and constructed narratives. Community members gave feedback on the portrayal of their stories and community practices.

External validity was ensured through rich description of the data in the form of both specific and schematic narratives. These accounts of nutritional practices and how they were depicted, allowed the researchers to analyze data using a plethora of methods.

The focus group data sessions (Silverman, 2000) were used "to achieve 'quality control'" (p.123). These member check sessions allowed for the negotiation of narrative threads. Silverman (2001) also calls for use of comprehensive data treatment and the use of the constant comparative method to ensure quality. This study employed both of these methods.

It was important to the researchers that the narratives constructed from the rigorous data collection not be viewed as anecdotes. Therefore, construction and analysis of all data was guided by the suggestions of Patton (2002), Silverman (2000, 2001), Bennet deMarrais (1998), and Merriam (1998).

In this chapter, the hybrid (Guajardo & Guajardo, 2002) methodology of this qualitative (Denzin & Lincoln, 2005; Merriam, 1998; Patton, 2002; Silverman, 2000) study, which is best

described as action ethnography was explained. The co-researchers were introduced and the context for this inquiry was further detailed. The procedure and methods used to construct data were described. Finally, the specific guiding ideas that were used in the comprehensive analysis of the constructed data were discussed. In the next chapter, the findings from this inquiry are shown in the form of both specific and schematic narrative templates.

CHAPTER 4

EXPLORING THE DATA

To synthesize community wisdom and form nutritional literacies, 19 co-researchers in the Barkersville community collaborated over a period of 17 months. During this time, the co-researchers engaged in curriculum making as they took on the roles of action-ethnographers. Dietary practices were examined and community traditions were explored. Connections were constructed between mainstream science and community practices. Tensions were negotiated. A portion of the story of this authentic engagement through the words and memories of all 19 researchers is told in this chapter. Oliver (2007) writes of themes that he noted when searching through the research on the teaching of science and specifically research on rural science education. He found:

> These themes center on the need for rural teachers to teach science within a frame of reference that consciously builds a curriculum with a cooperative inclusion of community, the unique student and school needs found in that community, and the inimitable capabilities of the teachers found in those schools.(p. 364)

In accordance with Oliver's (2007) assertions, this study examined the process of developing community-based nutrition curriculum by consciously including the knowledge situated in Barkersville. The adapted (Nichols et al., 2005) anthropological tool of memory banking was used to engage community members in dialogue and sort and identify community wisdom in ways that relate to nutritional practices. The researchers looked at the data through an emancipatory perspective that was informed by discourses of relevance. A part of the analysis process was centered on identifying nutritional literacies as formed by the student-researchers.

The nutritional accounts of community food practices were examined and patterns and themes were constructed from the traditions. These were analyzed using tenets of the narrative tradition and are reported in this chapter as specific and schematic narratives (Wertsch, 2002). Also, during this inquiry, tensions were created and recognized between local knowledge and nutritional practices and school science. We considered the tensions as we collaborated to generate a community-relevant nutrition curriculum and have written about these panoramic issues using schematic narrative templates as conceptualized by Wertsch (2002). Nutritional literacies were formed as the researchers navigated through this inquiry, and these were then examined.

This chapter contains memory banking templates that include raw data from which the teacher and student-researchers constructed specific narratives from adult/participant interviews. These memory banking templates are a compilation from individual interviews and reflect patterns and themes that were constructed through the collaborative analysis of data. Many interesting stories were heard, but four are highlighted as representative of Barkersville wisdom in this chapter.

After presentation of the memory banking templates and their corresponding specific narratives, the chapter contains schematic narratives. These represent a more abstract analysis of the data as interpreted by the teacher researcher. These schematic narratives, although constructed by the teacher-researcher, also validate the collaborative spirit of this study in that student-researchers as well as community members negotiated on their portrayals.

In the final chapter, a discussion that characterizes the re-thinking and transformation of nutrition knowledge and the construction of nutritional literacies is presented. The student data sources which consisted of reflections, semi-structured response sheets, and records of many

conversations during different parts of the study are examined. Then, an analysis of these data is presented in the form of newly constructed nutritional literacies by the student-researchers.

Memory Banking Templates with their Accompanying Specific Narratives

The specific narratives and memory banking templates provide partial answers to the first research question: What does memory banking reveal about local nutrition practices and knowledge? These were constructed from the on-going analysis during the study and were formed as the co-researchers made patterns from interviews and other data sources, and themes from patterns. The knowledge contained in the templates and narratives stems from both the young and older researchers.

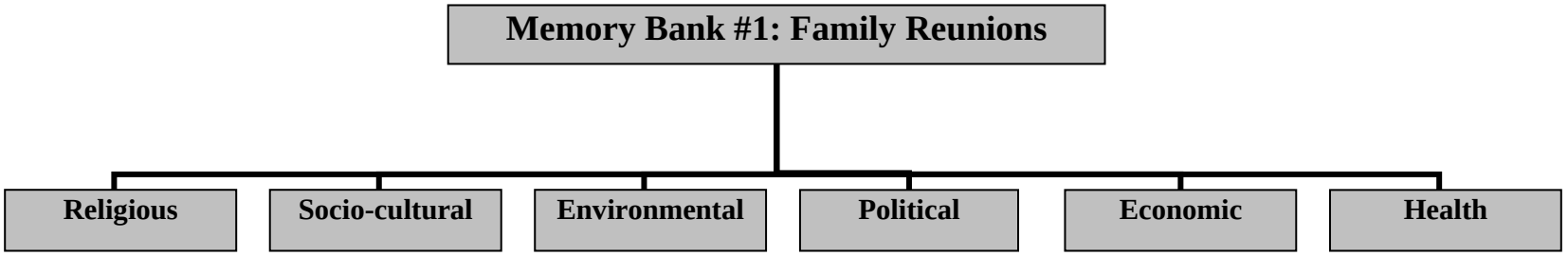
The information presented in this chapter reflects common community practices. These practices can be viewed as congruent to Barkersville homeworlds; regardless of race, age, or socio-economic status.

Memory Bank #1: Family Reunions

The first specific narrative features family reunions, which are the highlight of the summer for many Barkersville residents. All eight community members shared memories of times long ago and reminiscences of the not too distant past when their extended families gathered and shared food, fellowship and family history. The template that follows brings together aspects of the researchers' recollections of family reunions from both the preceding year and in the remote past of childhood. Some sample questions that were used to construct this template were:

- Tell us about your family reunions.
- How is the food decided on?
- Who is usually in charge?

Table 4.1 Family reunion memory bank.



- Usually held near the time of church homecoming
- Preacher and other church "family members" are often invited
- Prayers are said before eating
- A "Lord's will" fatalism is at the heart of many conversations

- Men are often expected to grill meats
- Women bake pies and cakes as well as traditional vegetable dishes like collard greens and sweet potato soufflé
- Both men and women are expected to make/bake their specialty dishes each year
- Catch up on all the good and bad things that have happened

- Usually held at a park where a shelter is rented
- One group travels to different areas of the US on a rotating basis to facilitate the convenience of all relatives

- Sometimes planned for Labor Day weekend
- Members from neighboring churches attend especially congregations that worship together
- Neighbors as well as friends and families are often invited and expected to contribute food items
- All relatives wear the family designed t-shirts to the reunion

- Dues are collected throughout the year and are based on # in individual families
- T-shirts are imprinted with the family name and slogans and are proudly worn throughout the rest of the year

- The elderly attend as well as newborn infants
- Emotionally satisfying time, looked forward to all year – akin to a special holiday
- If anyone is too ill to attend, plates are fixed and sent home
- Some recipes are changing to reflect current mainstream science

Specific narrative #1: We just all eat together

The first section of this specific narrative is woven from an interview granted by a school food service worker, Irene, and her mother, Miss Virginia. During the interview Miss Virginia and Irene were animated, laughed, frequently interrupted each other, and attended to "rogue" children who they were caring for in their home on this day. Irene begins to talk to the teacher/ researcher, and Joseph, a student researcher about her family's reunions which are held annually in Barkersville in the side and back yard of her and her mother's (Miss Virginia's) home.

Oh we have, potato salad, barbeque, chicken on the grill, fried chicken in the house, collard green, macaroni and cheese, broccoli casserole, ooooh you name it, squash casserole, cause everybody cooks their specialty and they bring and we just eat all together, whatever anybody thinks they good a. My sister she thinks she's good at banana pudding, which I don't like it, ha, ha, I'm talking about the oldest one. Oh, and they don't like my macaroni and cheese, 'cause I cook it like we cook it at school--milk, mustard, black pepper, cheese, macaroni. We leave the eggs out 'cause that's too much cholesterol with the cheese, but all the children and everybody, they love it. She says, ha, ha, "I don't enjoy it"… because it doesn't have all that….

At this point, her mom, Miss Virginia interrupted her and shared a memory.

Bet ya'll know every time I carry a child to the doctor she asks me what I give my children to eat that they don't be having all that stomach ache and stuff. Don't you remember, Irene, I had to carry them to the clinic then and then carried them to the doctor. I told him what I was fixing and he got him a pencil and paper and started writing it down, I told him what I fixed at my table and I told him, they don't go hungry , and I tell you talking about them going hungry, they don't go hungry, she said I know that but they come up here for me to check them and I never can find nothing wrong with them to check them.

The daughter, Irene, returned to her story about who makes what at the reunions.

I tell you what my specialty is: potato salad and baked beans. Tess' specialty is butter beans and collard greens, and peas, she'll cook all that. Our other sister's specialty is broccoli casserole, punchbowl cake, and strawberry shortcake. Punchbowl cake is something that you just bake a cake in a regular pan, pour it over in a punchbowl, pour or drain the juice out of the fruit cocktail, pour it in there and just chop it in there and put whipped cream on top. It is good, yeah, that's her specialty and Janet's specialty is bought cake, ha, ha, and my other sister, Jenny aint gonna produce nothing but potato chips and drinks and stuff. She's the baby. But Irene Mae is corn, banana pudding, and chocolate cake, that's her specialty and my other specialty is fried chicken, when we have a big dinner them are the three things I usually have to cook, everybody cook what they're good at. But I tell you what, my nephew's grandmamma, she makes cakes from scratch, like in the old days, and the icing she puts on them oooh, and she makes sweet potato pie.

Then, Miss Virginia spoke briefly about the night before the official family reunion, when relatives are arriving in town.

Now on a Friday night, I generally cook just enough fish that can fit into that little wash pot.

It was interesting and unusual to the teacher-researcher to hear Miss Virginia talk about frying in a wash pot outside. Similarly, our oldest adult researcher, Miss Freida, talked about boiling hams and frying turkeys in a wash pot. The student-researchers were all familiar with the practice of using a wash pot to fry food outside. They claimed that the food tastes better when it is prepared in this way. Another fondly remembered family reunion that was also held on the home place was related by Eugene. Eugene is an elderly gentleman that lived outside the county

for much of his younger adult life, but later retired to the Barkersville area. He is an active member of the Barkersville Historical Society, and brought artifacts in the form of pictures, cookbooks, and newspaper clippings to help tell his story. Eugene tells of a family reunion held in the autumn on his grandparents' lawn. It seemed much more formal than the other reunion recollections. He shared a picture with fancy table settings and special drinks. Eugene settled himself and all the paraphernalia that he brought to help tell his story and began:

My ancestors came from Sharon, my great- grandfather, great- great- grandfather, and grandfather, and the house that my great-grandmother lived in is still there, and she liked to entertain, and she entertained a lot, and I thought I'd bring a picture. (Eugene shared a picture of a big white house with turrets, people in "Sunday" clothes, sitting at a long, white-clothed table. The table had silver serving wear and huge flower arrangements and was located on a large expanse of lawn).

This picture is taken in the backyard of the house. My great-great-grandfather was a doctor and had eight daughters and my great-grandmother was one of them. Now you see all those white things sitting all over the table and in tiers, she loved syllabub. Syllabub is something she served all the time particularly in the cold weather and I brought the recipe for it. You make it in a churn. It's sort of like, anybody ever had eggnog? It's sort of a frothy whipped up eggnog and she liked it, she served it all the time, it's real good, and you can tell it's sort of winter-time cause there's no leaves on the trees. Oh and there's an old smokehouse behind the house. I'll read you the recipe for syllabub as I pass the picture around. My grandmother served a lot of different foods when I grew up, I stayed with her a lot, and when the family gathered over there, she always served turkey and dressing, which ya'll eat now a lot of days. She had mashed potatoes, sweet potatoes, candied sweet potatoes, she had oyster, scalloped oysters, she had that

a lot and that's good, but you had to get oysters in season, because if an r was in the month, you couldn't eat them, because of the breeding season for oysters, but she always had scalloped oysters. She had pimento cheese and celery stalks, she had string beans, butter beans, she had corn, not all in one meal, but I'm telling you things she served. She had corn, Tomatoes, okra, uh, Irish potatoes, we call them white potatoes, sweet potatoes, she cooked in many, many ways. She had baked sweet potatoes, sweet potato soufflé, she had fried sweet potatoes, any way you can fix a sweet potato she fixed them and they were good, we still fix them that way. And she occasionally had a possum. I don't think any of you all ever had a possum, but a long time ago people ate possum and they ate coons, and they ate deer, but I remember as a little boy we ate possums, and I'm gonna tell you about a recipe from a lady in Robinson. (Robinson is a small area in the County that is about 20 miles from where Eugene's family lived. It was smaller than Sharon and did not contain a post office as Sharon does. Both communities have trains passing through, quite close to both large and small houses, several times a day). Eugene continued his story.

This is Miss Leona Jones' recipe for barbeque possum from a handwritten book cookbook that I found in the Historical Society building downtown. Now ya'll turn up your noses at possum, but people ate them and coon. I liked the coon the best because coon is lean, but possum's greasy. Now ya'll pay good attention to this because it's hilarious today, but back then, it just made sense. When you see a possum up the tree, climb up the tree and catch him by the tail. Be careful so he won't bite you, put him in a box and feed him on buttermilk and corn bread for a week to ten days. Now my grandmother fed hers for about 3 weeks. Now what they're doing is purging the system with buttermilk and cornbread. Then take him out and put a stick across the back of the neck and stand on each side of the stick and pull his tale up until you break his neck. Now

this is how they used to wring chicken's necks. Then you heat two gallons of water to the boiling point and you put a little detergent in and you scald the possum. The reason you do that, it makes the hair come off it real easy; they do hogs the same way, any of you ever seen a pig killin'? Well they do hogs the same way. They dip the hog down in and then they scrape all the hair off it. And she said, scald the possum until all the hair's wet, hold him by the tail and swish him around in the hot water, take him out, and pull the hair off, it comes out readily after you scald him like that. To get the short hair out, take some paper and singe it off, continue to dress him like you would a hog, wash thoroughly and add salt,be sure to save the head, it has lots of lean meat and boil until tender. Then you can make a sauce and so forth and cook the possum, possum's very greasy

Now that was Mrs. Jones' recipe. Now I don't know how my grandmother killed the possum. I don't think she stood on a stick to kill him, but she would cook the possum whole in the stove. She would cook the possum in a pan, put a big apple in its mouth and line the big pan with sweet potatoes, and then when it came out the stove she would put the possum on a big platter with the apple in its mouth, and all the sweet potatoes around it, the natural gravy in it , that's how she served it.

The next account of one family's (Helen Smith's) reunion is similar to the above narratives in that many of the same foods were involved, especially sweet potatoes. The researchers discovered that at one time the county was mostly used for row crops--whereas today the primary form of agriculture is forestry. One of the most important row crops to be grown in Barkersville was sweet potatoes. While none are grown today for sale, and few are currently grown in home gardens in this area, they remain a staple for everyday nutrition and family get togethers in this area. Grocery stores in the surrounding areas offer sweet potatoes for sale daily.

The Smith family conducts their annual reunion on a much more expansive scale than the previous two descriptions, perhaps because the family is great in number and many have moved from the Crawfordsville area. Helen Smith smiled, laughed, and seemed to enjoy sharing her memories with the researchers.

Now we have family reunions! Our family will have a banquet on Friday night. The last family reunion was in Atlanta. Each family pays so much for each adult and each child. We usually have fried chicken or baked chicken, fried fish, macaroni and cheese, string beans, sweet potatoes cooked some way, salads and deserts. We get all dressed up and have it at a hotel and use the ballroom, then have a DJ and dance. We stay at the hotel and on Saturday morning we have a breakfast together at the hotel, then have a bus arranged to take a tour of the city and then have a picnic in the park. Saturday night dinner is on your own and most people travel home on Sunday or if it is in Georgia, we go to homecoming at the church on Sunday. Otherwise at breakfast on Sunday which is on your own, we eat, laugh, talk, and get on the highway.

Getting back to the family reunion, it is lots of work for the family members in the city that holds it. Someone has to be in charge of the food, someone has to be the treasurer, someone has to be in charge of the communication—write letters, someone has to get the use of the facilities, and someone has to get the t-shirts. We had one here in Barkersville and we used the park and the fish pond. We have them every other year and they have been in Savannah; Atlanta; Washington, D. C.; L. A.; Cincinnati, oh yeah, it was there in 95 because the slogan was "Alive in 95."

Although the setting, socio-economic status, and race differed for the four story tellers in the above narratives, the reunions all centered around southern soul food, conversation, and being together. The student-researchers viewed the stories as a natural part of community life

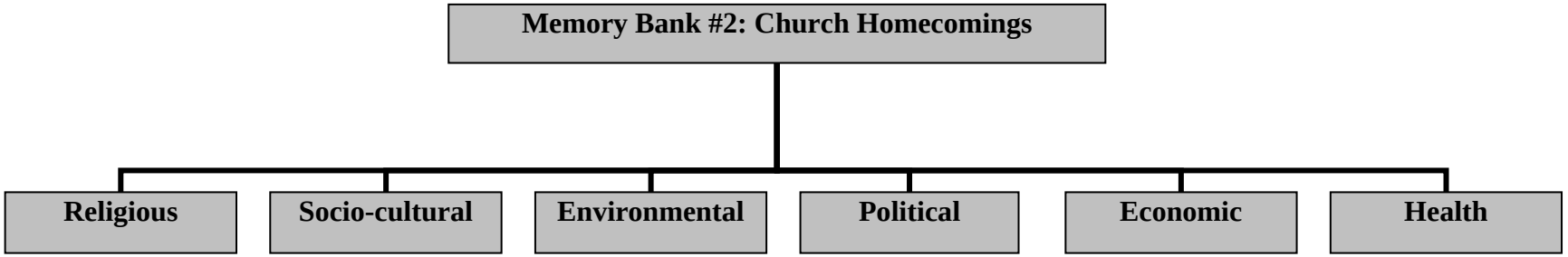
and were accepting of the different ways families gathered at this special time. They were not surprised by any of the anecdotes; they had not only heard of various mores concerning family reunions, but had lived the experience many times themselves. The following memory bank featuring the practice of church homecomings, together with its accompanying specific narratives also contains stories that were both a familiar and important part of the home worlds of the student-researchers.

Memory Bank #2: Church Homecomings

Church and Christianity in particular played a very important part in the lives of all the researchers. The adult researchers, with the exception of the teacher-researcher, are all Protestant Christians. Each adult community member shared fond memories of church homecomings and all attended annually. The memory bank template that follows, along with its specific narrative, bears a striking resemblance to the community practice of family reunions. The data constructed from the interviews and reflections of these phenomena were identical in many aspects. Perhaps these traditional events are so similar because blood relatives are not viewed so very differently from church family members. In researching both experiences, common patterns and themes were constructed by the participants. The specific narrative that follows the template is a synthesis of recollections from all eight adult community participants with additional input from the student-researchers. Some questions that were used to construct the memory banking template about church homecomings were:

- What is church homecoming all about?
- Who is invited?
- How is the food decided on?

Table 4.2 Church homecomings memory bank



- Usually held in the summertime
- Preacher is often invited to various homes near this time
- Revival may go along with homecoming and the preacher is in town during this entire week

- Men are often expected to grill meats
- Women bake pies and cakes as well as traditional vegetable dishes
- Children often stay home from school while relatives are in town
- Family members in town for the homecoming stay with relatives and cook and grill special foods while they enjoy visiting

- Usually held at the church both in the fellowship hall and out on the grounds
- A child stood at the grown folks table to fan the flies and liked this job because he or she got to get in grown folks' business

- Members from neighboring churches attend especially congregations that worship together
- Neighbors as well as friends and families are often invited and expecte to contribute food items
- Some community members are known to visit various churches' homecomings and not contribute
- Church members make "feasts" to feed the preacher when he visits their homes
- Sometimes teachers are brought plates from a students' homecoming

- No matter the size or finances of the church, homecoming is held every year
- Wealthier members of the church often contribute money toward the overall expense
- Church members that no longer live in the area often schedule their vacations around their childhood church homecomings
- Every family in the church contributes in some way

- The elderly attend as well as newborn infants
- Emotionally satisfying time, looked forward to all year – akin to a special holiday
- If anyone is too ill to attend, plates are fixed and sent home
- Some recipes are changing to reflect current mainstream science

Specific narrative #2: Feasting on food and fellowship

Happy memories dominate the data concerning church homecomings. Every adult interviewed relayed pleasurable experiences that had occurred when past and present members of his or her church returned to visit and enjoy a meal together. One narrative about homecoming was tied to an additional community/church practice—that of church revivals. While food was not an integral part of the program during the evenings of singing and preaching which constituted revival week, nutritional practices were connected to this custom in that the preacher and speakers were shown great hospitality by individual families of the church. The first storyteller is Helen, a single woman who returned to the county upon retirement. She works at the courthouse in the land and tax assessing department. Helen begins her story by smiling, leaning back in her chair, and remembering her youth.

It was a wonderful, wonderful time. Homecoming was like a wonderful time, a wonderful time. It was in August and all the family came home that had moved away. All the relatives that had moved to the city came home to visit and stayed a while maybe one week to a month depending on their work schedules. It was hot, no air conditioning but we just had the best food. I don't know if you know anything about flies. There was a child who stood at the adult table to fan the flies and that was me. I got to hear adult conversations, juicy stuff and gossip. I got to hear the news. The child liked to fan the flies because they got to get in grown folks' business.

The revival went along with homecoming which was the fourth Sunday in August. It ran from Sunday night through Friday night. The ladies would serve dinner for the preacher. He would come to the house with the pastor. Mama would fix country ham—it was the best, fried chicken, collard greens, string beans and she always cooked them with white potatoes, macaroni and cheese, and baked chicken and dressing. My mama would cook a lot for the preacher

because he only came to our house once a year. All the ladies always fixed the best for the preacher who was the guest speaker for the revival. It was a special occasion. It was fine with daddy that mama cooked so much for the night the preacher came to the house. At homecoming we ate the same food as mama made for the preacher's home visit only everyone shared in the cooking and brought food to church for the homecoming.

We use food for all celebrations—macaroni and cheese, fried chicken, collard greens, corn bread, barbeque ribs, chicken, and really special is a whole hog that is cooked and chopped for barbeque and the hog's head is used for Brunswick stew, but we don't raise hogs now, we will sometimes buy one at the meat packing house. We use a Boston butt now to make Brunswick stew and add chicken, corn and seasonings.

Helen focused on family members who came home for the reunion. In the narrative that follows, Freida, who was an only child and did not have many relatives, reflected on church family members. Both musings concentrated on the same type of food—Southern soul food. Freida's memories are over 70 years old.

I went to my church the one I go to now with my family and then some Sundays I would go to another church with another family that lived in the community. I would go to their homecoming 'cause all the churches worked together that were around and there were few people and so it took everybody to keep the churches going. Maybe I think there was one homecoming and all the churches worked together, Methodist, Baptist, Presbyterian, and Catholic with things like that.

Well people that moved from here would come back and they'd have a special service maybe the preacher that had been here when a lot of them were here would come back and daddy would cook barbeque. Well usually the whole church would cook barbeque or they'd

have the meats there and people would bring cakes and pies, vegetables, and things like that and there'd be potato salad from the people that lived close around or they'd bring it in ice boxes.

While the reminiscences from Freida and Helen about the important community practice of church homecoming began in very different periods in history and contained memories of present day times, both spoke of the importance of customary foods to be shared with familiar people. The following story by Gloria echoes the theme of fellowship with good food.

This year for homecoming we'll bring a cake, you know, some kind of cake we're gonna bring a lemon, a angel food cake, and potato salad, and uh mostly we'll bring something to drink, you know soda, and some bring tea. Everybody have to put their name down what brings something and there's a sign up sheet with what's her name. Everyone that participates brings this and that.

The teacher-researcher asked Gloria to elaborate about the meaning of homecoming. Gloria looked thoughtful and then began:

Well, It's just that homecoming is traditions, aint it that started a long time and people just appreciate the church, all the members, and friends. You just invite a whole bunch of different churches, like Percy and them church. And then they, mmhmm, come in and sing. They come in and sing, you just fellowship with everybody, you just greet everybody and welcome everybody who have been, those who come back to church. If you know, you invite them and tell them about it, they'll bring food too. So everybody pitches in, and how bout say like somebody from your family that went to that church when they were little but then they moved away, they maybe would come for homecoming.

When I was a little girl my mama would bake sweet potato pies, and she would fry chicken, you know like fried chicken, and sometimes she would barbeque it, and you know then

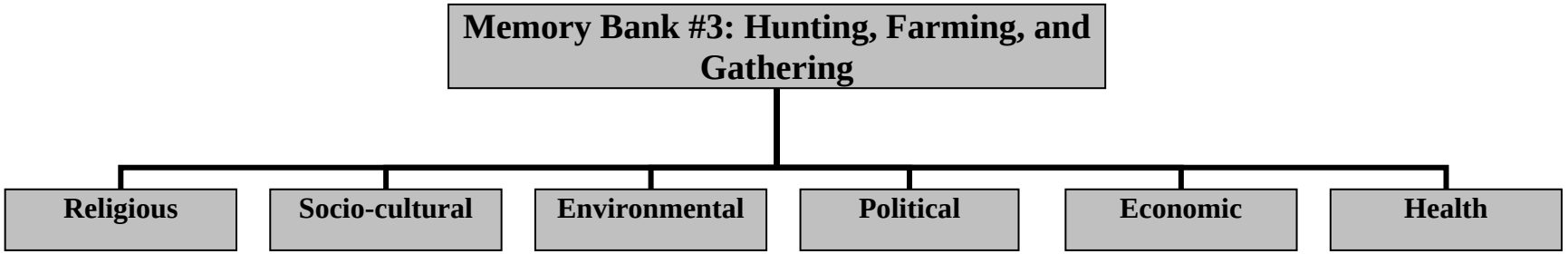
she would get the squashes, get the squashes and you know you can wash them and cut them up and sometimes she would put them in flour and batter. It was good like that the yellow squashes. She would batter them, put flour on them and fry them it was good like that.

The student-researchers identified with the food and the practices in the narratives and stated that their present church homecomings are "just like those from long ago." Church, family, conversation, and food remain deeply embedded in the home worlds of the Barkersville students. The subsequent memory banking template and its accompanying narratives tell of times when supermarkets did not exist, and people worked hard at providing meals for their families.

Memory bank #3: Eating What the Land Provides

The teacher and student-researchers had brainstormed and chosen the community nutritional practices of family reunions and church homecomings as a specific focus of their inquiry. However, when reminiscing about food in the past, many of the adults told stories from childhood that were intended to specifically **teach** the student-researchers. The adults earnestly wanted to impress upon the young researchers the amount of work it took to provide food in the past, yet the pleasant memories associated with their youth. The student-researchers expressed interest and astonishment at some of the practices from the past. Many continued to discuss the issues faced by the adult participants and were glad that in many ways their lives today seemed easier. Hunting and gathering from nearby forests did not seem to be tasks that the student-researchers were eager to engage in. The following template was constructed from stories told during the interviews about church homecomings and family reunions. By using open ended questions, our adult-researchers recalled memories that had to do not only with food, but also with other issues throughout the span of their lives. Thus, the student-researchers learned community history about providing and procuring food to feed individuals and their families.

Table 4.3 Hunting, farming, and gathering memory bank



- It is okay to hunt God's creatures if you need them for food
- Nothing was wasted, all parts of the animals were used

- Shared vegetables and fruit with neighbors and family members
- Children were not given choices about food, they ate what was on the table
- Boys hunted for recreational activities
- All families had gardens
- Children were expected to work in the gardens
- Everyone in the family had chores

- Sweet potatoes were once grown throughout the county
- After the first frost, the greens in the garden become tender and are ready to pick:the sugar content rises
- Gardens have better varieties to choose from than the stores

- During Depression ate many wild animals that could be hunted in the area
- Did not worry about hunting regulations—"folks were hungry"
- The banks closed, folks lost their jobs, people were broke and had to eat off the land

- Making a garden saves money
- If you have a garden, you always know that you have something to eat

- Ate beans with every meal—often in place of meat
- The vegetables from the garden are fresher than those from the store
- Fruit was picked and made into pies for treats
- Additional fruit was preserved by drying or canning it

The stories of the adult researchers about home grown, hunted, and preserved food contained lessons that the student-researchers were able to glean from studying and reflecting on the adults' nutritional memories. Many of the accounts reflected the tone of a sermon. While it appeared that the student-researchers were being "preached to," they accepted the ideas of the adults in a non-judgmental way. It is the observation of the teacher-researcher, that the students in Barkersville are taught from an early age to respect elderly people. Below is a combination of the memories of Eugene, Helen, Freida, Virginia and Irene. These adult researchers recalled times past when people grew, raised, hunted or preserved much of the food for the household.

Specific narrative # 3: Whatever families could hunt, gather or grow was what we ate.

Mr. Eugene begins to earnestly tell the students about hard times he saw as a youth. *People had to eat what they had. Back during the depression you ate any thing you could get, you know. I was born right in the middle of the depression, and we used to have a lot of deer in this county and people ate deer. There were laws about hunting, but people killed and ate deer when they needed food. I was reading at the Historical Society that at one time they had rabbit stations out in the county, and they'd advertise in the paper and people out in the country would catch rabbits and bring them in and sometimes they'd have rabbits by the hundreds and then they'd ship them off to the big cities to sell them. The depression was a bad time, people didn't have anything. If you had $1000 in the bank, all the banks closed in Georgia on January 28, 1930, and if it reopened you would be lucky to get $100 back, maybe $50. Some people didn't get anything, you lost it during the depression and you were lucky to get anything back.*

The reason I'm talking to you about foods like this is because people had to eat and uh they ate what they had. People had to eat and they ate what they could get to feed their families

whether it be rabbits, squirrels, coons, possum, doves, anything they could get their hands on. They were some bad times back then but we made it through and we lived to tell the tales.

We had a lot of pies back then, we had apple pies, peach pies, blueberry pies, blueberries grow wild around here, you know, the park's full of them, blackberry pies, strawberries, we had scuppernongs for jelly, we had blackberries, blueberries for jelly, peaches. We're very fortunate here in the county because we could grow any thing you wanted on these farms, and at that time this was a farming community. I would say a good 80% of the people lived on farms in the county. There are about 2000 people that live in this county now and when I grew up there were approximately 8000 people.

At this point, several of the researchers questioned the statement that 8000 people once lived in the Barkersville County, and Eugene continued:

Yeah, I was reading in this history book the other day, there was a meeting of black farmers, it was written up in the paper, 300 and something Black farmers in the county at that time. They had a meeting about how to raise this, and how to raise that; this was strictly a farming county. Cotton, was the primary thing until the boll weevil knocked it out, and then the row crops gradually faded, we got into a lot of dairies in the county and now a lot of wooded area in the county growing timber and pulpwood, but we do have still a few dairies but very little row crops. The county used to be full of row crops like corn, wheat, tobacco used to be grown here, potatoes, sweet potatoes, Tomatoes, all kind of stuff, everybody had a garden.

Does everybody know what chitlins are? Hog guts.

Every one of the student-researchers was familiar with chitlins. La'Tia told how her grandmamma likes to eat mustard on them. The student-researchers laughed, made faces and

said words to the effect of gross and nasty when thinking about chitlins. Mr. Eugene asked for their attention, and began again.

A long time ago people didn't waste anything. When they killed a hog they ate the whole thing. They ate the heart, the liver, brains, the chitlins, and everything. And that's just part of the way life was, you didn't waste it. I have a friend now in town that kills squirrels, and he eats the squirrels' brains. And my daddy and my grandmom used to have brains and eggs for breakfast. You kill hogs and ate the brains with the eggs. That's just the way it was, and uh, they didn't waste anything. Everyone had to eat everything or else they went hungry. I was always taught to eat what was set before me and to be thankful to get it and take all you want when you eat but eat what you take. I've drilled that into my grandchildren all the time and then that way we don't have all that waste.

The preceding story focused on hunting and ways to obtain food during the Depression years. The following story describes raising and preserving domestic animals as a way of securing nourishment for the family. Helen, the storyteller, came from a large family and remains close to her brothers and sisters and their children today. Her memories are about 25 years later than Mr. Eugene's. She began to talk:

We raised just about everything we ate—chickens. Before mama killed them she would put them up to clean them out and just fed them grain so that they wouldn't just eat anything. She would wring their necks--it was just awful and they would flutter. Then she'd boil water and the kids would pick the feathers. Whatever had to be done around the house we all would do it. It was a sad occasion. Fresh chicken tastes better. The chicken from the grocery store, you don't know how old it is. It just doesn't taste the same. We grew and killed our hogs and mama made country ham. You never knew my mama but she was a special woman, she could do anything.

She was talented. She knew how to season the ham just right. Salt, pepper, sugar, to keep it from going bad. We killed the hogs in winter when it was real cold. She wrapped the meat after seasoning it in cloth and put it in a wooden box. This would be to cure it and then have it in summer. It would keep all the way until summer. She would wash it and cook it with water and it wasn't so salty. The seasoning cured it.

The students heard from two different adults about the custom of cleaning out an animal's system through controlling its feed before slaughter. The animals were both wild and domestic. The student-researchers seemed to think this made sense and accepted the wisdom of this practice. A way of preserving food by using common household chemicals was also explained to the students. Other stories focused on canning and freezing. The adult researchers also told tales of gathering both wild and domestic fruit, and laboring for produce in home gardens. The following story as told by Helen illustrates these practices.

We had 10 children, seven boys and three girls. We had a garden. Fields of corn. The kids picked the corn and the animals ate the cobs, I can't remember if it was the cows or the chickens that ate the cobs. Then, some of the corn would dry on the stalk and this was fed to the chickens. We had mules, hogs and chickens. We had a field of peas. We hated picking peas 'cause you had to bend over to pick them. We had a big summer garden, sweet potatoes, white potatoes, Tomatoes, cucumbers, turnips, and collards. After a frost the collards get real tender and it doesn't take no time to cook them. Collards come back if you crack them (pick the lower larger leaves) so they went on producing on into fall.

The student-researchers had heard about the custom of picking the collard leaves after a frost and "cracking" the lower leaves so the plant keeps producing. They explained how they had learned about these practices at home, from this inquiry, and at school in the FFA (formerly

known as Future Farmers of America) land lab. Later, the students developed an interest in investigating why the collard greens were more tender after a frost—rise in sugar content.

The next vignette contains memories from Virginia, who helped raise many children in the community, many of whom were grand and great-grandchildren.

We had a garden in the back; I had a big ol' garden in the back. We had cabbage out there like this. We had collard greens, corn, cucumbers, squash, butter beans, peas, Tomatoes. Uh-huh, I had my sweet potatoes up there. I planted me 3or 4 rows, and then I had every kind of thing you could think to plant. And we all worked in that garden, yeah, the children worked in that garden and I'd have supper ready, and uh, we, we really didn't have meat but on the weekend, on a Sunday, ya know, when we cooked Sunday lunch. Yeah, that's all we ate was vegetables and cornbread or biscuits. I cooked biscuits every morning. I cooked them vegetables with some fatback and we had cornbread and biscuit to go with them and a glass of water. Some times we had some collard greens, but like I told you, times was hard then and we knew how to survive, not like them now, that's why I tell them, I'm not a meat eater now, I could eat and never have no meat. It don't make no difference to me and I still love peas.

We used to baby sit about 10, 10 more children right here. Well, we grew apples, you see that plum tree out there, peaches, I got a fig tree, and if anybody'd go by selling them fruits, I'd go buy them fruits, oh, they could eat all the fruits they wanted, that's no problem. I'd give them watermelon, other melons, I had everything for them, everything you could raise so and so. They weren't fat and plump, 'cause they played outside all the time, and they stayed outside playing and playing. Shouldn't let them eat everything that they want.

Irene, Virginia's daughter continued the story, telling about when she was young:

And then the lady that stayed beside us when we was little we used to go over her house and we used to pick peaches and apples. We could peel them. She showed us how to make apple jelly, pear jelly, put them in a pie. She showed us how to can them peas, 'cause you know, you didn't have no freezer then, you had to can everything and she showed us how to do all of that. For in the wintertime, we were set. Saved every peanut butter jar and everything we could get our hands on. I wonder how food survived then, without all this artificial stuff they put in it now?

Virginia began to talk about vegetables again.

I know we ate peas everyday, black eyed peas taste so good, we liked lima beans, we liked white butter beans, long as it we had some kind of peas and cornbread everyday. If you cook them you've got to cook them right. Some people cook them with the pepper seeds, you aint 'sposed to cook them with no pepper seeds, not less they get big enough to want it in there. Some people cook a pot of peas so hot you can't hardly eat it now.

Lots of times, money was so tight and we didn't know then that peas substitute for meat then, until later on.

As a nutrition educator, the teacher was excited and impressed to hear community elders, who were loved and respected by the student-researchers, extol the virtues of eating fruits and vegetables. When the students were analyzing data and came to Miss Virginia's statement about peas substituting for meat, a discussion on protein and vegetarianism followed. Discussing and analyzing the words of the adult researchers led naturally to the investigation of related nutrition topics.

Freida, our oldest adult researcher, also told of gardens and orchards. She explained how she and her mama used a county agricultural facility, a cannery, or preserved in a pressure cooker on a wood stove. The account that follows is a reflection of Freida's memories.

My granddaddy had an orchard that had pears and apples and plums and two of the plum trees are still living they're over 100 years old. I don't think they're bearing now. There was three or four acres of nothing but fruit trees and the two plums are still living. But everything else has died and then daddy later planted a pear tree down here and peach trees.

We had a garden that had everything in it. Corn, Tomatoes, beans, string beans, butter beans, peas, everything. And mama, she canned a lot of most different kinds of vegetables. Tomatoes and corn and things together and she had a pressure cooker and I still have the cooker she used even the. And she canned meats, sausage and things in that pressure cooker, but she just canned and then turn it bottom side up and put it in the closet and kept it cool. But, I learned how to can when I was fairly young because she got too sick to do all that kind of stuff.

We had a big canner you could can in on a wood stove with, and she canned things in. It was a pressure canner and they had a cannery in the county where she went to can things too.

The interviewers asked about regulating the temperature on a stove that used wood for heat, and Miss Freida continued:

You can regulate the temperature in a wood stove, but, not very well, you just have to pull things on and off the stove. The entire stove was heated by wood, they cooked real well, I guess for not having any control over them because they made cakes, and I've seen her make pound cakes that were12, 15 pounds at the time in those wooden stoves. She just kept a lower fire and kept them cooking a longer time. Well, it worked with a lot of hard work, we kept a stove like that until daddy split his foot open cutting wood for it, and then we got us an electric stove pretty soon after that.

The researchers then asked Miss Freida if she felt like her family ate in a healthy way. Freida shook her head up and down, looked thoughtful, and then continued with her account:

We had a variety of things to eat and we ate most everything. The kids today should know that the better they eat, the better off they'll be when they get older. They should eat a variety, vegetables and fruits, and some meats, milk, butter, eggs, and cheeses. Many kids are overweight because they don't get out and get some exercise. If they got out and worked they wouldn't be overweight but they just don't care to work, they'd rather watch television.

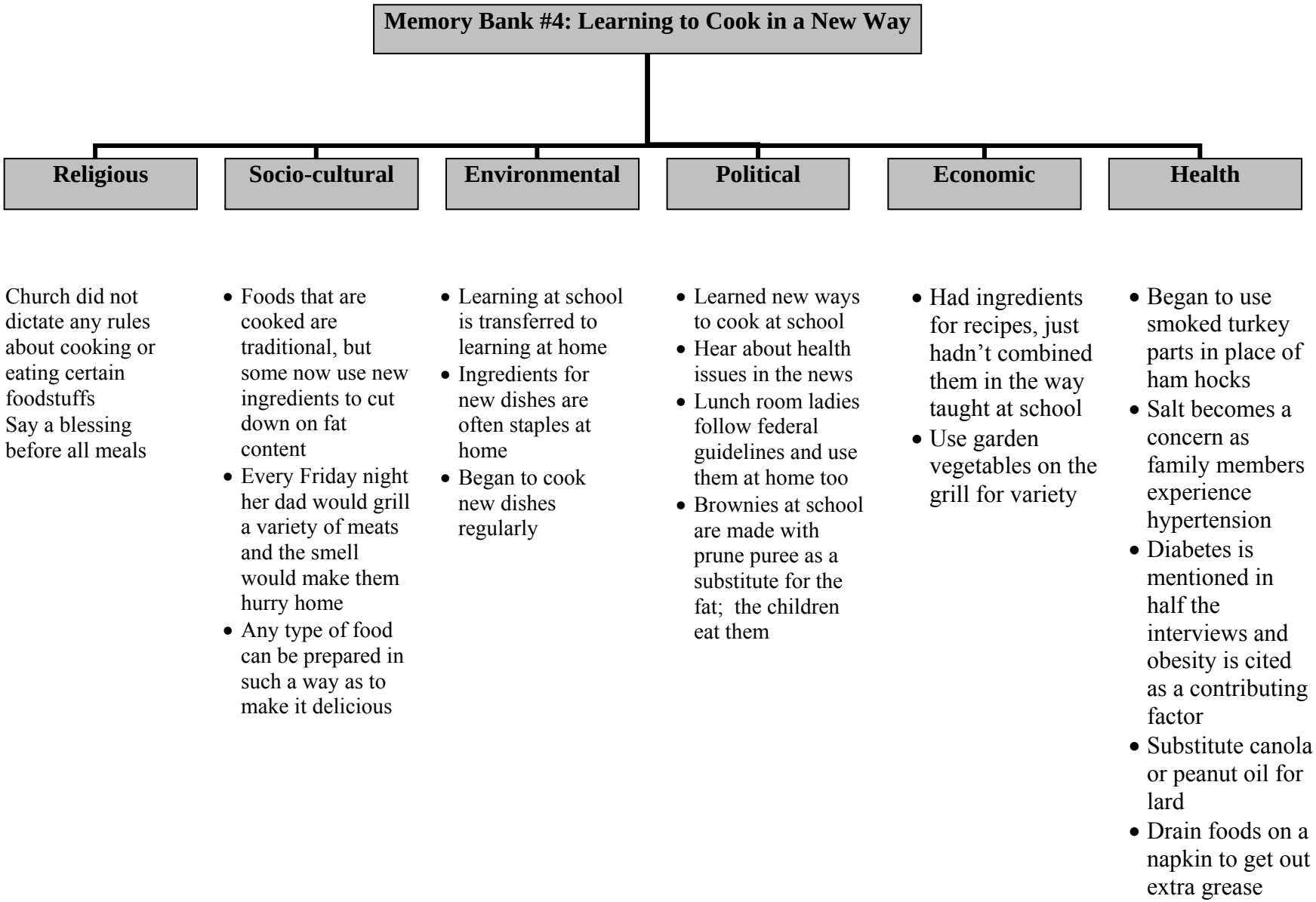
The student-researchers were not offended by Miss Freida's words; they agreed that many of their peers are overweight and do not want to exercise or play sports. Perhaps the students who volunteered for and remained a part of this inquiry are kids who care about eating healthy and maintaining an optimal weight. Or maybe all students would not mind hearing Miss Freida's advice.

The preceding narratives in this section were constructed from the third memory banking template, *eating what the land provides.* The final memory banking template and its corresponding specific narrative centers on gaining knowledge about cooking at school and through the media, and then using this information as a guide at home.

Memory Bank # 4: Learning to Cook in a New Way

This memory bank was constructed from an interview with a mother-daughter pair of research participants, Veronica and Kita. The interview began focused on foods at family reunions and church homecomings, but then changed direction as the recollections of Veronica became centered on everyday cooking in her childhood home. She reminisced about her father's cooking on the grill on Friday evenings, and then shared how her family accepted new recipes that were taught at school and brought home by her sister. Other researchers explained how they have adapted traditional methods and dishes to either make them healthier or to add variety.

Figure 4.4 Learning to cook in a new way memory bank



Although traditional soul food dishes are still eaten and prepared daily in Barkersville County, the researchers found that many of the recipes are being tweaked to make them healthier and to add variety. In the first recollection, Veronica tells how she transferred her sister's school learning from the classroom to the family kitchen.

Specific narrative #4: It's all in the preparation

My sister, when she took home economics in the '70s, she brought home a recipe of Italian dishes and the first thing she made us was something called lasagne, that was delicious. We liked it so much we would eat it once every week—it was so different from spaghetti. It had cottage cheeses and stuff in it. All we had ever eaten cottage cheese with was with peaches and stuff like that.

Veronica's sister learned new ways to cook in home economics class at school and brought these recipes home. The family enjoyed the change and even though they had used some of the same ingredients before, these dishes were a novelty, put together in different ways. The student-researchers began to recognize that people all over the world use basically the same foods, they just prepare them differently. Veronica went on through her interview to tell the student-researchers what she learned from her sister's experiences in home economics class at school:

Even though you may not like certain vegetables, such as broccoli and brussel sprouts, zucchini, carrots and stuff like that, it's all about how you prepare it. Because if you prepare it with food in a certain way, it can be just as delicious, just like if you think about brussel sprouts. All it is, is a smaller version of a cabbage, so depending on how you steam it or how you cook it, whatever way you prepare your cabbage, you can prepare your brussel sprouts the same way. It's the same thing for zucchini, or even with spinach. Spinach is real good. If you don't like it

cooked, you can always eat it raw, on sandwiches, salads, and it's just as healthy, and it's just as flavorful as any other dish. And the same way with zucchini, it can be prepared in lasagna or a casserole. But, always remember, it's all in the way you prepare the food, because food is eaten pretty much all the same all over the world. Same type of meat, same type of chicken. So just remember, it may be nutritious, but it's all in the way the food is cooked or prepared.

After one analysis of Veronica's interview transcript, the student-researchers made a chart to display at a community science night. Below is a small replica of their table.

What we learned from Miss Veronica.

Table 4.5 Nutritional literacy for community science night

"It's all in the Preparation"

Yucky to Yummy

Fish	Use tartar sauce or ketchup with it
Carrots	Use ranch dressing
Broccoli	Make a broccoli with cheese casserole
Eggs	Cook the eggs with cheese
Fruit	Dip it in chocolate

Veronica talked of preparing vegetables and foods in new ways to increase variety and nutrition. The student-researchers took her idea and brainstormed how to get other kids to eat foods they may otherwise not want. The teacher-researcher was amazed at how receptive the students were to Veronica's message. Utilizing community wisdom together with self-directed learning motivated the students. The stories in this section center on cooking in a new way and

contain excerpts from five of the adult researchers' interviews that were constructed during the course of the study. Irene, who is a food service worker at school shared her opinion:

That's how you mess up with giving our children a choice, they don't like this, there aint nothing they don't like. Oh, there may be one thing that your child would not eat and you know that, but the rest of the stuff they say they don't eat it, they'll eat it. But parents they don't introduce their children to a variety of foods but like I tell them at school, they're sugar babies, they're junk food babies.

Then, Irene's mom, Miss Virginia, continued the story:

The doctor told me one time when I had to carry them back downtown one day to him, and he called some more doctors up there to see how healthy my children was.

But now you don't have no choice, just the way Josephine and them cooks at the school, that's the way everybody should cook, give it to them, to keep them from getting all that grease. That grease just aint good for you. The way Josephine and them cook that food at school they don't get al.l that grease. And they eat that food. 'Cause they know they aint gonna get anything else. And I tell, I aint cooking just eat that or they'll go hungry. I didn't pile them up, me and Angie didn't pile them up with a lot of greasy stuff. A lot of people don't believe it, but grease will carry a child down. They let them eat a lot of greasy stuff.

Like the above excerpt from Miss Virginia and her daughter Irene, which focused on cutting down on fat in the food and not eating so much sugar, the following story from Miss Gloria's interview echoes their ideas.

I don't like my chicken too greasy though, but I like it real crispy. But now when I cook uh collards, I use a little bitty piece of meat, not too much because I don't want it real greasy. I don't like it too much greasy and salt, sometimes I don't have to use salt,'cause you know the

meat is salty, and season it, you know. I put a little sugar in it. I cook squash because my momma cooked squash, she used to wash them, cut them up, batter them, and fry them and use not that much grease, you know vegetable oil.

Most of the time I drink water. Uhuh, I drinks a lot of water. Water is my heart. Oh honey, when I get done eating give me some water, don't want no drink or tea or lemonade, just give me some plain water, and cold. Why, Miss Stratton that water is so good cold, they said something on that paper they was sending out that they were going to put something in the water, to make it taste better, it do taste better. But I would still prefer spring water, because they have to take this water and they have to clean it and they have to put chlorine in it to wash it out. And spring water just comes straight out the natural earth, and its cold, clear, natural water.

Amelia and Veronica, the youngest adult-researchers in the study, both talked about grilling as a way to cook food. Their story was well received by the student-researchers who already believed that grilling cuts down on the fat content of meat. Veronica told of a terrific memory from her youth that included her dad and brother.

My father would grill every Friday afternoon, and it would go into late Friday evening. We would put just about everything on the grill—chicken, ribs, sausage, hotdogs. The sausages were really delicious because they had such a different flavor from the hotdogs. My brother worked late on Fridays, and when he got off the bus, everything on the street would smell like cooked barbeque meat. It was just so delicious; you could smell it up and down the street.

Amelia then told of how cooking on the grill does not have to be just for meat. Some of the student-researchers were aware that vegetables could be cooked over coals and had eaten in this way, and others expressed interest and wondered about what the vegetables might taste like.

Sometimes now, we put squash in tinfoil and grill that too. It's real good. You put some onions and butter with it. It is real good. Some of my friends always grill vegetables with meat.

The specific narratives that were constructed, demonstrate the funds of knowledge that are available in this community to help educate children about nutrition. In the next section of this chapter, the data was further analyzed in a more conceptual way, to construct schematic narrative templates. The themes and ideas constructed from the data to form these templates were sub-consciously reproduced throughout both the primary and secondary data sources.

Schematic Narratives

What tensions were created when trying to develop nutrition curriculum in this school and community? What happens when students, teachers, and community members collaborate to create a community-relevant nutrition curriculum through action research? Partial responses to the questions that served as guides for the study were constructed in the form of schematic narratives (Wertsch, 2002). The four schematic narratives that were portrayed in this section were mainly constructed by the teacher-researcher but were discussed and negotiated with the student-researchers as well as the adult-researchers.

These schematic narratives were formed after much reflection on the stories from all the participants. These templates represent a more abstract analysis of the data (as opposed to the themes constructed in the specific narratives), and serve to illustrate that while the researchers were exploring the topic of nutritional practices, many more issues were created. Wertsch, (2002) explains that schematic narrative templates are cultural instruments that promote and/or modify collective memory. Often, these narratives are not consciously construed. They do belong to the narrative tradition from which they were formed, and are always socially mediated.

In this section, two of the schematic narratives deal specifically with food and nutrition, while the other two address issues of empowerment and authority. They were constructed by the teacher-researcher through ongoing and intense reflection, but negotiated with the other researchers.

Schematic Narrative #1: So(ul) Good but So(ul) Bad

The first schematic narrative that the researchers constructed reflected the tension of Western scientific knowledge and traditional southern cooking. Throughout the process of analysis, the conflict between traditional soul food and its preparation and accepted information about healthy eating was apparent. Every one of the adult-researchers towards the end of their interviews, admonished the students to eat according to what Western Science is teaching. But, when looking back on earlier excerpts from the stories, almost every interview contained happy memories about southern cooking, characterized by salt and grease. The student-researchers would roll their eyes and emit pleasurable moans when discussing the food served at homecomings or family reunions. The adult-researcher, Helen, in particular recounted happy memories of high fat/high cholesterol cooking.

We use food for all celebrations—macaroni and cheese, fried chicken, collard greens, corn bread, barbeque ribs, chicken, and really special is a whole hog that is cooked and chopped for barbeque.

For breakfast we like to eat cheese eggs, grits, bacon or sausage, country ham. We like salmon patties with our eggs but when I was young we couldn't afford salmon and so mama used sardines, those tall ones that come in a can and she used flour and egg and fried them. When I was coming up we also ate biscuits and syrup for breakfast. We had a nice thick piece of fatback

since we killed our own hogs. Mama fried it crisp, just like bacon, you can buy it now—streak of lean, I don't know, maybe that's what they use for bacon.

After smiling and laughing as she told of all this terrific tasting food, Helen became suddenly sober. She told about her brother who has become handicapped through the health conditions of diabetes and obesity. She explained how sad it is that he is alone and cannot work or hardly get out of his house. She then said:

Probably you should go into the fact that Black people suffer from diabetes, high blood pressure because of their diet. We need to try to learn to eat better for our health. We need to eat more nutritious food. I say that and just last night I was eating ice cream. It's not easy to eat right, what we get used to, it's hard to change.

One can easily understand why this Southern way of cooking and eating is hard to give up and why it is called *Soul Food.* Fried chicken, biscuits, macaroni and cheese, vegetables with added fat--these foods are delicious to eat and so difficult to resist. They not only satisfy physical hunger but impart pleasant emotional sensations.

Families are drawn together through the use of these foods. The teacher-researcher has come to believe that it is not just the taste and texture of the food that feeds the soul but the personal interaction that takes place during the preparation. For example, when the agriculture students sold greens from the school land lab, community members came onto the school campus, talked to the students, and often offered gardening advice and stories from "when we was coming up". People were happy to buy greens, sustainably grown by area children. These community members also were buying extremely fresh produce at a bargain price, and helping to finance leadership trips for the students. Then, in the home kitchens, the greens were scrubbed,

rolled, and cut before cooking in a big pot for hours. The children in the homes help with this chore.

Food comforts the mind as well as nourishes the body. It is basic to all living creatures. Memories associated with childhood dishes and relatives' cooking are very powerful. As Helen stated, "*We use food for all celebrations."* This tension of what is so good, but so not good resonated throughout the data. This dilemma is also gaining widespread attention in the media. As part of this schematic narrative template, the teacher-researcher included excerpts from current media to show the interest this issue is receiving.

An ironically amusing anecdote appeared in an article (Kalb & Kuchment, 2006) titled, "Saving soul food". "At our funerals, we used to serve fried chicken, greasy macaroni and cheese, and greens with ham hocks," (p.55) said an assistant pastor, Glovioell Rowland. "Then we realized, 'These are the same things that are killing our people'." (cited in Kalb & Kuchment, 2006). Miss Virginia told us that, "Grease will carry a child down." Every one of theadults who served as co-researchers believed this, yet every one attested to cooking and eating in the traditional southern way. All said they had become aware of health issues and watched how much grease they used.

Helen lamented, "It is hard to change," but many soul food lovers have begun to make some modifications. The members of Rowland's church began to vary the recipes and use healthier seasonings and additions to the traditional dishes. The student-researchers have observed these practices in their own community. At one session they brainstormed ways the traditional food could be made more nutritious without sacrificing the taste. They told how smoked turkey parts are being substituted for ham hocks in the seasoning of greens. Baked chicken is being served in the place of fried chicken. Vegetables are beginning to be enjoyed

from the grill. Heart healthy oils like canola are being used in the place of lard when frying. Pork has become leaner in recent years and many are choosing to bake it instead of frying it. At the brainstorming session, the researchers also talked about the benefits of eating the customary dark colored vegetables like greens and sweet potatoes. Tea, which is a staple beverage at most tables in the county was thought to be healthy because of the phytochemicals it contains, yet "bad" because of the preferred amounts of sugar usually added.

Demps Gaines and Weaver (2006) are nationally recognized nutritionists who have worked with the American Diabetes Association to publish Soul Food cookbooks. They believe that one should make small changes to increase the health of food, but also that it is important to keep ethnic traditions alive. Their recipes offer substitutions for unhealthy ingredients while keeping the great taste and comfort levels of the food high. Their ideas are not unlike the advice given from our adult community researchers. Gloria told the student-researchers:

…that's why they say people in the country, they cook and they have so much cholesterol cause you gotta learn to cook but not put so much grease in there. You've gotta measure out how much you 'sposed to have then you don't have to worry about your cholesterol or your high blood pressure going up. Only measure out how much you 'sposed to have. And, well you tell those kids they eat vegetables: broccoli, string beans, that is healthy for them, okay, tell them to do it now. Tell them don't eat that fast food now 'cause that fast food is not healthy, you sure tell them.

Western science touts the virtues of fruit and vegetables in the daily diet, but typical Barkersville soul food contains very little fruit, and the vegetables are often fried or seasoned with high sodium, fatty meat. The student-researchers learned that when gardens and orchards were a family norm in this county, more fruit and vegetables were served and enjoyed. Perhaps

the great distance to a grocery store and the lack of transportation coupled with the diminished practice of growing fruit and vegetables has caused the phenomenon of few fruits in the diet. Or maybe the cost is prohibited.The vegetables that are served daily, are of great nutritional value—turnip, mustard, rape and collard greens; sweet potatoes served in a variety of ways; and all different types of beans. But often, fats and salt are added to them.

While the raw ingredients offer great health benefits, it's how they are prepared that renders them unhealthy. Kalb and Kuchment (2006) write "Such down-home cooking, with its heavy doses of salt, sugar and fat, can contribute to toxic effects like high blood pressure and diabetes, both of which strike black Americans at significantly higher rates than whites" (p. 54). Our adult researchers who were the authorities on community wisdom all spoke about this issue. They offered suggestions to the student-researchers for eating in a healthy way. Mr. Eugene echoed Veronica's belief about finding how to prepare nutritious food so that it's acceptable to children. The following excerpt illustrates their ideas. Mr. Eugene told the student-researchers:

And parents, they don't introduce their children to a variety of foods—foods that could be grown or raised in this climate were enjoyed in the past, as well as those that could be gathered from the wild. You need to prepare foods in a variety of ways to find what way you like them. Then those kids would eat better. Folks need to cook more.

Eugene suggests that people need to cook at home instead of eating out. The whole fast food issue, that impacts Americans and is definitely a problem in the lives of many Barkersville residents, is beyond the scope of this action ethnography. The adult-researchers and the student-researchers all recognized the seduction yet diet pitfall in the consumption of fast food. Conceivably, parents and nutrition educators could focus on the proposal of varying the

preparation of the food, as suggested by Eugene and Veronica, and also might look to the fast food industry for ideas to make the more nutritious more food appealing to children.

Possibly the new Southern tradition of comfort food on the healthy side is one of balance. Maybe Western science should take a more holistic view of eating and nutrition. Western science preaches the detrimental effects of southern cooking--hypertension, clogged arteries, obesity, diabetes—but does not consider the satisfying mental and emotional effects of this way of preparing food. Perhaps the soul food community will take to heart (literally) the ideas and practices of our adult and student-researchers, Demps Gaines and Weaver (2006), and others like them. If the community adults begin to teach the youngsters the wisdom of cooking with lower amounts of fat and sodium, increasing the amounts of fruit and vegetables, and baking more of the food instead of frying it, then the tension between the traditional and the scientific could possible lessen.

Schematic Narrative #2: Necessity has become Luxury

This narrative template, constructed by the researchers, grew from the realization that people long ago grew, gathered or raised their own food, and then preserved it for later use. This was a way of life, and typical for the Barkersville area. Many of the stories told in the specific narrative: *Whatever families could grow, buy, gather or hunt was what we ate,* showed this to be an underlying theme. However, when gardens are grown, or canning is done today, people regard the products as very valuable and rare. Consumers are willing to pay high prices for home grown/made goods.

Instances of this change in ways that food obtainment is viewed happened quite often in our family and consumer science/agri-science classroom during the course of this study. One time, tomatoes were canned by the students and seven different employees asked if they could

purchase the jars at whatever price was asked. Another example occurred when the agriculture students grew collards and turnips on the school land lab. People drove into town specifically to purchase these locally grown greens. An additional related experience happened when one of the student-researchers' grandmother made cha-cha and he proudly brought the teacher a jar for a gift.

In a small area of the county, a wild game supper is held each March. People drive many miles to partake of this unusual culinary feast when, 70 years ago during the depression, folks had to eat whatever they could get off the land to survive. Mr. Eugene tells about his childhood:

When I was a young fellow we used to go out in the country when we got out of school for Thanksgiving and we'd go out in the country go hunting, take our shotguns, and take a bottle in our pocket that had vinegar, butter, salt and pepper. We'd take us a couple coat hangers, and maybe some bread and we would always get us a rabbit. We'd build a little pit and always build a fire, and then take coals and put them in the pit. Then, we'd skin the rabbit and stretch him out like a hog and put them coat hangers through him and cook him. We used to do that a lot. The rabbit would be our dinner.

People ate squirrels, still do, squirrels are plentiful, there are more in town now than out in the country. I have an old cookbook here. Then you got buck and bourbon stew, fried rattlesnake, I ate rattlesnake, fried birds, possum with sweet potatoes. I didn't know that was in this recipe book--catfish stew. Take catfish, put them in a pot and cook them until all the meat falls off the bones. And then take the bones out and put in potatoes, Tomatoes, and all this stuff and season it up and make a stew out of it. It's real good, they still do that now, and catfish stew.

The garden club that sponsors the wild game supper offers rabbit and squirrel along with other choices, and people are willing to pay for the opportunity of sampling undomesticated cuisine. Mr. Eugene tells of his experience at the wild game supper.

I went over there one time and I just wanted to eat a little bit of a lot of things. And I think I ate about eight wild meat types. I ate some coon, bear, and turtles. I ate some possum, rattlesnake, ate some venison, rabbit, squirrel. They had all that, and I just ate a little bit of all that. I didn't particularly like rattlesnake, it was boney, but the meat wasn't bad it was white, real white meat like a scallop. I've eaten alligator, the alligator tale chopped into sections is like pork chops, real good, unless you get one that is too old. You need to get one that is two or three or four feet long.

The theme of how the old has become new, or necessity has become luxury was reiterated during Mr. Eugene's interview as he told the student-researchers how excited he and his wife were to find elderberries that were growing wild in the county. The adult community researchers had told the students how years ago, children gathered fruit from both home orchards and in the wild to make pies and preserves. Probably Mr. Eugene was not so eager to go and pick elderberries when he was a youngster. Few of the students had experienced the joy of picking fruit in nature. Then, Mr. Eugene, an elderly gentleman, took out his camera cell phone to show the students what elderberries looked like and told them where to go in the county to pick some. To teach about the old ways--that of gathering fruit from the wild, Mr. Eugene used his camera cell phone so that the student-researchers would have a clear view of what to look for if they went picking.

The old ways that were once common and necessary seem to have become new and more like luxuries. This unconscious theme pervaded the study. Upon reflection, the teacher-

researcher found herself bringing eggs from her chickens, and produce from her own garden to her new friends, the adult-researchers. She was totally unaware of reproducing this narrative template in her own life, yet did so, in the context of this inquiry. The teacher-researcher wanted to show appreciation to the adult-researchers, so she gave them the best gift she could think of. She harvested vegetables from her summer garden, gathered newly laid eggs, made pickles, and took the adult participants these sustainably grown and produced gifts. The recipients reacted with smiles, hugs, and appreciative words.

Many Americans, besides the teacher-researcher and other adults in Barkersville are acting out the tenets of the schematic narrative: *Necessity has become luxury.* There are organizations that allow those who are seeking products that have not been heavily processed and shipped from long distances to purchase them. Some people who do not have the inclination to garden or are without access to land for growing food join local food cooperatives and purchase produce and products from farms weekly. They pay a premium price for the food but know that it is fresh, and sustainably and locally grown.

It seems that the **time** involved in procuring fresh and nutritious food has not really changed. In the past, many hours were spent in labor actually producing the food, but now, people are willing to pay high prices for quality products, so, their hours working are spent at an unrelated job in order to have enough money to spend on quality food. Regardless of how one obtains wholesome and satisfying food, the fact that it is important and time consuming has not changed, but the way people view the food is different. In years past, the home-grown food was taken for granted and now it is viewed as a special treat or an extravagance worth paying for.

Schematic Narrative #3: We changed!

This schematic narrative focuses on change, but is not about eating healthier or other nutritional literacies. It reflects the emancipatory pedagogy of the teacher and the recognized empowerment of both a student researcher and the teacher herself. This study effected a transformation in behavior and attitude in the form of leadership initiatives. Both researchers in this particular analysis were female. The first part of this narrative tells a story of Tasha who was 14 at the time the study began. Tasha came faithfully to the brainstorming sessions, interviews, and focus group/reflection sessions mainly to show up for the snack that was offered during these times. She talked about clothes, rap stars, and her boyfriend. She wrote one word answers to response sheet questions and always seemed to forget her reflection. When asked by the teacher to reflect on the nutritional information being gathered, she often answered, "I don't know, Miss Stratton!" She would then begin an unrelated conversation with one of the other students.

During the interview with Mr. Eugene, she seemed to become comfortable with being a researcher and when he invited the students to come to the Historical Society Building in town during the Labor Day Festival for a coke, Tasha actually went and let him buy her a coke. One might not think this is an empowered move until the nuances of the community are studied. Seventy something educated White men in Barkersville typically do not have much, if any contact with the school. For Tasha, as a young Black woman, to have the courage to go and converse with this man during the festival is awe inspiring. The teacher was so proud and felt a renewed sense of effort in helping to construct this curriculum by involving the community.

About 10 months into the study, university professors and pre-service teachers/college students worked with the Barkersville school community to hold a science night at school that

focused on health. The student-researchers and the teacher involved in this action ethnography took active roles in cooking and educating other community members through sharing data from this study.

Tasha helped the university people by taking pictures of the various activities being staged when she was not needed to explain the analyzed data. She was later employed by the university professors and paid through a grant to help research and write a book about the Barkersville County--past and present. In this ABC book, the researchers are documenting community history, engaging student-researchers in practicing literacy experiences, and creating a community relevant book which will be read and enjoyed at the school.

As this action ethnography went over the one year mark, Tasha was vocal about meeting, working on the data, and finishing up. She took a leadership role in giving reflection assignments to the other student-researchers and collecting papers and relaying messages. She channeled her new confidence and empowerment into leadership activities and has become one of the most diligent researchers.

Tasha has recently criticized a relative for feeding junk food to her infants and toddler. She also informed the university professor that she plans on a career in the hotel/food service industry. She has shown marked growth and leadership and has become self-confident in the areas of academics, management, and social skills. Many of the Barkersville students have a hard time envisioning futures and goals, and yet Tasha has made plans and talks readily about them. The social, academic, and emotional growth of Tasha could serve as an answer to Michael Apple's question (2004):

> How might scientific literacy be reconstructed so that it is overtly connected to the real lives of people and to the struggles for social justice that must play such a large role in these lives if such differential power is to be contested? (p. x)

Tasha showed that by getting involved with her community and studying an issue deemed as important in her life, she not only learned content in context, but life skills that will serve her in future circumstances.

The teacher-researcher noticed the change in Tasha and was pleased to see the leadership skills being constructed by her. Sometimes, in days of doubt, the teacher-researcher would wonder if all the time and effort channeled into this inquiry would show any results. Then, upon reflection over the past school year, one day, the teacher noticed a parallel, albeit different change in her own leadership skills. It was surprising to note a change in herself, when the teacher-researcher set out to empower students. It was a moment of almost unbelievable insight for the teacher-researcher. Some background knowledge is needed to understand this almost unacknowledged transformation of the teacher-researcher. The empowerment occurred as a direct result of this action ethnography.

As a high school student, the teacher enjoyed school and was very engaged in both her academics and extra-curricular activities. She served as sophomore class president, student director of the school drama club play, held various FFA offices in her local chapter, and served as a New York State officer for FFA her senior year. As the years went by she taught and raised her family. She did not become involved with local political issues or professional organizations—other than joining them for the liability insurance. During the year of interviewing and reflecting, a new superintendent at her school decided that the family and consumer sciences program was “obsolete” and should be eliminated from the elective offerings

for the students. He also decided that a greenhouse, land lab and strong community agricultural program with the leadership component of the FFA could be severely scaled back. His main focus was on preparing students for high stakes testing.

The teacher followed protocol in voicing her objections and trying to save the programs of study, then finally wrote and informed the Barkersville County School Board. The superintendent was not pleased with the challenge to his authority and behaved in what was meant to be an intimidating manner toward the teacher. The school board members were no longer friendly to the teacher but did reinstate the family and consumer science class. However, the teacher was now assigned to teach all levels of middle school science and the agriculture program was reduced to just one class. Her planning time was changed to half the amount of other high school and middle school teachers. While all this was going on, the teacher felt alone and uneasy, and no longer comfortable at her school. But, she knew she had to stand firm in her convictions. After all, she subscribed to an emancipatory pedagogy and needed to set an example for her students. She believed in the benefits of career and technical education and knew how much students profited from courses that integrate life skills with academics.

When she first began this doctoral journey, a professor in her curriculum class, who is serving as a committee member, introduced her to the writings of Giroux. The teacher-researcher admired Giroux' ideas and aspired to become the type of teacher Giroux respectfully wrote about. When the family and consumer science and agriculture programs faced being cut, she knew the time had come for her to reclaim her past leadership skills and become a "public intellectual" (Giroux, 1999) who becomes involved in educational political issues. She felt ready to speak out to parents and other interested community members as a teacher who not only cared about her students, but was interested in community affairs. As a result of her advocacy, board

members were contacted by parents and other supporters of vocational programs. Students discussed how to become involved in their community school, and past FFA members, who are now in college, began pondering the possibilities of leading the school as a board member.

Another inspiration for the teacher-researcher was a now retired professor, who served for three years as the teacher's academic advisor. This professor often spoke of Elliot Eisner and his ideas for teachers and teaching. The teacher who wrote this dissertation and co-conducted the action ethnography came to see herself as both an artist and craftsperson (Eisner, 1999) both in and outside of her classroom. She felt confident enough to speak out for programs that she believed were in the best interest of her students and their community. She used her educational imagination (Eisner, 1999) to confront unpopular and sensitive issues and risked her reputation with her employer. The ending did not come out exactly as the teacher hoped, but at least the family and consumer science class was saved. In addition, a greater sense of self-efficacy and an increase in assertiveness and courage has become a part of the teacher-researcher's repertoire.

As a result of participating in this study, a student and the teacher-researcher developed social and professional self-efficacy. González, Moll, and Amanti (2005) write of the agency created through learning about others' perspectives and discoursing with community members who reveal insights and knowledge. The teacher was not surprised at the intellectual growth and self-efficacy shown of the student-researchers in the construction of nutritional literacies and the thought processes of analyzing data. At the beginning of the study, and even throughout the process, she thought that this changed attitude of being able to do and make a difference would be in the area of nutrition, not self concept. And, she never expected to see the change in herself. However, after facilitating this journey using community funds of knowledge as a guide, the teacher has a better theoretical understanding of the goals she sets for her teaching. By studying

community wisdom and being in contact with adult stakeholders, the teacher and her researchers began to realize all the learning possibilities inherent in both themselves, and in this community.

Schematic Narrative #4: Accepted Authority

This schematic narrative was constructed after much reflection by the teacher-researcher. She was both puzzled and amazed at the way the student-researchers seemed to accept the advice from the adult participants. Much of the same advice about eating a healthy diet was often met with resistance when given by the teacher herself. She began to reflect on the question: Whose knowledge is valued and accepted in this community? It involved issues of authority.

The reflections from the student-researchers began to echo exact phrases from the interview transcripts of the adult participants. When asked why they answered in the adults' words, she was met with words such as, "You know it's true," or "That's the same stuff you're always saying."

The student-researchers listened to the community members' stories and accepted their ideas of healthy eating. They enjoyed hearing stories of long ago set in the Barkersville community. The adults talked about food that was familiar and enjoyed almost daily by the students. The notion of culturally relevant pedagogy comes to mind when thinking of the stories and how the students seemed to accept them as a normal part of their lifeworlds.

When students are in elementary classes, they often offer ideas from home. However, as students grow into the middle and high school years, what their friends think becomes very important. They don't often share their parents' views out loud, in class discussions. Nevertheless, this study showed that the teens in Barkersville both cared about and accepted what the community elders said. They were willing to listen to and abide by this advice.

An inquiry involving several community members is not regularly feasible for the busy, overworked classroom teacher, but guest speakers from the community, individual students interviewing relatives, and parental input might aid in the acceptance of authority and knowledge being presented in the classroom.

González, Moll, and Amanti (2005) suggest home visits by the teacher to help learn about the wisdom in the home worlds. The home visits could garner support for what the teacher is mandated to teach. When students accept the concepts as congruent to their worlds, learning is no longer in isolation. Using community funds of knowledge could help integrate Western Science with home world wisdom, and help students recognize the importance of science in their everyday lives.

In this fourth chapter, the data constructed by the action-ethnographers was depicted as memory banking templates, specific narratives, and schematic narrative templates. The interview data was first analyzed and synthesized to form specific narratives. These storied accounts incorporated community memories and wisdom about various nutritional practices as told to the teacher and student-researchers. They involved collective memories. Next, tensions that were recognized between community practices and mainstream science were explored and negotiated, then represented as schematic narrative templates. Two of the schematic narrative templates depicted underpinning themes in the constructed data that evolved somewhat unconsciously throughout the inquiry.

The following and final chapter discusses the conclusions of the study and implications for further research in the area of community- relevant curriculum. A metaphor from a fairy tale is used to represent the diversity and strength of involving community wisdom in any form of education or action. (2003)

CHAPTER 5

DISCUSSION AND IMPLICATIONS

Most educators are being forced to grapple with both State and Federal mandates concerning curricular issues. These dictates are not likely to disappear. Perhaps it is time to embrace the knowledge that students bring into the classroom, retrieve helpful wisdom from community stakeholders, and build on these accepted understandings to reframe curriculum. However, the theory and practice behind how these issues are met and delivered to individual students is where the teacher-researcher finds the place for the knowledge constructed from this inquiry.

How to best teach students in a meaningful way, while still meeting State and Federal guidelines, is not a new question. It has been asked historically since formal schooling regulations were set in place. How can one keep students interested, motivated, and see results that matter to the students and yet meet mandated guidelines?

This teacher-researcher has come to believe that the answer to these very important curriculum issues lies in understanding the position of the National Middle School Association (Jackson & Davis, 2000) together with the moral of a German fairy tale. If one recalls the story

by the Brothers Grimm, The Bremen Town Musicians (1962), one might possibly remember how the pooling of community capitol offered astounding results.

In this story, an old donkey and an old hound were no longer wanted by their masters and fearing death, they ran away. They met each other on the road and decided to become musicians in Bremen. As they were traveling, they were joined by an old cat that was also deemed useless, and later met a rooster who was facing the soup pot the next day. Bremen was far away, and the four animals became tired and decided to rest for the night. They saw a light in the distance, moved toward it, and discovered robbers inside a cottage, sitting at a table full of food.

The animals wished **they** were at the table, and together came up with a plan to scare the robbers. The donkey stood below the window, the hound jumped on his back, the cat stood on the dog's back, and the rooster perched on the cat. They all began to make their "music" and smashed into the room. The terrified robbers ran out. The animals then ate until they were satiated, extinguished the light, and went to sleep.

Later, the robbers saw the dark house and the lead robber-in-charge decided that they had been too quick to leave, so he ordered one of his men to return. Upon entering, the robber noticed the eyes of the cat. When he struck and then brought a match closer to investigate what he thought were coals, the cat scratched his face. The man became frightened and as he ran to the door, the hound bit his leg, and then the donkey kicked him with both legs as the awakened rooster boldly crowed. The robber reported back to the leader that there was a witch in the house who scratched him, a man with a knife who stabbed him, a monster who hit him with a club, and a judge on the roof who shouted, "Bring the rogue here" (p. 95). The robbers decided never to return to the cottage again, and the animals happily decided to stay and live there together.

The Bremen town musicians accomplished their goal by working together, giving everyone voice (literally), and including each individual's ideas. Funds of knowledge (González, Moll, & Amanti, 2005), together with the tenets of the Middle School philosophy (Jackson & Davis, 2000) were philosophies which guided the researchers in this study. While the results of this inquiry were not as spectacular as those of the animals in the fairy tale, goals were met, and new knowledge was constructed. The story of the Bremen town musicians points to what Michael Apple (2004) has described as a critical dilemma in educational reform:

> Part of the problem is the inadequacy of the ways we think about education and the knowledge that is important to know. In this society, as in so many others, education does not stand alone, a neutral instrumentality somehow above the ideological conflicts and inequalities of the larger society. Rather, it is deeply implicated in the formulation of and action against the forms of differential cultural, economic, and political power that dominate a society like our own. Thus to think seriously about education is also to think just as seriously about power, about the mechanisms in which certain groups assert their visions, beliefs, and practices. While education is not totally reducible to the political, not to deal with the ideological and structural sources of differential power and the role that education may play in reproducing and contesting such power is not to deal with education as a cultural and social act at all. (p. ix)

This inquiry was framed as action ethnography, which by its very essence, sought to not only respect culture but to embrace it as a teaching tool. The classroom was a democratic structure in which ownership and power was nurtured among all the researchers.

The nutrition education of the researchers was intermingled with homeworlds and the knowledge that was important to know as specified by state mandates. This curriculum came

from not only hegemonistic sources, but from the community at large. What was learned/constructed as a result of this action/ethnography? How can the learning be applied in the everyday classrooms and lifeworlds of teachers and students? Were nutritional literacies constructed?

In this final chapter the teacher-researcher discusses her findings as they relate to the fostering of nutritional literacies. This chapter also includes a section with implications for classroom practice and future research.

The Questions and Some Answers

Four research questions served to focus this inquiry. Using these questions as a guide, the researchers constructed and analyzed data. In chapter 4, the specific and schematic narrative templates served to sustain and illustrate how the research evolved and what was learned. In this section, the teacher-researcher further discusses the constructions of the researchers in the context of relevant literature while specifically using each question as a referent.

The First Guiding Question

1. What does memory banking (Nazarea, 1998) reveal about local nutrition practices and knowledge?

The memory banking template served as a guide for the interview questions asked of the adult community members. Although two occasions, church homecomings and family reunions, were chosen by the student-researchers in collaboration with the teacher to study nutritional practices, and were used to initially focus the interviews, many other nutritional practices were discussed. This section, like the narratives portrayed in chapter 4, lends insight into food customs of the Barkersville community and also to the thinking behind the uses of certain foods. It also focuses on the ideas and nutritional advice told by the adult participants for the students' benefit.

Memory banking and local practices.

Using memory banking templates to construct and portray community nutrition practices allowed the researchers to identify and explore nourishment nuances associated with familiar Barkersville traditions. By employing the memory banking template, the researchers probed into various aspects (political, socio-cultural, religious, economic, health, environment) of each instance where food was central to the particular practice. The stories, specific narratives, illustrated ways of using and obtaining food. These accounts also identified what food was commonly eaten in this particular area and how the adult participants felt about certain customs. While analyzing the constructed data, the researchers generated themes that served as the underpinnings of these traditional events. These abstractions were portrayed in chapter 4 as schematic narrative templates. The analyses of these compilations of collective memories added a sense of richness to the curriculum and were viewed as a way to protect and preserve the cultural history of Barkersville. At the same time, the analysis process served to aid in fostering the development of new nutritional literacies through the intense scrutiny necessary. Thinking, discussing, reflecting, and then beginning this process over and over again helped the researchers cement ideas about nutrition in their minds. Eisner (2005) wrote that he thinks of a student's mind not as a "fixed rock", but as a "fluid stream" (p.20). By involving the student-researchers in the curriculum and particularly in data analysis of the constructed memory banking templates, their minds were flowing, albeit painfully, and are "cultural achievements" (Eisner, 2005, p.21)

The stories told to the researchers were depicted in the previous chapter as specific narratives. Although initially, the researchers decided to focus exclusively on the practices of family reunions and church homecomings, the adult researchers, when interviewed, recalled memories of other nutritional practices that were both common and accepted. These recollections

were both from many years ago and from current history. The adult-researchers told stories about procuring food from the wild, cultivating crops in gardens, and eating and serving a variety of foods prepared in ways that youth and children would find appealing. The interview data and the discussions and reflections that followed resulted in the construction of two additional memory banking templates. These were entitled *Learning to cook in a new way*, and *Hunting, farming, and gathering.*

As a result of the collaboration with community members, the teacher and student-researchers were able to discern how to embrace and sustain traditional ways, yet allow the practices to evolve. Every researcher expressed confidence in mainstream scientific advice about cooking in healthy ways. This acceptance of mainstream science was in direct contrast to past groups of students who exhibited extreme resistance to healthy eating suggestions from the media or teacher. The student-researchers seemed certain that recipes could be tweaked and adapted to allow for healthy nourishment for both the body and soul. Perhaps hearing advice from community elders made it more palatable.

The Second Guiding Question

2. What notions of nutritional literacies are constructed as the participants collaborate during this study?

During the 17 months of this collaborative curriculum making, conversations and reflections about the data began to show evidence of the development of nutritional literacies on the part of the students. When the study began, the student-researchers were very shy and quiet when asked their opinions about nutritional concepts such as eating habits or choosing snacks. As the study progressed and the student-researchers interviewed, transcribed, reflected, and discussed, they became comfortable with their nutritional competency and felt empowered. As

time went by, the students freely voiced opinions on foods and practices. They began to notice what and how their peers were eating, messages from the media, and they began to comment on many situations.

The students' evolving views of nutrition, found in both the primary and secondary data sources, were congruent with Barkersville wisdom and practices, and thus seemed natural and right to the researchers. The student-researchers recognized ideas for healthy eating and became involved in making connections between conventional science and community traditions. A rethinking of the role of eating and the foods that are used occurred, and thus the student-researchers began to construct new knowledge about food and nourishment. These ethnographic understandings are depicted below as nutritional literacies. Contento, Calabrese Barton, Koch and Dadds (2007) wrote of their awareness of the childhood obesity epidemic and its corresponding health issues of hypertension and diabetes, as well as the emotional consequences many overweight people face. They described not only the media campaign to sell nutritionally poor food, but the context of pleasurable social occasions whereby foods high in sugar, salt, and fat are often served. By involving respected community elders in the nutrition curriculum at Barkersville, the student-researchers were able to "gain the understandings and skills they need to competently navigate their worlds to make better and healthier (food) choices" (Contento et al., 2007, p. 519).

Community-relevant nutritional literacies.

This section is comprised of insights with respect to the research question concerning notions of nutritional literacies constructed. These literacies are depicted in the form of reflections and conversations told by the student-researchers to the teacher and to each other.

The following literacy was unprovoked by the teacher-researcher and affirmed her faith in the action research/ethnography methodology. Joseph was in her room after school and she was at her desk looking for paperwork about Fair exhibits. She asked him if he planned to create a silk floral arrangement or make a horticulture exhibit for the fair. He answered noncommittally and then said,

You know Miss Scratton: On the 4th Saturday of last month we was at the family reunion and there was a lot of different types barbeque food and one thing that I notice, Jack Sr., he say, 'Why we need to use pork for the hash when we already have it in the barbeque, we should have used chicken?' Cause you know, Miss Scratton, he's right, and for that reason cooking Brunswick with chicken is much healthier than cooking it with pork especially when you will already have pork as a side choice. Mr. Bowers said that it was much healthier to balance your food and watch what you eat instead of just so much of one thing.

This conversation was not part of the formal research process, and yet Joseph wanted to discuss nutritional issues with the teacher-researcher. He noticed that other people in the community (other than those involved in this inquiry) were concerned about food and cooking with healthy ingredients. Joseph had become aware of funds of knowledge concerning issues of nutrition in the Barkersville community. He seemed proud to share how important sustenance and health issues were to Mr. Bowers. The teacher-researcher was thrilled to find that Joseph was attending to dietary topics in his home world and constructing knowledge from community elders. So, what did happen at this family reunion whereby Joseph heard and internalized the words of Mr. Bowers pertaining to his views on chicken versus pork in the Brunswick stew? The student/researcher noticed, reflected, and then gave an opinion on this problem. A sense of pride in belonging to the community and its traditional ways was demonstrated by Joseph as he

informed his teacher that the man at the family reunion was aware of dietary scientific issues. While this study did not aim to measure or assess self-efficacy, there is evidence to suggest that students were developing nutritional self-efficacy—this could warrant further study.

While Joseph's nutritional literacy was self initiated, the following beliefs and ideas came from a written reflection during a focus group discussion whereby the attending student-researchers were asked, "What did you learn about healthy eating and/or nutrition from participating in this inquiry?" The student wrote a title for her reflection, "*What we learn(sic) about nutrition."*

What I learned about nutrition was if you want to live a long, healthy life you should eat healthy. Good healthy foods are foods like Vegatables (sic) and fruits. We should cut down on all the sugar in the food we eat. Water is also the best liquid to drink. Instead of frying food all the time try baking or boiling it.

At the beginning of the study, this particular student-researcher was asked the question: "What do you know about healthy eating and/or nutrition?" La'Tia responded vaguely by stating, "We should eat healthy." She did not offer specifics about what healthy eating might consist of and when prodded said, "I don't know Miss Scra." She didn't seem to be interested in the particulars of a healthy diet but felt intuitively that people should eat in a healthy fashion. What exactly healthy meant, she wasn't sure, but, she also felt uncomfortable and put on the spot at being asked to elaborate. She showed signs of agitation.

It is extremely satisfying as a teacher-researcher to observe the nutritional empowerment and confidence of La'Tia as a result of this study. Becoming a curriculum-constructor and nutritional researcher has enabled her to speak with authority (Oldfather, 1995) and give specific directives to achieve healthy eating and living. Her ideas for nutrition echo the advice given to

the American public by physicians and nutritionists. La'Tia has indeed used the knowledge available in the Barkersville community to construct and assert ideas/literacies with reference to diet and well-being. She has also touched on what the researchers identified as a problem in the diets of many Barkersville people--the lack of fruit and healthy vegetables offered in the typical diet. If one were to observe the USDA pyramid offered to the American people as the guide to healthy eating, other than grains, fruit and vegetables should make up the larger part of a person's food intake. For the student-researchers to begin to make this connection with diet, is indeed a construction of a very important nutritional literacy. Another student-researcher, Trish spoke on the benefits of drinking water instead of drinks with high concentrations of sugar. Nutritional experts often cite sodas as an important contributing factor to Americans' dietary and health woes.

Another written reflection in response to the query: "What do you know about healthy eating and/or nutrition?" was constructed as a direct result of student interviews with adult community members. One student-researcher, Taylor, answered by acknowledging that not everyone will eat certain foods and so begins her explanation:

Vegetables and meat may be nutritious, but it's all in the way the food is prepared or cooked. We need to eat vegetables because it is good for us. Fast food is not good for you. The better we eat, the more healthy we'll be when we get old. To stay healthy we need veggies. Fruits and some meats and dairy products. Being healthy and exercising keeps from being overweight. We need to eat better; it's not easy to eat healthy.

Taylor ends her literacy/explanation by conceding that it is often difficult to eat in the ways that we know are best for us. She heard or read this lamentation in ¾ of the transcriptions of interviews and believes it. However, she began her literacy by offering a way to make the

healthy foods more palatable. She told us that, “it’s all in the way that food is prepared.” Perhaps experimenting with different recipes using the same basic healthy ingredients might be a way to create interesting curriculum that furthers these newly constructed literacies. Taylor also introduced the idea of exercise and weight control in addition to healthy eating. These concepts of exercise and weight were not specifically targeted in the study, yet she obviously was noticing nutritional advice in the media and maybe in other classes at school or in different conversations. Taylor also mentioned fruit. Before this inquiry began, the teacher-researcher had noticed how many of her students coveted the personal fruit she brought for a snack when they spotted it on her desk. When questioned, she found that many of the students did not have fresh fruit available in their homes, but when given money to buy a snack, would usually choose chips. There are no supermarkets in the Barkersville community or even in the entire county and the few stores in town do not sell fresh fruit and/or vegetables. This phenomenon was also apparent in the Regan et al. (2006) study, which was explained in Chapter 1.

It was evident from the response sheets that a nutritional literacy was constructed by student-researcher Sarah in response to the question: What is meant by a balanced diet? At the beginning of the study, when given the initial response sheet, Sarah wrote, “not eating a lot.” About four months later, as the interview transcriptions were being analyzed, she wrote, “When you eat healthier.” After approximately a year of reflecting and analyzing, Sarah answered the question about what a balanced diet means by using the words proper portion size, a variety of foods, and including words like meat and vegetables.

Many of the student-researchers in this study belong to families who are economically impoverished, yet they exhibited many strengths both in the classroom and in their community. The adult community members, although they too have lived with issues that define persistent

poverty, demonstrated through their memories the wisdom or knowledge that is evident in this community. These funds of knowledge have enabled the student-researchers to construct nutritional literacies. Through authentic engagement, connections were made to validate community practices while incorporating current scientific practice. The nutritional literacies that were formed as a result of reflecting on community practices characterize what Haberman (1995) calls "powerful pedagogy" (p.290) on the part of the teacher and autobiographical for the students, and poses the question, "What could be more fundamental to subsequent learning than self-definition?" (p.290).

The Third Guiding Question

3. What happens when students, teachers, and community members collaborate to create a community-relevant nutrition curriculum through action research?

In this study, collaboration served to facilitate the learning of the students and adults. The knowledge that is supposed to be transmitted in American public schools comes from a curriculum which is prescribed by the dominant culture. As an educator for over 30 years, the teacher-researcher has been asked over a million times (obviously, an exaggeration) "Why do we have to learn this?" Of interest to note, the teacher-researcher was not asked **once** why the study protocol dictated interviewing Barkersville residents concerning their nutritional practices. The justification of "why" to students concerning instructional topics and the resistance that follows often wastes valuable learning time and creates a tense classroom climate. Brazee (1997) discussed the dilemma of trying to give students answers to questions that they do not ask. Roth and Barton (2004) wrote there would be no "borders to cross", no concern of transfer of knowledge, if students were "engaged in 'authentic' activities of their community" (p. 9). By

acknowledging and affirming community wisdom, the student-researchers showed faith in their learning by staying motivated and applying their literacies in settings other than the classrooms. Like the young adults in Wertsch's study with Kosyaeva—the students looked at the data with agency and treated the texts like "thinking devices" (Wertsch, 2002, p.165). This was the first opportunity for many of the students to be involved with creating learning opportunities and they began to transfer what they heard into other aspects of their lives.

Nutritional dilemmas were discussed and commented on outside of the context of the study. The student-researchers became cognizant of the intertwining of health and nutritional issues. They were able to put reflection into action as a result of their participation in this action ethnography. They particularly enjoyed the interviews and hearing community nutritional history. Creativity was tapped as two student-researchers spontaneously mediated interview transcriptions into plays. These dramatizations could be used in the future to teach nutritional topics. Nutritional literacies were constructed and embraced, cultural resources were explored and appreciated, and, to the researcher, it appears that a sense of self efficacy and empowerment was demonstrated. This empowerment was exhibited in other aspects of life, in the cases of Tasha and the teacher-researcher, as discussed in chapter 4.

As a result of involving adult community members in the school's nutrition curriculum, acquaintances were made, community history was explored and discussed, and a deeper understanding of the school, community, and the people who are part of Barkersville was forged. The students were able to help transform Barkersville practices into activities that were meaningful to them. This study afforded opportunities for authentic engagement with learning that involved connections with homeworlds. This linkage of school curriculum with home knowledge built the bridge that is often lacking yet needed for a smooth border crossing into

mainstream science (Jegede & Aikenhead, 1999). Because of the respect for and inclusion of Barkersville's funds of knowledge (Moll, Amanti, Neff, & Gonzalez, 1992), the student-researchers began to see the relevance of Science in their lives. They not only had (very possibly for the first time) a voice in creating what was studied, but were able to include and honor local knowledge and practices of science and nutrition. The student-researchers, together with their teacher were able to create relevant science/nutrition curriculum by viewing and acting on the notion of curriculum as praxis.

The Fourth Guiding Question

4. What tensions are created when trying to develop nutrition curriculum in this school and community?

Eisner (2005) described tensions as rather vague feelings that something is not right with one's work or an unsettled feeling that can be resolved through inquiry. He explained that while tensions can be motivating, the presence of tensions does not guarantee meaningful research. Tippins explained that tensions are not necessarily negative and might be represented as the schematic narrative templates when analyzing the data (D. J. Tippins, personal communication, September 26. 2007). In order to understand the particular tensions created during this study, and use them as a motivating factor, the researchers acknowledged and discussed them, then decided what if anything to do about them.

Actually, the teacher-researcher was aware of tensions from the beginning of the study. One concern had to do with the nature of qualitative research. Silverman (2004) explained that there is not a cookbook version of how to conduct a study. Without a set of rules, it was rather disconcerting for the teacher-researcher to begin her inquiry. This inquiry was a journey, it was supposed to be *curriculum as praxis*, yet the teacher-researcher wondered if the students would

learn anything, if she (teacher-researcher) would have any data to represent the study, and if the adult community members would be willing to help teach the students using their memories. The teacher, being from a science background, was comfortable with numbers, statistics, trials, surveys, graphs, and tangible products. She wondered if the **process** of constructing curriculum was as valuable as a finished product—perhaps lesson plans indicating web sites, page numbers, games and activities, and suggestions for homework concerning nutrition. Luckily, she had an advisor who gave references and examples of similar research and also discussed at length tenets of qualitative methods and methodologies.

Any time spent worrying about this tension, curriculum as a shared journey, was totally wasted. While the students were interviewing, reflecting, arguing, researching, reading, transcribing, and discussing, they were indeed constructing nutritional literacies. And, not only did they construct this knowledge, but they accepted it and became motivated to find more. The researchers were able to represent constructed data from this inquiry tangibly as responses to: a) nutritional queries as posed by the teacher-researcher, b) interview transcriptions, and c) the construction of both specific and schematic narrative templates.

Beyond the gains in nutritional wisdom, the students were privileged to meet and get to know older community members and hear shared memories about former times in Barkersville. The adult researchers who participated with the students enjoyed reliving childhood memories and wanted to share advice about being healthy. They were being respected as teachers with wisdom, and this gave them an opportunity to connect with the school. The adult researchers showed care, concern, and responsibility toward the student's learning, diet and habits. At the same time, the adults' advice included familiar practices and dishes, which served to enthuse the students about learning, not make them feel defensive or resistant.

A familiar dilemma, complaint and concern that many teachers face is resistance from students about learning prescribed curriculum. Although the topic was chosen by the teacher-researcher, and was a part of the state mandated curriculum, the way learning occurred was democratically determined and thus the student-researchers did not balk. The advice from the adult researchers echoed mainstream science, yet was given in a cultural context, so the students accepted and believed it to be true.

Another tension realized by the teacher-researcher concerned the transferability of the findings. She was apprehensive about this inquiry being able to contribute to the literature concerning culturally congruent teaching and learning. Would looking at curriculum as praxis while utilizing the anthropological tool of memory banking in action ethnography be of interest to anyone but the teacher-researcher? While the stories constructed might be harmonious with the Barkersville area, would they seem realistic for or possibly be a match with the home worlds of other southern rural students? While this last question remains to be answered, the researchers have confidence in the methodology and the methods of this study and their places in adding to educational inquiry. The teacher-researcher witnessed the smooth border crossing into mainstream science by the student-researchers. She is convinced that community funds of knowledge in the curriculum served as a vehicle to allow the students to form, accept, and become empowered by nutritional knowledge. Also, even if the specific narratives would not interest and provide motivation for other rural southern students, the methodological tools used in this study could serve as a model for educational researchers searching for ways to increase relevance of curriculum.

A third tension was initiated by the adult-researchers and became the schematic narrative template, *So(ul) Good but So(ul) Bad.* When asked about nutritional practices and special

occasion food, every adult sought to give advice about how to achieve a healthy diet. Their words were received positively by the students and discussed at length. While reviewing literature, the teacher-researcher found that this tension, or theme, has been the focus of not only many articles, but has also been the topic of cookbooks, and the concept that some restaurants have sought to emulate.

The researchers all agreed that heritage is important, yet al.so agreed that healthier methods of cooking and eating should become the norm. This tension was negotiated, and the outcome could be viewed as moderation. The researchers agreed that certain foods should be limited, and that others should be prepared using more heart healthy ingredients. Every student researcher overwhelmingly embraced the idea of drinking plenty of water daily, and each could relate the adults' advice to the United States Department of Agriculture's Dietary Pyramid.

The tensions realized by the researchers seemed to echo the thoughts of Eisner (2005) and Tippins (2007). They were recognized as a feeling of concern, were not necessarily negative, and they served to motivate the researchers to learn more. Eisner (2005) wrote that research is an instrument not for scholars to have something to write about, but it should be used to contribute quality to students' education. By employing the theory of *funds of knowledge* and putting it into practice, the Barkersville students were able to construct quality nutritional literacies.

Implications

Although this study was limited to 17 months, and 19 co-researchers, knowledge was constructed and it is quite possible that other teachers could benefit from this study. In the final sections of this chapter, the teacher-researcher discusses ideas for future research, methodological considerations, and applications to classroom practice. The chapter ends with a concluding statement based on knowledge constructed and current community ideas.

For Future Research

This study contributes to the discourse of culturally relevant curriculum by describing how students were able to negotiate border crossings into mainstream science and also how students were able to construct nutritional literacies through the utilization of community funds of knowledge.

It illustrates one way that action ethnography was used as a research methodology to better understand teaching and curriculum. The study offers a way to view curriculum as not only a hegemonistically prescribed recipe with steps to tread and then check off, but as a journey that might motivate students and help them learn to learn.

Future studies might want to "measure" results from using funds of knowledge for learning in a different way from what was done in this study—the construction of literacies. Learning could be quantified, scales could be used, or perhaps writing could be measured. Eisner (2005) explained that what might be obscured by one lens could be made both clear and useful by another. Conceivably, another theoretical frame or a different way to collect or analyze data might shed light on a better way to utilize community wisdom.

The data that was collected in this action ethnography could be viewed by focusing on just the changed demeanors of the researchers or how the researchers continued their learning journey. An additional inquiry could follow the researchers longitudinally and determine if the nutritional literacies resulted in behavioral changes for themselves and/or for their families. Diet self-efficacy could be determined through a continuation of the learning.

The possibilities for educational inquiry, or trying to improve teaching and learning through action ethnography, seem limitless. Future research could explore alternative approaches to view curriculum as praxis. Other literacies that were possibly constructed as a result of

curriculum as praxis could be explored. However, as a classroom teacher, the teacher-researcher knows that time is probably the limiting factor in creating curriculum and exploring what other learning occurs.

For Classroom Use

The teacher-researcher chose to study curriculum as praxis in a community context. Because she believes that science learning is a function of mediation, she sought ways to involve her students in discovering and utilizing the wisdom inherent in the Barkersville community. The co-researchers were able to include local knowledge and practices in the students' school learning. The student-researchers began to view science as a part of their everyday lives. They ceased to regard science as a course in school or a textbook to study. The researchers heard from each other the belief that nutrition plays a vital role in health and that this community values these convictions. Food, family and community, which play a central role in the lives of these students, as well as other rural students in America, were included in their formal education or school curriculum so that science and nutritional learning would gain relevance and thus be internalized.

Viewing curriculum as praxis and engaging in inquiry with her students was a part of the doctoral journey for the teacher-researcher. Although the state mandates standards, it is not impossible to create curriculum that is interesting and meaningful to students (Alexander, Carr, & McAvoy, 1995; Beane, 1993; Meier, 1995, 2002; Nesin & Lounsbury, 1999; Pate, Homestead, & McGinnis, 1997) while being sure to highlight the prescribed concepts. Although time to plan and work with students is a large concern, funds of knowledge should be included in every subject. To do so does not necessarily mean interviews and transcriptions by every student. The inclusion of community wisdom (Calabrese Barton, 2003; Charron, 1991; Costa, 1995; Fusco,

2001; Hammond, 2001; Jegede & Aikenhead, 1999; Osborne & Calabrese Barton, 1998; Zahur et al.., 2002) to make state mandated curriculum meaningful should be a priority in the school setting.

Jegede and Aikenhead (1999) found that not only minority students, or those that are not White middle class, have a hard time crossing the border into mainstream science classrooms. Many boys and girls of all cultures, income levels, and religions view science as foreign and somewhat forbidding. Bringing in the familiar to teach the unfamiliar and somewhat frightening subjects, could lessen stress and open minds to possibilities.

Community involvement in classrooms could be accomplished in a multitude of ways. Perhaps students could suggest and arrange for guest speakers for topics of study. Maybe the student has expertise in the area of study. Students could conceivably interview parents or other community members and then bring what was learned and share the knowledge with the class. Field trips that are community based might serve to contextualize subject matter. Utilizing community and cultural resources might foster self motivation towards education.

Swan (2004) explained, "The object of teaching a child is to enable him to get along without the teacher" (p. 27). If students and teachers will respect and utilize the knowledge that is held within every community and culture, then, maybe students will become open to learning the unfamiliar and "not get left behind" (this is sarcastically written). They may become open to the idea of being a life long learner, and not feel like learning is irrelevant or for someone else. Perhaps students would become authentically engaged, and not just mark time in classrooms or waste their ingenuity trying to beat the system for a grade. Curriculum as praxis and community involvement with the local schools could serve to engage and empower all students and especially those that are not of the majority culture.

Methodological Implications

Teachers have always recognized problems, decided on a course of action to try to solve the problems, and then reflected on the process and outcomes—action research. (Kemmis & McTaggart, 2005). Classroom action research can be as simple as changing a child's seating in the classroom and observing and reflecting on the result on the child's learning and behavior. In this inquiry, fostering nutritional literacies through praxis utilized action research methodology. In addition, using the teacher-researchers' understandings of her students and their community, this inquiry sought to include an ethnographic aspect into the study. Thus, curriculum was viewed as praxis while including a hybrid methodology.

The ethnographic component in this study drew from theories of cultural relevance including funds of knowledge (Moll, Amanti, Neff & Gonzalez, 1992) and community science education (Nichols, Tippins, Morano, Bilboa & Barcenal, 2005). Community elders were invited to share memories about common nutritional practices. In addition to sharing memories, these adult-researchers all included mainstream science knowledge in their advice to the students on how to maintain good health. This advice was not limited to the practices which began the interviews.

The teacher-researcher is convinced that the ethnographical aspect of the study—including adult-researchers and focusing on community congruent nutritional practices, was the key to keeping the student-researchers engaged in learning. Their constructed nutritional literacies echoed both homeworld wisdom, and mainstream science advice. Perhaps community knowledge should be incorporated whenever possible in action research.

Curriculum viewed as praxis was possible and practical in this inquiry. It was necessary for the teacher to spend more time when involving 18 other people, than she would have spent if

she had just followed a prescribed curriculum. However, much less time was wasted because the students stayed engaged and the teacher did not have to encourage, cajole, or threaten the students to do the work of learning. Teachers should be given time to plan for learning experiences that include home worlds of students. Then, maybe students would stay engaged and be eager to learn. The prescribed curriculum should be mediated to include action ethnography. Then, learning would be authentic, in context, and possibly motivational.

Conclusions

The purpose of this study was to see what happened when students, the teacher-researcher, and interested members of the community collaborated to develop a community-relevant science/nutrition curriculum. The study was conducted as an ethnographic action research project. The emacipatory theoretical frame acted to focus the researchers' attention on community wisdom in viewing curriculum as praxis.

As a result of this journey, curriculum was praxis with resulting nutritional literacies constructed through a partnering of school and community. Local funds of knowledge facilitated learning for all the researchers, and served to unite mainstream science and diet information with cultural practices. These awarenesses and literacies became evident during conversations and discussions, as made evident by the student-researchers beginning to speak with authority on various topics and show confidence at school and in the community. The students gained an authentic audience for their constructed literacies.

Roth and Barton (2004) refer to this type of learning, teaching, and literacy as "citizen science" (p. 9). They explain that science should empower people to recognize issues, whether personal, in the community, or globally and then reflexively decide on how to solve these issues.

Scientific literacy is achieved through competence in being able to find answers to questions or problems. This type of empowerment can effect change and as a result improve lives and status.

The teacher-researcher has become cognizant that retuning and calibrating prescribed curriculum in a democratic manner with her students is not only possible but manageable. She portends that unless the state mandated curriculum is made relevant by teachers, students will continue to disengage and remain apathetic toward learning.

Health issues pose an enormous dilemma globally, and schools are potentially places where these health problems could be explored. This study showed a way to foster nutritional literacies. The action ethnography facilitated the learning of science through the weaving of traditions of place-based curriculum (Brandt, 2004; Gruenewald, 2003; Smith, 2002), democratic learning (Meier, 1995, 2002; Pate, Homestead, & McGinnis, 1997), student-generated curriculum (Alexander, Carr, & McAvoy, 1995; Beane, 1993; Nesin & Lounsbury, 1999), and culturally relevant pedagogy (Ladson-Billings, 1994, 1995; Matthews, 2003). Diet, health and their corresponding literacies should be addressed through curriculum as praxis (Grundy, 1987). In this particular study, the teacher-researcher learned that by creating community-relevant curriculum, she and her students together with their school community were empowered and did indeed effect change in their own lives.

Hillary Rodham Clinton (1996) wrote of the interlocking layers of the village (community) that affect children and the responsibility of every adult to guide the children. She explained the great need for adults in all communities to become involved in the children's lives. Perhaps this study could contribute in a small way to Rodham Clinton's vision as well as to Apple's call (2004) to view science from a critical, societal, yet praxis perspective. Maybe this action ethnography shows a "pathway" whereby "science education can actually, rather than

possibly, change" (Roth & Barton, 2004, p.7). Barkersville researchers like the Bremen town musicians, constructed collective nutritional agency and thus experienced changed identities as scientist-learners.

REFERENCES

Action for healthy kids annual report. (2003-2004). Retrieved October 11, 2005, from http://www.actionforhealthykids.org

Aikenhead, G. A. (1998). Many students cross cultural borders to learn science: Implications for teaching. *Australian Science Teachers Journal, 44(4),* 9-12.

Alexander, W. M., Carr, D., & McAvoy, K. (1995). *Student oriented curriculum—Asking the right questions.* Columbus, Ohio: National Middle School Association.

Apple, M. (2004). Series editor introduction in Roth, W.-M., & Calabrese-Barton, A. *Rethinking scientific literacy.* New York: Routledge.

Arnold, M. L., (2005). Rural education: A new perspective is needed at the U.S. Department of Education. *Journal of Research in Rural Education, 20*(3). Retrieved November18, 2006 from http://www.umaine.edu/jrre/20-3.htm

Audi, R., et al., (Eds.). (2001). *The Cambridge dictionary of philosophy* (2nd ed.). Cambridge: Cambridge University Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Beane, J. A. (1993). *A middle school curriculum: From rhetoric to reality*. Columbus, OH: National Middle Schools Association.

Beeson, E., & Strange, M. (2003). Why rural matters 2003: The continuing need for every state to take action on rural education. *Journal of Research in Rural Education, 18(1).* Retrieved November18, 2006 from http://www.umaine.edu/jrre/18-1.pdf.

Bennet deMarrais., K. (Ed.). (1998). *Inside stories: Qualitative research reflections*. Mahwah, NJ: Lawrence Erlbaum Associates.

Berg, B. L. (2001). *Qualitative research methods for the social sciences.* Boston: Allyn & Bacon.

Blank, M. J., Melaville, A., & Shah, B. P. (2003). Executive summary of *Making the Difference.* Washington, D. C.: Coalition for Community Schools.

Boatright, S. R., & Bachtel, D. C. (2006). *Georgia county guide 2005-2006.* Athens, GA: University of Georgia Center for Agribusiness and Economic Development.

Borman, G. D. (2000). Title I: The evolving research base. *Journal of Education for Students Placed at Risk, 5*(1/2), 27-41.

Brandt, C. B. (2004). A thirst for justice in the arid southwest: The role of epistemology and place in higher education. *Educational Studies Journal of the American Educational Studies Association, 36(1),* 93-107.

Brazee, E. (1997). Curriculum for whom? In J. L. Irvin (Ed.), *What current research says to the middle level practioner* (pp. 187-201). Columbus,OH: National Middle School Association.

Calabrese Barton, A. (2003). Kobe's story: doing science as contested terrain. *Qualitative Studies in Education, 16*(*4*), 533-532.

Calabrese Barton, A., Hindin, T. J., Contento, M. T., Trudeau, M., Yang, K., Hagiwara, S., et al.. (2001). Underprivileged urban mothers' perspectives on science. *Journal of Research in Science Teaching, 38*(*6*), 688-711.

Calabrese Barton, A., Koch, P. D., Contento, I. R., & Hagiwara, S. (2005). From global sustainability to inclusive education: Understanding urban children's ideas about the food system. *International Journal of Science Education, 27(10),* 1163-1186.

Calabrese Barton, A. & Yang, K. (2000). The culture of power and science education: Learning from Miguel. *Journal of Research in Science Teaching, 37*(8), 871-889.

Cano, J. (2004). The role of action research in effecting educational change. *The Agricultural Education Magazine, 76(6)*, 2.

Castleman, B., Littky, D. (2007). Learning to love learning. *Educational Leadership, 64(8),* 58-61.

Centers for Disease Control. (1996). *Guidelines for school health programs to promote lifelong healthy eating* (MMWR Publication No. 45 (RR-9). Atlanta, GA: U.S.

Charron, E. H. (1991). Classroom and community influences on youths' perceptions of science in a rural county school system. *Journal of Research in Science Teaching, 28*(8), 671-688.

Clandinin, D. J., & Connelly, F. M. (1990). Narrative, experience and the study of curriculum. *Journal of Education 20*(3), 241-253.

Clandinin, D. J., & Connelly, F. M. (2000). *Narrative Inquiry.* San Francisco: Jossey Bass.

Cobern, W. W. (1993a). Constructivism. *Journal of Educational and Psychological Consultation, 4*(1), 105-112.

Cobern, W. W. (1993b). Contextual constructivism: The impact of culture on the learning and teaching of science. In K. G. Tobin (Ed.), *The practice of constructivism in science education.* (pp. 51-69). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Contento, I. R., Calabrese Barton, A., Koch, P. A., & Dadds, M. (2007). Childhood overweight and science education. In K. Tobin (Ed.), *Teaching and learning science* (vol.2, pp.515-519. Westport, Connecticut: Praeger.

Costa, V. B. (1995). When science is "another world": Relationships between worlds of family, friends, school, and science. *Science Education, 79*(3), 313-333.

Crotty, M. (1998). *The foundations of social research.* London: Sage.

Crotty, M. (2003). *The foundations of social research: Meaning and perspectives in the research process.* London: Sage.

Delpit, L. (1995). The silenced dialogue: power and pedagogy in educating other people's children. In *Other people's children* (pp.21-47). New York: New Press.

Demps Gaines, F., & Weaver, R. (2006). *The new soul food cookbook for people with diabetes (2nd edition). Alexamdria, VA: American Diabetes Association.*

Denzin, N., K., & Lincoln, Y., S. (Ed.) (2005). *The Sage handbook of qualitative research, third edition*. Thousand Oaks, CA: Sage.

Dewey, J. (2001). *How we think.* Mineola, New York: Dover Publications, Inc.

Dilworth, M. E., & Brown, C. E. (2001). Consider the difference: Teaching and learning in culturally rich schools. In V. Richardson (Ed.), *Handbook of research on teaching* (4th ed., pp. 643-667). Washington, DC: American Educational Research Association.

Donald, P., & Grosling, S. (1995). 'No problem here': Action research against racism in a mainly white area. *British Educational Research Journal, 21*(3), 263-275.

Drewnowski, A. S., & Specter, S. E. (2004). Poverty and obesity: the role of energy density and energy costs. *American Journal of Clinical Nutrition, 79*, 6-16.

Eisner, E. W. (1999). The art and craft of teaching. In A. C. Ornstein & L. S. Behar-Horenstein (Eds.), *Contemporary issues in curriculum* (pp. 81-89*). Boston: Allyn and Bacon.*

Eisner, E. (2005). Persistent tensions in arts based research. Retrieved October 28, 2007, from www.coe.uga.edu/quig/pdf/Eisner.pdf

Farmer, T. W., Irvin, M. J., Thompson, J. H., Hutchins, B. C., & Leung M.-C. (2006). School adjustment and the academic success of rural African American early adolescents in the deep south. *Journal of Research in Rural Education.* 21(3). Retrieved November 18, 2006 from htpp://www.umaine.edu/jrre/21-3.pdf.

Finkelstein, E. A., Fiebelkorn, I. C., Wang, G. (2003). National medical spending attributable to overweight and obesity: How much, and who's paying? *Health Affairs*, 219–226.

Fliegel, S. (Winter, 1994) Debbie Meier and the dawn of Central Park East. *City Journal, 4(1).* Retrieved June 9, 2007, from: www.city_journal.org/article01.php?aid=1414

Freire, P. (2001). *Pedagogy of the oppressed* (30th anniversary edition). New York: Continuum International.

Fosnot, C. T. (1996). Constructivism: A psychological theory of learning. In C. T. Fosnot (Ed.), *Constructivism theory, perspectives, and practice* (pp. 3-7). New York: Teachers College Press.

Fusco, D. (2001). Creating relevant science through urban planning and gardening. *Journal of research in science teaching.* 38, 860-877.

Georgia Department of Education. Retrieved October 3, 2007, from: http://www.doe.k12.ga.us/findaschool.aspx?SchoolID=44943&RPT=0&RL=SCH&RID=101&PID=63&Tab=70&FY=2006

Giroux, H. A. (1999). Teacher, public life, and curriculum reform. In A. C. Ornstein & L. S. Behar-Horenstein (Eds.), *Contemporary issues in curriculum (*pp. 36-44*). Boston: Allyn and Bacon.*

Glaser, B. G. & Strauss, A. L. (1967). *The discovery of grounded theory.* Chicago: Aldine Publishing Company.

González, N. (2005). Beyond culture: The hybridity of funds of knowledge. In N. González, L. Moll & C. Amanti (Eds.), *Funds of Knowledge (*pp.29-46). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Grace, M. (1999). When students create curriculum. *Educational Leadership. 57(3), 49-52.*

Greene, M. (1999). Art and imagination: Overcoming a desperate stasis. In A. Ornstein, & L. S. Behar-Horenstein (Eds.), *Contemporary issues in curriculum, 2nd edition.* (pp. 45-56). Needham Heights, MA.: Allyn & Bacon.

Grimm, the Brothers (1964). The Bremen town musicians. In E. H. Gross (Ed.), *Once upon a time.* (pp91-95). New York: Crowell-Collier Publishing Comapany.

Grudens-Schuch, N. (2004). Teacher action research as a worldwide movement. *The Agricultural Education Magazine.* 76(6). 5-7.

Gruenewald, D. (2003) The best of both worlds: A critical pedagogy of place. *Educational Researcher.* 32(4), 3-12.

Grundy, S. (1987). *Curriculum: Product or praxis?* London: The Falmer Press.

Grundy, S., & Hatton, E. J. (1995). Teacher educators' Ideological discourses. *Journal of Education for Teaching, 21*(1), 7-24.

Grundy, S., & Hatton, E. J. (1998). Teacher educators, student teachers and biographical influences: Implications for teacher education. *Asian-Pacific Journal of Teacher Education, 26*(2), 121-138.

Guajardo, M. A., & Guajardo, F. J. (2002). Critical ethnography and community change. In Y. Zou & E. T. Trueba (Eds.), *Ethnography and Schools* (pp. 281-304). Amelialand: Rowman & Littlefield Publishers, INC.

Gutstein, E., & Lipman, P. (1997). Culturally relevant mathematics teaching in a Mexican-American context. *Journal for Research in Mathematics Education, 28(6),* 709-727.

Haberman, M. (1995). The pedagogy of poverty versus good teaching. In K. Ryan & J. M. Cooper (Eds.), *Kaleidoscope: Readings in education, 7th ed.,* (pp. 285-292). Boston: Houghton Mifflin Company.

Habermas, J. (1972). *Knowledge and human interests.* London: Heinemann.

Hammond, L. (2001). Notes from California: An anthropological approach to urban science education for language minority families. *Journal of Research in Science Teaching, 38*(9), 983-999.

Hapgood, S., & Palincsar, A. S. (2007). Where literacy and science intersect. *Educational leadership, 64(4),* 56-60.

Hardy, L. (2005). A place apart. *American School Board Journal,* 18-23.

Harkreader, S., & Henry, G. T. (1997). Long standing reform effort improves schools. An independent evaluation of the League of Professional Schools. Georgia State University: Council for School Performance-Archives at the Andrew Young School of Policy Studies. Retrieved June 11. 2007 from http://aysps.gsu.edu/publications/arc/csp/Download/League.PDF

Hedley, A. A., Ogden, C. L., Johnson, C. L., Carroll, M. D., Curtin, L. R., & Flegal, K. M. (2004). Prevalence of overweight and obesity among US children, adolescents, and adults. *The Journal of the American Medical Association, 291*(23), 2847-2850.

Hermes, M. (2000). The scientific method, Nintendo, and eagle feathers: Rethinking the meaning of 'culture-based' curriculum at an Ojibwe tribal school. *International Journal of Qualitative Studies in Education. 13(4), 387-400.*

Howe, A. C., & Nichols, S. E. (2001). *Case studies in elementary science*. Upper Saddle River, NJ: Merrill Prentice Hall.

Howley, C. B., & Eckman, J. M. (1997). *Sustainable small schools.* Charleston, WV: AEL, Inc.

International Council of Nurses. (2005). ICN on poverty and health: Breaking the link. Retrieved December 30, 2005, from www.icn.ch/matters_poverty.htm

Isaacs, S., L., & Schroeder, S., A. (2004). Class—The ignored determinant of the Nation's health. *New England Journal of Medicine, 351(11),* 1137-1142.

Jackson, A. W., & Davis, G. A. (2000). *Turning points 2000: Educating adolescents in the 21st century*. New York: Carnegie Corporation of New York.

Jegede, O. J., & Aikenhead, G. S. (1999). Transcending cultural borders: implications for science teaching. *Research in Science & Technological Education, 17*(1), 45-66.

Kalb, C., & Kuchment, A. (2006, January 30). Saving soul food. *Newsweek, CXLVII(5),* 54-55.

Kawachi, I., Kennedy, B., & Wilkinson, R. (Eds.). (1999). *The society and population health reader: Income inequality and health.* New York: New Press.

Kemmis, S., & McTaggart, R. (2000). Participatory action research. In N. Denzin, Y. Lincoln. (Eds.), *Handbook of qualitative research* (2nd ed., pp. 567-576). Thousand Oaks, CA: Sage.

Kleinfeld, N. R. (2006). Diabetes and its awful toll quietly emerge as a crisis *The New York Times*. Retrieved February 26. 2006, from http://www.nytimes.com/2006/01/09/nyregion/nyregionspecial5/09diabetes.html?ei=5070

Kolata, G. (2006). Thinning the milk does not mean thinning the child. *The New York Times*. Retrieved February 26. 2006, from http://www.nytimes.com/2006/02/12/weekinreview/12kolata.html?ei=5090

Ladson-Billings, G. (1994). *The dreamkeepers: Successful teachers of African American children.* San Francisco: Jossey-Bass.

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal,* 32, 465-491.

Lewin, K. (1997). *Resolving social conflicts-Field theory in social science.* Washington, D. C.: American Psychological Association.

Lewis, A. C. (1992). An invisible minority. *Phi Delta Kappam, 73*(9), 660-661.

Littky, D., & Allen, F. (1999). Whole-school personalization, one student at a time. *Educational Leadership,* 57(1), 24-28.

Lynch, J. W., Kaplan, G. A., & Shema, S. J. (1997). Cumulative impact of sustained economic hardship on physical, cognitive, psychological, and social functioning. *New England Journal of Medicine,* 337(36), 1889-1895.

Mason, M. (2006, April 19). Diabetic=delicious?. *Athens Banner-Herald,* pp. C1, C6.

Matthews, L. E. (2003). Babies overboard! The complexities of incorporating culturally relevant teaching into mathematics instruction. *Educational Studies in Mathematics, 53,* 61-82.

MedlinePlus Encyclopedia, a service of the U. S. National Library of Medicine and the National Institutes of Health. (2007). Diabetes. Retrieved September 30, 2007 from: http://www.nlm.nih.gov/medlineplus/ency/article/001214.htm#Definition

Meier, D. (1995). How our schools could be. *Phi Delta Kappan, 76(5),* 369-373.

Meier, D. (2002). Just let us be: The genesis of a small public school. *Educational Leadership, 59(5),* 76-79.

Merriam, S. B. (1998). *Qualitative research and case study applications in education.* SanFrancisco: Jossey-Bass.

Merriam, S. B., Johnson-Bailey, J., Lee, M., Kee, Y., Ntseane, G., & Muhamid, M. (2001). Power and positionality: Negotiating insider/outsider status within and across cultures. *International Journal of Lifelong Education*. 20(5), 405-416.

Mertens, D. M. (1998). *Research methods in education and psychology.* London: Sage.

Misztal, B. A. (2003). *Theories of social remembering*. Berkshire, England: Open University Press.

Moll, L., Amanti, C., Neff, D., & Gonzalez, N. (1992) Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory Into Practice 31,* 132-141.

National Association of Secondary School Principles. (1974). *25 action learning schools*. Reston, VA.

National Governors Association. (2005). *Healthy America: Wellness where we live, work, and learn.* Retrieved January 11, 2006, from http://www.nga.org/Files/pdf/05HUCKABEEBROCHURE.pdf

National Institutes of Health. (2005). Study shows programs can teach children to eat healthier. *FDA Consumer, 39(4),* 03621332.

National Middle School Association. (1995). *This we believe: Developmentally responsive middle level schools.* Columbus, Ohio: National Middle School Association.

Nazarea, V. (1998). *Cultural memory and biodiversity.* Tuscon, AZ: University of Arizona Press.

Nesin, G., & Lounsbury, J. (1999). *Curriculum integration twenty questions—with answers.* Atlanta: Georgia Middle School Association.

Nichols, S., Tippins, D., Morano, L., Bilbao, P., & Barcenal, T. (2005). Community-based Science education research: narratives from a Filipino barangay. In G. Spindler (Ed.), *New horizons in the ethnography of education.* Mahwah, NJ: Lawrence Erlbaum.

Noddings, N. (2001). The caring teacher. In V. Richardson (Ed.). *Handbook Of Research On Teaching* (4th ed., pp. 99-105). Washington, D. C.: American Educational Research Association.

Oldfather, P. (1995). Songs "Come back most to them": Students' experiences as researcher. *Theory into Practice, 34(2),* 131-137.

Oldfather, P., & Thomas, S. (1998). What does it mean when high school teachers participate in collaborative research with students on literacy motivations?. *Teachers College Record, 99*(*4*), 647-691.

Oliver, J. S. (2007) Rural science education. In Abell, S., & Lederman, N., Eds. *Handbook of Research in Science Education.* Florence, Kentucky: Lawrence Erlbaum Associates (a division of Taylor Francis).

Osborne, M. D., & Calabrese Barton, A. M. (1998). Constructing a liberatory pedagogy in science: dilemmas and contradictions. *Journal of Curriculum Studies, 30(3),* 251-260.

Pate, P. E., Homestead, E. R., & McGinnis, K. L. (1997). *Making integrated curriculum work: Teachers, students, and the quest for coherent curriculum*. New York: Teachers College Press.

Patton, M. Q. (2002). *Qualitative research and evaluation methods.* (3rd ed.). London: Sage.

Regan, G., Lee, R., Booth, K., & Reese-Smith, J. (2006). Obesogenic influences in public housing: A mixed-method analysis. *American Journal of Health Promotion,* 20(4), 282-290.

Rizza, R. A. (2006, March 28). Diabetes diagnosis crucial before complications develop [Letter to Dear Abby]. *Athens Banner Herald,* p. B4.

Rodham Clinton, H. (1996) *It takes a village.* New York: Simon & Schuster.

Roth, W.-M., & Calabrese-Barton, A. (2004). *Rethinking scientific literacy.* New York: RoutledgeFalmer.

Save the Children. (2002). *America's forgotten children: Child poverty in rural America*. Retrieved December 10, 2002, from www.savethechildren.org/americasforgotten.html

Satcher, D. (2005). HEALTHY and ready to learn. *Educational Leadership, 63*(1), 26-30.

Shearer, L. (2006). Leaders devising plan to decrease health problems. *OnlineAthens.* Retrieved October 1, 2007, from http://onlineathens.com/stories/012206/news_20060122017.shtml

Short, K., Schroeder, J., Laird, J., Kauffman, G., Ferguson, M., J., & Crawford, K., M. (1996). *Learning together through inquiry*. Portland, ME: Stenhouse.

Silverman, D. (2000). *Doing qualitative research: a practical handbook.* London: Sage.

Silverman, D. (2001). *Interpreting qualitative data.* London: Sage.

Smith, G. A. (2002). Going local. *Educational Leadership, 60(1),* 30-33.

Smith, D., L., & Lovat, T., J. (1991). *Curriculum action on reflection*. Wentworth Falls: Social Science Press.

Spindler, G. & Spindler, L. (2000). *Fifty years of anthropology and education.* Mahwah, New Jersey:Lawrence Erlbaum Associates.

Springer, M. (1994). *Watershed: A successful voyage into integrative learning*. Columbus, OH: National Middle School Association.

Stephens, S. (2000). *Handbook for culturally responsive science curriculum.* Fairbanks, AK: Alaska Science Consortium.

Stunkard, A. J., & Thorkild Sorenson, I. A. (1993). Obesity and socioeconomic status—A complex relation. *New England Journal of Medicine, 329(14),* 1036-1037.

Swan, B. G. (2004). Solving problems through action research: Engaging the teacher and student through exploratory learning. *The Agricultural Education Magazine*. *76(6),* 26-27.

Thorpe, L. E., List, D. G., Marx, T., May, L., Heigerson, S. D., & Frieden, T. R. (2004). Childhood obesity in New York City elementary school students. *American Journal of Public Health, 94*(9), 1496-1500.

Tobin, K., & Tippins, D. (1993). Constructivism as a referent for teaching and learning. In K. Tobin (Ed.), *The practice of constructivism in science education* (pp. 3-21). Hillsdale, NJ: Lawrence Erlbaum Associates.

Upshur, C.C. and Barreto-Cortez, E. (1995). What is participatory evaluation (PE)? What are its roots? The Evaluation Exchange, 1(3/4), 7-9.

U. S. Surgeon General rolls out 2005 agenda: The year of the healthy child. (2005). Retrieved October 6, 2005, 2005, from www.surgeongeneral.gov/pressreleases/sg01242005.html

Vitale, M. R., & Romance, N. R. (2007). A knowledge-based framework for unifying content-area reading comprehension and reading comprehension strategies. In D. McNamara (Ed.), *Reading comprehension strategies: Theory, interventions, and technologies* (pp. 73-104). Mahwah, NJ: Erlbaum.

von Glaserfeld, E. (1996). Introduction: Aspects of Constructivism. In C. T. Fosnot (Ed.), *Constructivism theory, perspectives, and practice* (pp. 3-7). New York: Teachers College Press.

Vygotsky, L. S. (1987). *The collected works of L. S. Vygotsky. Volume 1. Problems of general psychology. Including the volume Thinking and speech.* (N. Minick, Trans.). New York: Plenum.

Werstch, J. V. (2002). *Voices of collective remembering.* NY: University Press.

Windschitl, M. (2000). Constructing understanding. In P. Bolotin Joseph, Luster Bravmann, S., Windschitl, M., A., Mikel, E., R., & Green N. S. (Ed.), *Cultures of Curriculum* (pp. 95-114). Mahwah, NJ: Lawrence Ehrlbaum Associates.

Wiggington, E. (1991/1992). Culture begins at home. *Educational Leadership, 49(4),* 60-64.

Wolcott, H. F. (2002) Ethnography? Or educational travel writing? In Y. Zou, & E. T. Trueba (Eds.), *Ethnography and schools.* (p. 27-48). New York: Rowman & Littlefield Publishers, Inc.

Zahur, R., Calabrese Barton, A., & Raj Upadhyay, B. (2002). Science education for empowerment and social change: a case study of a teacher educator in urban Pakistan. *International Journal of Science Education, 24*(9), 899-917.

Zarafshani, K., Azadi, H., & Monfared, N. (2004). Seven steps for improving teaching through action research. *The Agricultural Education Magazine.* 76 (6), 15-16.

Zou, Y., & Trueba, E. T. (Eds.). (2002). *Ethnography and schools.* New York: Rowman & Littlefield Publishers, Inc.