SCHOOLING GIRLS IN A RURAL COMMUNITY: AN EXAMINATION
OF FEMALE SCIENCE IDENTITY AND
SCIENCE CAREER CHOICES

by

MELISA DIANE CREASY FOWLER

A DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Department of Curriculum and Instruction
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2010
ABSTRACT

There is a gap in existence between the number of males and females entering science careers. Research has begun to focus largely on how identity impacts the selection of such careers. While much research has been done to examine the factors that impact student identity, little work has been done to examine what happens to female students who have been successful in science in a rural K-12 school once they leave high school and enter the world of academia. Thus, this study examined the following questions:

1. How do three recent female high school graduates from rural K-12 high schools narrate their identity?
2. How do the females narrate their experiences in a rural community and high school in relation to their science identity?
3. What do the participants describe as influencing their academic and career choices as they transition into the life of a college student?

This study involved three female participants from a small rural community in a southeastern state. Each female has lived their entire life in the community and has attended only one K-12 school. All three females ranked in the top ten of their senior class and excelled in their science coursework. Additionally, each female elected to attend college locally and to live at home.
The study utilized the qualitative methodology of interpretive biography. The researcher used a guided interview protocol with participants which served as the basis for the creation of their narrative biographies. The biographies were then analyzed for emergent themes. Sociocultural theory, identity theory, and critical feminism provided the theoretical frameworks utilized in data analysis.

Findings from this study suggested that there were many differing factors influencing the science identity and career choices of the females under study. However, the most salient factor impacting their choices was their desire to remain in their hometown. Directions for future research suggestions involve exploring female students who elect to move from rural communities for their collegiate endeavors. Another suggestion was to interview those individuals deemed to be significant in the lives of the females to gain insights into their identities within different situations.
ACKNOWLEDGEMENTS

I would like to thank my husband, my son, and my extended family for being so supportive throughout my journey to the completion of this work. I am very appreciative of the sacrifices they made so that I could complete this phase of my career. Without their help, I would never have made it to the end. I would also like to thank Julie, Janie, and Sophie. Without them this study would not exist. Furthermore, I would like to thank my committee members for their contributions. In addition, I would like to offer my utmost gratitude to Dr. Marion J. (Dee) Goldston, my dissertation chair, for her patience, wisdom, and guidance in seeing this project to its fruition. She is an asset to the educational profession, and she is an invaluable part of the science community.
**CONTENTS**

ABSTRACT ........................................................................................................... ii

ACKNOWLEDGEMENTS .................................................................................. iv

CHAPTER I INTRODUCTION ........................................................................... 1

  Statement of the Problem ............................................................................. 3

  Research Questions ....................................................................................... 4

  Rationale ....................................................................................................... 5

  Significance of the Study ............................................................................. 6

  Overview of Study Methods ........................................................................ 7

  Limitations of the Study ............................................................................. 9

  Definition of Terms .................................................................................... 10

  Summary .................................................................................................... 10

CHAPTER II REVIEW OF RELATED LITERATURE ....................................... 12

  Science Literacy ......................................................................................... 14

  Conceptions of Identity ............................................................................. 18

  Student Identity Formation ......................................................................... 20

  Parental Influences on Identity ................................................................ 22

  Teacher Influences on Identity ................................................................ 26

  Science Identity ......................................................................................... 31

  Female Science Achievement .................................................................. 33
CHAPTER I

INTRODUCTION

Educators who profess to be feminist value the role that compassion, collaboration, respect for the ideals of others, and personal ideals play in education (Barton, 2003; Brickhouse, 2001; Mills, 1995; Noddings, 2003; Nyhof-Young, 2000). These notions reflect a feminist curriculum that seeks to achieve a sense of community and equity in a non-threatening environment. As such, the lines of gender are blurred so that all students receive equal opportunities to succeed (Nyhof-Young, 2000). Thus, feminist educators are always seeking to find a balance, and in doing so often take educational leaders to task in order to assure that their goal is achieved. In keeping with their agenda, many legislative policies and educational amendments have come into existence.

The passage of Title IX of the Educational Amendments of 1972 brought much attention to the fact that females were not treated equally in the school setting. Feminist pedagogy indicated that girls and boys were receiving very different educations. It seemed that science and math courses were geared more toward the male persuasion much to the exclusion of the females (Brown, 2006; Brickhouse, Lowery, & Schultz, 2000; Digiovanni, 2004; Klein, 2004; Maher & Ward, 2002; NSF, 2003; Owens, Smothers, & Love, 2003; Voyles, Fossum, & Haller, 2007; Tan & Barton, 2007). The Sex Discrimination Act was passed in an attempt to achieve equity among all genders. Also, in 1980, the Science and Engineering Equal Opportunity Act was passed
asserting that the United States uphold equity in the fields of engineering and science for all genders and ethnicities (Thom, 2001).

Much progress has been made to improve the disparity between the achievement of girls and boys in science since the 1970s. For instance, between 1971 and 1994, the number of females who entered college rose from 43 percent to 63 percent (Owens, Smothers, & Love, 2003). However, in the 1990s, 70 percent of females were leaving majors in science and engineering. Thus, much work remains to be done. Statistics indicate that women comprise 46 percent of the workforce. Of this percentage, only 22 percent hold science, math, or technology related careers (Monhardt, 2000).

This study emerged after studying a growing body of research centered on feminist work. More specifically, this research delves into female identity formation and their science career pursuits (Barton, 2003; Brickhouse, Lowery, & Schultz, 2000; Brickhouse, 2001; Eckert, 1989; Brown, 2006; Tan & Barton, 2007;). Within this body of work and pertinent to this study is the recognition that there is a multitude of influences that exert or shape individuals’ identities. For instance, society itself exerts norms and pressures early on that suggest males and females should conduct themselves in very different ways. This creates pressure however subtle at times to situate one’s self appropriately into those guidelines set forth by society (Head, 1997). Focusing on girls, Bucholtz (1999) stated that female identity is not a fixed entity; instead it begins early and is an ever evolving process that shapes females throughout their adolescent years while they shift in and out of several identities while choosing which social groups to join. Centering on female identities in science and how they perceive scientists, researchers have noted that the visions of scientists created during the formative years of a child may also impact later career pursuits (Steinke, Lapinski, Crocker, Zietsman-Thomas, Williams, Evergreen, & Kuchibhotia,
2007). Other studies in science find that boys are asked more difficult questions in science and manipulate the science equipment more while girls take on secretarial roles in inquiry activities (Brickhouse, Lowery, & Schultz, 2000). In spite of these issues, girls are successful in science.

This study is embedded within a small, rural southeastern community where girls are often successful in school science. However, research findings on rural schooling suggest that rural schools rarely meet the diverse needs and interests of students simply because career and college options are not always stressed (Jacobs, Finken, Griffin, & Wright, 1998). As a teacher, I wonder how these females see themselves with respect to science? How do they narrate who they are and if they see science related careers in their future? What happens to them when they take college science courses? How do they describe their transition? Given these many ponderings, this work sought to explore, through the use of interpretive biographies, what community and school influences shape female identity formation in science and what influences are salient in their transition from a small rural school and community into the college setting.

This chapter begins by presenting the statement of the problem, the purpose, rationale, and significance, and overview of the methods of the study. Last, the chapter concludes with terms, definitions, and limitations of the study.

Statement of the Problem

Women are often bypassed for power positions at many universities, and they often make less money. Too, women are more likely to leave positions in the field of science than men. Therefore, there are few females who actually reach the point of graduating with degrees in science and engineering (George, 2004). This phenomenon has created a mentality that science and engineering are masculine careers.
Research indicates that women have less confidence when applying for technical fields in science and engineering, so they are less likely than men to do so. Men are more likely to take the chance to apply for a position for which they are not the most qualified. Thus, they often are hired over women simply because the women fail to apply. Women may not get advanced jobs because they do not think they will be hired over men (George, 2004). This leaves researchers to ponder why this begins to take place. Something must happen before women reach the point of applying for powerful positions that falters their self-confidence. Therefore, research into female identity formation and how this formation impacts female transition into college and ultimately the adult world is needed. While much research has been done to examine the factors that impact student identity, little work has been done to examine what happens to female students who have been successful in science in a rural K-12 school once they leave high school and enter the world of academia. There is a paucity of research that explores female perceptions of their science identity in their rural small town and how this influences their future choices with respect to science careers.

Research Questions

This study will be guided by the following research questions:

1. How do three recent female high school graduates from rural K-12 high schools narrate their identity?
2. How do the females narrate their experiences in a rural community and high school in relation to their science identity?
3. What do the participants describe as influencing their academic and career choices as they transition into the life of a college student?
Rationale

Today’s world has become more technologically and scientifically demanding than ever before. Schools must prepare students to compete in this fast paced world in which we live. However, it seems that the underdeveloped science curriculum is forcing today’s students to lag behind. This lag seems to be particularly obvious among female populations and minority students. It seems that there is a gap between the number of males and females pursuing career paths involving the sciences, technology, and engineering (Monhardt, 2000). Thus, there is a need to investigate this discrepancy in the numbers of females in the sciences.

The aim of this study is to investigate female identity in science and what happens as females from a rural community transition from high school into higher education with participants who have been successful in their previous public school science coursework. There is a vast body of literature that has begun to focus on the underlying factors that may play a role in females opting out of sciences while in high school. Factors such as parental expectations (Cowley & Meehan, 2003), teacher expectations (Noddings, 1992), student self-confidence in science (Brickhouse, Lowery, & Schultz, 2000), and societal stereotyping (Tan & Barton, 2007) have all been linked to females remaining in science courses in high school. However, there is a void in the research associated with understanding what happens when females from rural communities graduate from high school and transition into the adult world to pursue college degrees.

Thus, this study examines those influences that impact female identity formation in science and the transition of successful females as they enter into higher education. In addition,
the study attempts to decipher how females view the impact of their school science identity on their decisions concerning science coursework at the college level, and upon the possibility of selecting a science-related major.

The study utilizes a qualitative research design, incorporating the interpretive biographical approach to create rich, thick descriptive narratives. The use of narrative in qualitative study allows one to gain deep understanding of the lives of research subjects (Barton, 2003). Also, the theory of narrative allows the experiences one has in day to day life to be internally conceptualized in a way that creates one’s identity (Bouchey & Winston, 2004). Prusak and Sfard (2005) concur that narratives as told by self and others can be beneficial to researchers engaging in identity studies because the narratives as perceived by those telling the story as well as by those listening to the story being told can shape the choices one makes concerning future endeavors. Accordingly, the researcher engaged in and utilized interviews with the research participants as primary data sources to construct biographies narrated in the words of each participant.

Significance of the Study

Research indicates that as students progress through school, various influences impact female identity formation. There is a wealth of research examining factors that affect identity while in school. Brickhouse (2001), Brown (2006), Davidson (1996), and Tan and Barton (2007) have all engaged in studies that contribute to the body of existing research. Other researchers have examined how those identity factors impact the transition of school drop outs into the adult world (Smyth & Hattam, 2004). However, little work has been done to examine how identity in science impacts the transition of high school female graduates from rural communities who were successful in science into institutions of higher education. Thus, the
researcher followed three recent female graduates as they completed their first semester of college. The methods utilized in the study also provide a rich description of the participants’ small rural community giving greater insight into the participants’ narrated identity, associated experiences, and social interactions as they transitioned into college. The findings from this study will allow researchers to gain insights into how the rural life experiences and schooling play a role in shaping females’ identities when it comes to pursuits related to science.

Overview of the Study’s Methods

The nature of the research questions presented in this study lends themselves to qualitative methodology. Qualitative research is indicated when the research is taking place about the existences of people, their life experiences, actions, emotions, and feelings as well as how they are impacted by the events taking place in the world around them (Strauss & Corbin, 1998). Accordingly, qualitative methods are appropriate for this study which examines how females who attended a rural, K-12 school view their science identity upon graduation and explores what happens as they enter their first semester of college with respect to selected college science coursework and career pursuits.

To best achieve the purposes of the study, the research participants were studied within the context of their home community. The researcher delved into the worlds of the participants utilizing interpretive biographical methodology. Denzin (1989) defines interpretive biography as, “creating literary, narrative accounts and representations of lived experiences. Interpretive biographies are the telling and inscribing of stories” (p. 11). Cole and Knowles (2001) add the assertion that “biography is an art dependent on fact” (p. 17). Likewise, Atkinson (1998) suggests that a life story is “a narrative form of qualitative research methodology for gathering information on the subjective essence of one person’s entire life” (p. 3). Denzin goes on to offer
assumptions that are often taken for granted when creating biographies. These include: “1) the existence of others 2) the influence and importance of gender and class 3) family beginnings 4) starting points 5) known and knowing authors and observers 6) objective life markers 7) real person with real lives 8) turning-point experiences and 9) truthful statements distinguished from fictions” (1989, p17). These basic assumptions connect with the goals of this study with its underpinnings associated with identity and sociocultural theory.

The aim of this study is to create biographies of three young women. The biographies are steeped in the use of thick descriptions. Thick descriptions “enable an event to be recreated along with as much of its context as possible” (Gall, Gall, & Borg, 2003 p. 439). Utilizing personal experiences allow for new awareness and enlightenment of a particular phenomenon (Denzin, 1989). Thus, biographies were created to capture the complicated dimensions of human experience as influenced by the social and cultural settings in order to convey the perspectives and stories of the young women negotiating those experiences. The life stories were shaped through dialogue between the researcher and the participant – each one participating in the creation of narrative images (Lawrence-Lightfoot, 1997).

In life story interviews, the interview subject serves as “a storyteller, a narrator of the story being told, whereas the interviewer is a guide or director in this process” (Atkinson, 1998 p. 9). The stories presented were of the participants own selection and were represented in their purest form in an attempt to give a natural voice to those whose stories would otherwise go unheard (Atkinson, 1998; Cole & Knowles, 2001; Denzin, 1989). The three subjects under study were selected because they excelled in the school science classroom and graduated in the top ten percent of their class from a rural K-12 high school. The high school counselor worked with the
researcher to provide information on which females met the ascribed criteria for the purposeful sample. These participants were asked to engage in in-depth interviews.

Interview data were directed toward the females’ thoughts, memories, experiences, and actions related to significant people and events that they deem have played central roles in their lives, as well as experiences in science that have framed their relationships with science and shaped their perceived science identities. Biographies were created from multiple data collected for each participant. Narrative constructions for this study are storied accounts of human affairs which unfold according to its own time, deals with particulars which often fall into genres, reveal actions with reasons, are meant to be understood interpretatively, and are sensitive to conventions of society (Bruner, 1996). All data were coded and analyzed inductively, sorted and analyzed for categories. Categories were examined across the participants for patterns that developed into themes across the biographies for the interpretations.

Limitations of the Study

There are implicit limitations in all research. This study is constrained by several issues. First, qualitative methodology is not readily generalizable to other populations and according to Stake (1995) it is not the actual intent of such research. This study focuses on gaining understanding about successful female high school graduates’ identities in science and what happens to them as they enter college. Other constraints or limitations are related to the participants’ abilities to recall and articulate their thoughts and actions as well as the researcher’s reconstructions of the events, words, and actions of the participants. The strength of this study derives from shedding light upon the unique characteristics of the three rural girls’ success in science in high school and their journey into college. In addition, the nature of identity as an
entity that is socially-constituted, dynamic and constantly evolving is limiting and only visible if the person representing self allows certain aspects of their identity to be seen.

Definition of Terms

Culture – the setting in which one exists and interacts.

Identity – the type of individual one is viewed as being at any given moment in time and in any specific situation (Tan & Barton, 2007; & Lee, 2002). Identity can evolve at any moment during engagement in society (Brown, 2006).

Narratives – use of a conversational method to gain insight into lived experiences, both socially and personally (Gall, Gall, & Borg, 2003).

Peer group – the group of friends selected by an individual for social engagement.

Peer pressure – the pressures levied by one’s peers for an individual to conform to the desires of the group.

Science Identity – a student’s awareness of self as related to peers and how science affords opportunities to improve personally (Kozoll & Osborne, 2004).

Science Literacy – the ability of a person to inquire, seek out, or establish answers to questions construed from curiosity about daily life events (National Science Education Standards (NSES), 1995).

Stereotypes – beliefs about what qualities are considered the norms for males and females as well as beliefs about appropriate behavior for males and females (Kessels, 2005).

Summary

Chapter one presents the background for the study of females’ identities in science that transition from high school into higher education, and how their lived experiences, particularly
science experiences, affect their choices of college science coursework and careers in science. The study questions include the following:

1. How do three recent female high school graduates from rural K-12 high schools narrate their identity?
2. How do the females narrate their experiences in a rural community and high school in relation to their science identity?
3. What do the participants describe as influencing their academic and career choices as they transition into the life of a college student?

In addition, the chapter provided a brief overview of the purpose, rationale, significance of the study, and the research methodology. The chapter concludes with limitations of the study and definitions of key terminology related to the study.

Chapter II focuses on a comprehensive review of literature. This review begins with a study of science literacy which is the long term goal of science education and the problems associated with it. Following a discussion of scientific literacy is a detailed review of the construct of identity and the factors believed to impact identity. Discussions of people such as parents, teachers, and peers that influence identity are examined, as well as the issues of stereotyping and peer pressure.
CHAPTER II
REVIEW OF RELATED LITERATURE

Today’s world has become more technologically and scientifically demanding than ever before. Schools must prepare students to compete in this fast paced world in which we live. However, it seems that the underdeveloped science curriculum is forcing today’s students to lag behind. This lag seems to be particularly obvious among female populations and minority students. It seems that there is a gap between the number of males and females pursuing career paths involving the sciences, technology, and engineering (Monhardt, 2000). Thus, it becomes necessary to investigate this discrepancy in the numbers of females in the sciences.

The passage of Title IX of the Educational Amendments of 1972 brought much attention to the fact that females were not treated equally in the school setting. Feminist pedagogy indicated that girls and boys were receiving very different educations. It seemed that science and math courses were geared more toward the male persuasion much to the exclusion of the females (Brown, 2006; Brickhouse, Lowery, & Schultz, 2000; Owens, Smothers, & Love, 2003; Digiovanni, 2004; Klein, 2004; Maher & Ward, 2002; NSF, 2003; Owens, Smothers, & Love, 2003; Voyles, Fossum, & Haller, 2007; Tan & Barton, 2007). Therefore, the Sex Discrimination Act was passed in an attempt to achieve equity among all genders. This inequity issue continued and in 1980, the Science and Engineering Equal Opportunity Act was passed asserting that the United States uphold equity in the fields of engineering and science for all genders and ethnicities (Thom, 2001).
Much progress has been made to improve the disparity between the achievement of girls and boys in science since the 1970s. For instance, between 1971 and 1994, the number of females who entered college rose from 43 percent to 63 percent (Owens, Smothers, & Love, 2003). However, in the 1990s, 70 percent of females were leaving majors in science and engineering. Thus, much work remains to be done. Statistics indicate that women comprise 46 percent of the workforce. Of this percentage, only 23 percent hold science, math, or technology related careers (Monhardt, 2000). The Association for Women in Science (AWIS) formed in 1971 to examine issues of women in the sciences. This organization has set a goal of raising the percentage of women in science, math, or technology careers to 50 percent by 2020 (Thom, 2001). Studies of female science identity formation could lend to reaching this goal.

The aim of this study is to investigate the transition from a rural high school to adulthood for females who have proven successful in their science coursework. There is a vast body of literature that has begun to focus on the underlying factors such as parental influences, teacher influences, stereotyping in the social and academic settings, and peer group influences that may play a role in females opting out of sciences while in high school.

Research indicates that a parent’s views of their offspring’s capabilities can impact their confidence and abilities (Bouchey & Winston, 2004; Jacobs, Finken, Griffen, & Wright, 1998). Likewise, teacher/student interactions as well as the provision of a non-threatening environment can increase the formation of a positive science identity (Tan & Barton, 2007). The experiences of stereotyping and marginalization can impact a female student’s desire to participate in the science classroom (Tan & Barton, 2007). Peer group affiliations have also been indicated by research to have either a positive or negative effect on student choices and outcomes (Head, 1997; Smyth & Hattam, 2004). These areas are explored in-depth in this review of literature.
Upon researching these areas, a gap begins to emerge when considering the influence of 
geographic location upon female science identity. The gaps are particularly prevalent when 
considering females from rural populations who have attended rural K-12 schools for their entire 
academic career. Thus, this study uses the existing literature as a springboard into this 
investigation in order to answer the following research questions:

1. How do three recent female high school graduates from rural K-12 high schools 
narrate their identity?

2. How do the females narrate their experiences in a rural community and high school in 
relation to their science identity?

3. What do the participants describe as influencing their academic and career choices as 
they transition into the life of a college student?

In order to ascertain what occurs with females concerning science achievement and 
career pursuits, it becomes necessary to examine many areas. The areas that lend themselves to 
this study are: science literacy, identity formation, science identity, and female achievement in 
science. The literature review also includes an investigation of factors that impact female 
identity including parental influences, teacher influences, peer influences, and influences from 
the culture, particularly rural culture.

Science Literacy

Effective spoken and written communication is crucial to every aspect of life (Science for 
All Americans, 1990). Therefore, concern over science and technology literacy has come to the 
forefront. Schools must prepare students to compete in this fast paced world in which we live. 
Thus, a call for schools to push for science literacy emerges. Schools should produce scientists 
who have some grasp of literature, art, cultures, politics, languages, and especially written and
oral communication skills (Greenwood, 1999). Flower (2000) stated that schools must teach students to read scientific literature, decipher its meaning, and communicate that meaning effectively.

Science literacy encompasses the above suggestions and emerges as the ability to develop science understanding, synthesize the big topics in science, and communicate with others about those science ideas while helping them to determine appropriate actions to take. The National Science Education Standards (NSES) has defined science literacy as the ability of a person to inquire, seek out, or establish answers to questions construed from curiosity about daily life events. A science literate person has the ability to describe, define, and foretell natural occurrences (NSES, 1995). Science literacy calls for long term learning and not just rote memorization of facts.

To achieve science literacy for all, science must shift from being a presentation of facts as a fixed entity, into an evolving way of knowing that can impact the relationship between one’s self and the natural world (Kozoll & Osborne, 2004). So often, memorization of facts is considered science. However, science literacy should focus on one’s ability to communicate, question, and debate scientific issues in society. Science literacy also encompasses the ability to accept that scientific knowledge is not permanent, and it is ever evolving as new evidence emerges (Hand, 1999).

There are three major documents that can be consulted when examining the aspects of science literacy. Those documents are the NSES, Science for All Americans, and Benchmarks for Science Literacy. The National Research Council developed the NSES, while both Science for All Americans and Benchmarks for Science Literacy were developed as a part of the American Association for the Advancement of Science’s (AAAS) Project 2061. All three
documents cite communication as playing a major role in science literacy (Benchmarks for Science Literacy, 1993; NSES, 1995; and Science for All Americans, 1990).

The NSES (1995) indicates that an important phase of inquiry and of a student’s knowledge of science is the spoken and written communication that guides the attention of students to how their knowledge is obtained and how it stretches to other areas of the curriculum and the outside world. Teachers, according to the standards, facilitate this discourse by asking students to record their work, and by introducing them to many forms of communication. The standards also suggest that teachers should teach skills necessary for the effective recording of ideas.

Similarly, Science for All Americans (1990) has ascribed to the belief that effective spoken and written communication is crucial to every aspect of life, and it should hold a place of extreme importance across the curriculum in every grade. Science teachers should especially concentrate on clear communication because much of science learning depends on expressing methods, results, and concepts while also interpreting the work of others. This document explicitly states that students should be able to communicate using illustrations and arguments to support learned concepts.

Accordingly, Benchmarks for Science Literacy (1993) has claimed that the expression of scientific discoveries is a very real part of science literacy. It is suggested that students be actively involved in doing science investigations, but also that, by middle school, students should engage in reflection on learning. Effective communication is vital to science because it allows scientists to introduce others to their work while receiving critiques of the work by other scientists. Communication also allows the scientist to remain attuned to the scientific occurrences taking place in the surrounding world.
The National Science Foundation (2003) asserts that a concrete background in science is crucial to interpreting how to use new knowledge that is becoming available through rapid advancements in technology and medicine. Science knowledge is equated with a desire to gain understanding of how the world works while also gaining information on how to survive and thrive in discussions about work, morals, and citizenship roles in the community at large (Tan & Barton, 2007). Thus, science, mathematics, and technology are expected to play a crucial role in the futures of today’s youth if they are to have a successful, fulfilled livelihood and maintain an economically sound country (Bouchey & Winston, 2004).

Therefore, science literacy, by definition, should encompass the science involved in daily living. Student voice and conversation should be considered when establishing the scientific literacy of an individual. Also, scientific knowledge must be presented in a culturally relevant arena before students can effectively use the newly learned content (Brown, Reveles, & Kelly, 2005). Science pedagogy needs to engage students in conversations about how science concepts relate to their daily lives, but a disconnect often exists between the world of students and the science world (Kozoll & Osborne, 2004).

The very language of science often caters to certain populations from privileged backgrounds at the exclusion of participants lacking the background knowledge or interest. Therefore, racial groups, females, and the less wealthy students may be excluded from achievement in the science classroom. Science discourse poses problems for some minority groups when it comes to science knowledge acquisition. Thus, the difficulty of understanding the language of science poses problems to some students when attempting to become science literate (Brown, 2006).
There are often discrepancies in existence between the attributes pupils carry into the school setting and the science classroom and how those in authority, such as educators, administrators, and researchers overlook those attributes. Those in power are often too busy focusing on the areas where students are lacking. A focus on the strengths of students and their background knowledge rather than on their shortcomings, forces one to change the view of what it means to be a scientific literate person (Barton, 2003).

Conceptions of Identity

Identity is often defined based on how one presents self in a plethora of social settings in keeping with the expectations of behaviors levied by others. The different situations that arise in the day to day lives of youth often dictate which identity the young person will allow to be exhibited at any instance because social expectations and an attempt to conform to societal norms often inhibit adolescents from presenting the true self (Davidson, 1996). Thus, identity may be defined as the type of individual one is viewed as being at any given moment in time and in any specific situation (Gee, 2001; Lee, 2002; Tan & Barton, 2007).

Because identities are created through social interaction, identity can evolve at any moment during engagement in society (Brown, 2006). Tan and Barton (2007) suggest that identities are social constructs which evolve within communities in which the person is interacting at a said time. Therefore, identities are often based on the reactions of others (Brickhouse, Lowery, & Schultz, 2000). Thus, identity formation consists of a process where youth are developing a sense of value and self-esteem while struggling with their inner being and the social world where they exist. Identities are further created through the navigation within the parameters, practices, and means that are made available for use in making sense of the world (Gee, 2001; Smyth & Hattam, 2004).
Kozoll and Osborne (2004) cite that the groundwork for identity is laid in the understanding of self. Identity is often determined by one’s belief system about who she is based on events from her past and expectations of the future (Brickhouse & Potter, 2001). The social interactions of children, both past and present, influence their identities (Buckner & Fivush, 1998). Individuals tend to develop different identities based on different circumstances (Gee, 2001). For example, one behaves and exhibits different identity roles at work than at home (Echabe & Castro, 1999). Accordingly, much of today’s youth are forced to live with multiple ways of being – they present one identity at home, another with friends, and then are forced to adopt yet another identity within the confines of school (Smyth & Hattam, 2004).

The components of one’s identity includes their lived past, their background knowledge, their morals, religious ideals, and cultural experiences (Barton, 2003). Identities can be shaped by sex, ethnicity, and socioeconomic factors (Brickhouse, Lowery, & Schultz, 2000). Therefore, the number of identities one will possess and exhibit is greatly determined by the complexity of the society in which the person lives and interacts (Echabe & Castro, 1999; Gee, 2001). Thus, identity can be viewed as role-playing by students who create roles in order to survive in the world in ways that are expected of them at any given time in any situation (Brickhouse, Lowery, & Schultz, 2000). An individual’s identity is constantly evolving and never reaches the point of completion because it changes in any given social construct (Gee, 2001; Smyth & Hattam, 2004). Also, identity is influenced by individual design and the surrounding societal restraints that prohibit certain individuals from fully reaching the identities they so desire (Brickhouse, 2001). Because it is the values and perceptions adopted during adolescence that children take into adulthood, it becomes increasingly important to examine these facets of identity formation (Eckert, 1989).
Student Identity Formation

The identity of young people is constantly evolving as they interact with the world through their peer networks, societal messages, cultural lives, home lives, and school (Smyth & Hattam, 2004). Thus, the formation of teen identity is multidimensional and is impacted by many different influences (Hartnett, 2007). This is crucial information because the identity that is shaped during the teen years can have a lasting and definite effect on the adult years that are forthcoming (Kinney, 1993). It is the goal of youth to become somebody as they negotiate their school life with a life that will gain them financial independence (Smyth & Hattam, 2004). This is the rationale behind the idea that students form groups and adopt identities within those groups in an attempt to negotiate an existence in the grown up world (Eckert, 1989). Therefore, the academic setting of school can play a key role in the future endeavors of youth.

Academic identities of pupils can be forged by engaging in minute-by-minute creation and recreation of norms, values, and expectations (Reveles, Cordova, & Kelly, 2004). Oftentimes, students are at odds within themselves when attempting to determine their identity. If they accept the identity of academic achiever, their peer groups may reject them and vice-versa (Brown, 2006). However, because a student’s identity is a combination of the perceived self and the person the student hopes to eventually become, the circumstances surrounding the lives of students, especially the impoverished, impacts their ideals about education. They are often led to the conclusion that education can help them create a better and different identity than the one they are currently living (Kozoll & Osborne, 2004).

Academic identities are constantly created and recreated as students define themselves as members of a particular community in a particular context while interacting in a particular way (Reveles, et al., 2004; Tan & Barton, 2007). Kozoll and Osborne (2004) state that identity is
constructed as individuals engage in contact with and interact with others socially. Therefore, one can conclude that student identities are formed from their perceptions of the world, their culture, and their knowledge of self. Thus, one cannot possess a specific identity as plausible based on the actions of the individual (Carlone & Johnson, 2007). For this reason, students often create identities based on school expectations instead of on personal attributes and desires (Brickhouse & Potter, 2001).

The pressure of conforming to school expectations can positively or negatively impact student identity formation. The power positions that exist inside the classroom, and in society, have a very different impact on identity (Brickhouse & Potter, 2001; Tan & Barton, 2007). Because identity refers to the ways in which one interacts with their environment and the perceptions of others about those interactions, the instructional methods and interactions that take place inside the classroom, as well as the conversations that occur allow students to constantly redefine themselves and constantly transform their identities (Brickhouse & Potter, 2001; Reveles, et al., 2004). Through mediation with peers and teachers, the pupils’ ideas about self-image are adjusted to satisfy what is expected from the other participants and the teacher (Reveles, et al., 2004). Thus, teachers have an impact on student identity formation through interactions in the classroom, and careful choices in pedagogy and classroom management strategies become crucial (Brown, et al., 2005; Tan & Barton, 2007). This information is imperative because gaining self-concept and the knowledge of whom one is defines a person’s actions and personality traits throughout the rest of life (Kessels, 2005).

Smyth and Hattam (2004) engaged in a study of recent school dropouts. The researchers interviewed students about their reasons for leaving school. Many of the informants cited that the school setting is more about social activity than learning. It was also ascertained that the
process of becoming somebody is intertwined between navigation into the adult world of work and developing a social identity. Therefore, becoming emotionally and physically equipped to live in the grown-up world requires a change in the relationships with guardians and educators alike (Head, 1997).

Parental Influences on Identity

Students often create an identity formed out of interaction within the home before entering school (Davidson, 1996). By instilling their same moral codes and perceptions into their children while they are young, identities are shaped very early in life (Liao & Cai, 1995). Also, the religious, societal, and moral values possessed by one’s parents plays a role in what a child is likely to attend to in the academic world and thus, to learn (Jensen, 2000). Likewise, family life plays a major role in the creation of self-esteem, aspirations, and emotional stability early on in childhood (Alomar, 2006).

A family that rears children in a positive atmosphere can impact learners by giving them a sense of power and self-confidence which can carry over into learning (Jensen, 2000). According to research, a parent’s views of their offspring’s capabilities can impact their confidence and abilities (Bouchey & Winston, 2004; Jacobs, Finken, Griffen, & Wright, 1998). Also, parents set definite boundaries between girl activities and boy activities very early on in life by giving boys more thought-provoking toys and girls more quiet, less active toys (Owens, et al., 2003). Therefore, parental ideas about gender specific activities and the appropriateness of those activities along with beliefs about their child’s capabilities greatly impact a child’s perceptions of their own abilities (Jacobs, et al., 1998). However, there is often a disconnect between what some students believe about themselves and what their parents believe. The goals
held by family members are often higher than the goals students have for themselves (Cowley & Meehan, 2003). Thus, parental influence can greatly impact math and science achievement.

Parent’s beliefs of their child’s capabilities to perform well in math and science, as well as their own attitudes toward these subjects have a direct correlation with their offspring’s confidence and self-esteem relating to those subjects later in life (Jacobs & Bleeker, 2004). Research indicates that students who have parents who never completed high school score lower in math and science than students from families where parents hold high school diplomas (NSF, 2003). This could be due in part because the vocalizations and body language demonstrated by parents toward those subjects can often send negative messages to their children (Jacobs & Bleeker, 2004). Also, they may actually impair their daughter’s abilities to enjoy science by pushing more feminine toys on them while they are young to the exclusion of more manipulative, thought-provoking toys (Brickhouse, et al., 2000). According to research, when parents engage students in activities related to science at home, their confidence goes up (Jacobs & Bleeker, 2004). Therefore, parents can help influence attitudes toward science by creating opportunities outside of school for both male and female to experience science through various means such as vacations, television programs, reading opportunities, and other scientific endeavors (Farenga & Joyce, 1998). However, this may be difficult for some families because of financial constraints.

Parental socioeconomic status can impact the achievement of students in math and science because students from impoverished backgrounds lack the opportunities that are received by students from wealthier existences (NSF, 2003). This can be especially true for students living in single parent homes. Single family incomes tend to be smaller than those households
with dual incomes. Therefore, opportunities may not exist for activities promoting math and science.

While early in life, parents and other guardians play a key role in the definition of the identity of their children, upon entrance into a social setting such as school, that identity may become altered from the one predetermined by parental influence (Davidson, 1996; Head, 1997). By setting stringent regulations on children, parents may play a key role in influencing or confining the interactions that occur between peers. Likewise, the amount of energy that parents put into creating basic social skills can impact a child’s ability to sustain relationships with friends, and can even influence who they choose to become friends with and how the friendship progresses (Brown & Mounts, 2007). Thus, the role of parents can be crucial in the social identity forged in preadolescence, but as children progress through adolescence, it becomes imperative that they self-select choices that allow them to establish their own identity along the way to adulthood (Head, 1997).

The support of family members has demonstrated positive implications, particularly for the development of female identity when entering adolescence (Saitzyk & Poorman, 1994). Because females often strive to please others, they may work to meet the expectations of their parents (Brickhouse, et al., 2000). Females are often expected to assume the actions and dispositions of their mothers, while males are expected to acquire the traits of their fathers. Therefore, mothers sometimes play a greater role in shaping female identity than fathers (Liao & Cai, 1995). Because women are influenced to a great degree by the same sex parent, the educational attainments of mothers and their perceptions of their daughter’s abilities impact the educational goals of many females (Reeder & Conger, 1984). Also, fathers can often create a stigma about what is appropriate behavior for females by never asking them to participate in
routine tasks such as household repairs (Brickhouse, et al., 2000). However, Brickhouse and Potter (2001) suggest that fathers can impact the achievement of females in subjects considered more geared toward males.

While females who have parents who are supportive, caring, and attuned to their needs tend to be more well-equipped to succeed in the pursuit of careers considered nontraditional for women, it is not always clear which parent plays the key role in such choices (Scott & Mallinckrodt, 2005). In a study by Gilbert and Calvert (2003), it was discovered that some women chose the nontraditional field of science as a career in order to escape the possibility of ending up like their mothers living in an oppressive environment where females are less valued. Many female scientists reportedly followed the pursuit of a scientific career because they had mothers who had always maintained traditional female career roles that had left them restricted by the birth of children and rearing a family. This was unappealing to the females under study who professed to desire more for themselves. Other females cited that their interest in science rose out of their goal of becoming successful and respected in the career world like their fathers, even if they did not have an ideal relationship with him.

Parents often place emphasis on high salaried occupations for males, while females rely on the opinions of their friends in career choice because the career for girls is not emphasized by parents (Head, 1997). Therefore, Furlong (1986) suggests that the primary influence of a female, either positively or negatively, when setting career goals is her mother and other female friends. Also, the success of a female’s mother working in a nontraditional career may greatly impact the success of the female (Reeder & Conger, 1984).
Teacher Influences on Identity

American schools are charged with conveying mainstream culture and values into today’s youth, and teaching those students to survive successfully within those values and traditions (Eckert, 1989). Therefore, high schools often serve as arenas where youth struggle to negotiate their future while continually evolving into the adult person they will carry into the adult world (Smyth & Hattam, 2004). Accordingly, students who come from traditional homes where academics is a priority, learn very early on that schooling leads to a successful future, while students from nontraditional environments discover that educational endeavors can be a source of failure and elicit feelings of humiliation (Eckert, 1989). Therefore, when certain groups of students come to the realization that school is not going to rescue them from the sometimes less than desirable life they have been forced to live, they act out in defiance and aggression because of feelings of hopelessness (Haynie & Payne, 2006). This can lead to power struggles in the school setting.

A conflict often exists in high schools between maintaining control and assisting in the development of an independent, autonomous individual. Thus, the power structure operating inside schools have an immense impact on social and academic discourse (Smyth & Hattam, 2004). It is inside the school that students learn a sense of morality and gain an understanding of the socioeconomic self. While high schools serve the task of getting those groups who conform to academic standards ready for college, those same schools often fail the groups who plan to pursue lives in the workforce upon leaving school (Eckert, 1989; Smyth & Hattam, 2004). Also, students who are fortunate enough to come from strong economic backgrounds are often involved in many extracurricular activities, and are appreciated more by faculty, while students who come from more financially strained backgrounds are excluded from extracurricular
involvement and often feel less appreciated (Eckert, 1989). Therefore, schools tend to lump every student into the same categories of pupils desiring the same common goals and possessing the same opportunities both economically and socially. Some schools even use disciplinary guidelines set forth by the administration to weed out the undesirables. Seemingly, success in the academic world often forces students to bury their social identity and perform as an actor on a stage within the confines of very strict rules governing what is acceptable for a “good” student (Smyth & Hattam, 2004).

The personnel in the school convey to students where they fit by societal standards, and how to perform in that set space (Eckert, 1989). Unfortunately, informants in Smyth & Hattam’s (2004) study cite that a lack of caring about what happens to students occurs inside the walls of the school. In a world where school violence and teen pregnancy is on the rise, children have a greater need and longing to know that they are cared for and they are safe (Noddings, 1995). In addition, experiences that are incurred while in school convey to youth a sense of their strengths and weaknesses, thus influencing future life choices (Head, 1997). Therefore, educators hold ultimate power because it is the educator who represents the realistic view of the world for the pupil (Noddings, 1992).

Because a generational gap and a gap in locus of control (expectations of who is in charge) may exist between educators and pupils, instructors often struggle to cope with the evolving world of today’s students (Smyth & Hattam, 2004). Teachers can influence identity by demonstrating particular actions and values held by them and the society in which they live (Anderson & Cavallaro, 2002). Also, the diverse make up of differing personalities among students in a classroom creates an atmosphere of agreement or disagreement with the instructor’s plan of study. High school teachers are often so content driven, that they fail to recognize the
differing abilities and dispositions of the students assembled before them (Pierce, 2005). However, teachers should strive to utilize multiple teaching techniques in order to engage students from all walks of life and all backgrounds (Barton, 1997).

The unspoken words of teachers and their actions are part of a “hidden curriculum” that may overpower the regular curriculum (Owens, et al., 2003). While pupils are well aware of how to manipulate the curriculum, they almost seem powerless to adapt it to support creative freedom (Smyth & Hattam, 2004). As students interact in a less structured classroom setting where they are allowed to engage in dialogue, they are enabled to interact in such a way that they can shape and form their identity by sorting out ideas using means that make sense to them and their peers (Willett, 2006). However, a silencing of students can occur when educators fail to allow for freedom of expression and fail to openly listen to student opinions (Maher, 1999; Smyth & Hattam, 2004). This silencing can lead to a power struggle inside classrooms where students are forced into defiance because of a feeling of alienation and lack of voice (Smyth & Hattam, 2004). This results in educators who are forced to attend to the loud, disorderly students for the sake of maintaining control while the needs of the silent, withdrawn student is often overshadowed (Head, 1997).

Teachers may silence some students while empowering others simply by the way they conduct their daily classroom routines (Maher, 1999). Research indicates that teachers often pay less attention to girls than boys (Owens, et al., 2003). This may be due, in part, to the fact that it is often the boys who tend to be louder and seek more attention than girls. Thus, teachers tend to allow the more vocal attention-seeking boys to divert attention away from girls (Digiovanni, 2004). These attention demands in a classroom by boys can often hurt the self-confidence of girls as they are overlooked (Maher & Ward, 2002; Owens, et al., 2003). Many teachers cite an
awareness of differences in learning styles for girls and boys, and claim that they do not
demonstrate bias for one gender over the other, but instead teach to the differing needs of the
students (Voyles, Fossum, & Haller, 2007). Unfortunately, research sometimes indicates a lack
of awareness among the teachers of the fact that they are diverting more attention to one group
over the other.

Males and females have different interests, interactions, and needs that can impact their
achievement, and educators often gear instruction more toward the males (Voyles, et al., 2007).
This can greatly impact the self-confidence of females. Klein (2004) examined school age
students in an attempt to decipher at exactly what age a lack of confidence begins to impact the
achievement of girls in science. Researchers looked at the grades that were received in science
courses for 3446 students. They compared grades for both males and females, also looking for
discrepancies between teachers concerning gender. It was found that there is little difference in
science achievement between the girls and boys at the elementary level, but this begins to change
around junior high, and definite differences, especially in physics and general science emerge at
the high school level. Also, during the study, researchers found that teachers engaged boys more
than girls by asking boys the harder more scientific questions. Brickhouse, Lowery, & Schultz
(2000) ascertain that teachers tend to ask boys the difficult questions in science because they
often have lower expectations of girls than boys when it comes to thinking scientifically.

The classroom environment often can inhibit a female from participation in science. For
instance, the oversight of females by teachers in lieu of males can impact the female self-image
(NSF, 2003). While a teacher’s perceptions and attitudes toward a subject may convey unspoken
messages to their students, they must seek ways to make connections between the self-image of
males or females and the learned perceptions of scientists (Lee, 1998; Lunn, 2002). Primary
teachers often lack content knowledge, and they may feel ill-equipped to teach science to their students (Lunn, 2002). However, a teacher’s attitudes toward science may affect the way it is perceived by students (Nyhof-Young, 2000). Also, preconceived notions of scientists held by educators may cause them to misinterpret a student’s classroom involvement or lack thereof as lack of ability to do science, when in reality they desire and possess knowledge of science that extends beyond the routine classroom (Tan & Barton, 2007).

Due to the social nature of science, instructors should not only maintain deep understanding of content, but should also harvest methodology that reaches the multiple interests and learning styles of those students housed in the classroom (Barton, 1997). The National Science Foundation (2003) asserts that a classroom environment that promotes science inquiry, offers opportune moments for interesting discussion, and connects subject matter to the interests of students can enhance the desirability of science. Thus, teachers need to make science relevant to the lives of their students (Elgar, 2004).

Teachers impact student identity by taking on the role as the possessor of scientific knowledge, and as they impart their knowledge to the students, students must find their place in the science classroom and form their scientific identity by how they choose to interact with the knowledge being imparted (Tan & Barton, 2007). Unfortunately, finding their place in the science classroom may prove difficult for girls when males often dominate the science classroom, even in small group settings, taking over materials and content, while expecting girls to serve in a clerical role writing down information (Brickhouse, et al., 2000). However, by creating opportunities for social engagement while actually engaging in science, math, and engineering activities, educators can help create and strengthen science identities among students (Lee, 2002).
Science Identity

Science identity can be defined as a student’s awareness of self as related to peers and how science affords opportunities to improve personally (Kozoll & Osborne, 2004). Science identities form and change as students make choices in the science classroom about the ways in which they choose to participate, by the questions they ask, and by their decisions about how involved they will be with the science content (Tan & Barton, 2007). Thus, science identities can be created by allowing students to convey their notions about science in their own novel manner, therefore providing opportunities for the learners to create meaning (Reveles, et al., 2004).

Likewise, a person with a strong science identity displays competence while using scientific concepts in an attempt to learn about the world utilizing science. This person can also demonstrate an understanding of science by displaying an ability to utilize science equipment. Too, the person views self as scientifically oriented and talented in science (Carlone & Johnson, 2007). Brickhouse, Lowery, & Schultz (2000) assert that students must view themselves as scientists if they are to achieve in science. Thus, science identity encompasses not only knowledge of science, but how the student interacts during science class in relation to their personality and the person they want to be (Brickhouse, 2001). Accordingly, one’s science identity can be impacted by sex, ethnicity, and cultural identities (Carlone & Johnson, 2007).

If students are to have opportunities to establish their science identities, learning episodes must be afforded that allow them to decipher meaning from the previous knowledge and to acquire this meaning as a part of a community instead of expecting them to merely take the knowledge dispensed at face value with no regard to their own ideas (Reveles, et al., 2004; Tan & Barton, 2007). Through the opportunities to formulate and convey ideas about science,
students gain confidence as useful members of the classroom scientific community (Reveles, et al., 2004). Unfortunately, students often have difficulty equalizing their identity and the use of science discourse (Brown, 2006). However, teacher/student interactions as well as the provision of a non-threatening environment can increase the formation of a positive science identity (Tan & Barton, 2007). The way teachers label a student’s participation in science class and the value of the responses they give to classroom questioning can impact the student’s science identity (Brown, Reveles, & Kelly, 2005). The language of science can help one form a science identity as a participant of a scientific community, but conforming to the science classroom environment may cause some turmoil to students as they attempt to form these identities (Brown, 2006).

Identities that are forged outside of school can influence the identity that is presented in the science classroom. Thus, background experiences and lack of support at home can impact science identity formation (Tan & Barton, 2007). Students often do not relate science content to the larger world which influences their science identity; while preconceived notions about science can cause students to overlook how science actually has an impact on their lives (Kozoll & Osborne, 2004). Paramount is the recognition that identities are not fixed, but constantly changing and evolving as students maneuver through the science classroom on any given day (Tan & Barton, 2007). An awareness of whom one is in a particular context often determines one’s participation in an academic area such as science, because a fear of not fitting into a certain peer group often inhibits identity (Brown, 2006). A student’s science identity can be witnessed by examining the interactions of the student and listening to classroom dialogue as they ascertain new knowledge. Identity studies provide researchers with a means for studying how environment, race, and sex interact with pupils’ desires to participate with science over a specified time span and contexts (Brown, et al., 2005).
Female Science Achievement

It seems that somewhere between junior high and high school, girls start to lack a desire to focus on science and math. They begin seeing these subjects as boy subjects and decide not to take them (Owens, et al., 2003). Evidence exists that a struggle begins to emerge in the preteen and teen years when achievement goes against what students consider to be normal for their class, gender, culture, or race (Neihart, 2006). Tan and Barton (2007) assert that there are many stumbling blocks that hinder females from being involved in and achieving success in school science. The obstacles range from the portrayal of science as a male oriented field to stereotypical ideals that girls are less capable of thinking scientifically. What is found is that there appears to be a steady decline in the interest of girls in science as they move from lower grades to middle school.

Actually, there is little difference in science achievement between boys and girls at the elementary level, but changes occur around junior high, and definite differences, especially in physics and general science emerge at the high school level (Klein, 2004; Thom, 2001). It has been surmised that while females in the early grades maintain a positive attitude toward science equal to that of males, not long after fourth grade females begin losing interest in doing science (NSF, 2003). Thus, this lack of interest may be perceived as a lack of ability.

Between grades four and eight, females seem to be losing their desire to pursue avenues geared toward math and science (NSF, 2003). Female students may choose to opt out of participation in science simply because they do not see the link between the content being covered and their real world needs and interests (Brickhouse, 2001). Thus, there has been an attempt to make school science more female friendly by adding more female attributes to classroom instruction. Unfortunately, this has often resulted in a water-downed version of
science that leaves content lacking (Gilbert & Calvert, 2003). However, schools need to strive to create science learning environments where real world connections can be made so that the learning inside the classroom is relevant to the world in which the students live and interact daily (Brickhouse, et al., 2000).

By utilizing a variety of instructional methods in the science classroom, females can construct positive science identities and become more successful at doing science (Tan & Barton, 2007). However, while the cooperative learning setting situated in many science classrooms may be appealing to females at first glance, males often take over the manipulative roles leaving the female to the less desirable position of note taker (Brickhouse, et al., 2000). Also, a large majority of science content that exists in today’s classrooms was disproportionately written by Caucasian men (Brickhouse, 2001). Therefore, females are often intimidated or omitted from science because of its male oriented nature (Barton, 1997; Brickhouse, et al., 2000).

Stereotypes

The experiences of stereotyping and marginalization can impact a female student’s desire to participate in the science classroom (Tan & Barton, 2007). Stereotypes are beliefs about what qualities are considered the norms for males and females, as well as beliefs about appropriate behavior for males and females (Kessels, 2005). Children often become informed of stereotypes very early upon entering school (Maher & Ward, 2002). Girls are seen as less disruptive, while boys take more chances, need less guidance, and are more creative (Klein, 2004). Girls are expected to prosper from qualities such as compassion, kindness, and helpfulness, while boys are expected to be bold, rough and rowdy. Thus, ideas exist that girls perform better in subjects that do not require movement and interaction, such as language arts, and boys excel in more interactive subjects like science and math (Skelton, 2003).
Many studies indicate that teachers may actually help create such stereotypes with the things that they do and do not do in their classrooms. Teachers often convey a message that certain subjects are not important, simply because they do not have the confidence themselves to teach the subject. Lunn (2002) conducted a pilot study to determine the attitudes and views of primary teachers toward science. Seven primary teachers engaged in semi-structured interviews about the nature of science. Findings indicated that the teachers lacked content knowledge and felt ill-equipped to teach science. This lack of confidence could convey unspoken messages to students that science is unimportant.

The hidden messages in the classroom are not always the sole responsibility of the teachers. Educators are often presented with curricular materials that are published without appropriate gender representations. Teachers could possibly create a more science equitable program if textbooks represented both sexes more equally. Women are usually not equitably represented in the texts (Sheldon, 2004). Actually, textbooks in most all subjects are lacking in female representation (Digiovanni, 2004). Elgar (2004) engaged in a study examining the representation of males and females in science textbooks. The books were examined for textual and pictorial representations of each gender. It was discovered that there is an imbalance of boys as opposed to girls. Likewise, the language used in the books was found to possess gender bias by predominantly using masculine pronouns instead of feminine ones. The absence of women from science texts may send the message that science is not geared for female students.

Because society portrays images that science, technology, engineering, and math (STEM) disciplines are male disciplines, females often lose interest in pursuing such fields for fear of going against what is considered the norm (NSF, 2003). The perceptions held by girls and boys as to whether they fit into society’s definition of the typical male or female greatly influences
their gender identity (Smith & Leaper, 2005). These sex-role stereotypes also influence a student’s desire to choose school subjects (Kessels, 2005). When persons in positions of authority verbalize ideals about a young person, the youth is likely to accept those ideals as true due to the fact that respecting authority has been instilled into most children (Jensen, 2000). Jensen (2000) suggests that ideals and expectations possessed by society and culture begin affecting us from the time we are born. Accordingly, societies instill sex-role expectations onto males and females and then train them to abide by rules, behaviors, and ideas acceptable to particular genders (Howes, 2002).

The images children hold of what is appropriate for males and females may be impacted by the exposure to various media forms (Steinke, et al., 2007). For instance, the media, through television and the cinema, often portrays teens and schools in a way that is a negative stereotype where the student is teased and bullied because of physical attributes and intelligence. This may cause middle school students to labor on the fact that they are different because so many stereotypes are presented about the way popular people should act while those who are different are portrayed in media images as outcasts. Likewise, the title of “nerd” very often is imposed on students who are bright, shy, introverts, or who wear out of style clothing (Kinney, 1993). Because popularity is a driving force behind a girl’s performance in school, and girls tend to worry more about what boys think than achieving academically, girls often become fascinated with appearance and lose focus on their studies (Owens, et al., 2003). Therefore, the existence of math and science in the future of young women is often dependent upon how stereotypical role pressures are put to rest during the teen years (Skolnick, J., Langbort, C., & Day, L., 1982).

The stereotypes in existence concerning gender often cripple the options for females upon leaving school (Smyth & Hattam, 2004). For instance, stereotypes exist that math and science
careers are oriented more toward males than females, and if girls opt to pursue careers in these
tools, a very real message is sent by society that they may be ill-equipped to succeed (Bouchey & Winston, 2004). This could be due in part to the fact that stereotypes of females as nurturer and males as bread-winner can be traced back into early history when labor roles were clearly male dominated while caretaker roles belonged to the women (Dixon, 1997; Echabe & Castro, 1999). Because females tend to conform to the rules and are not as competitive as males; they are seen as lacking the confidence exhibited by males. Thus, they often take on the role of problem-solver and shoulder the blame for problems arising in every day life (Head, 1997).

Some hold to the belief that matters of the ethical nature have been reverberated in the voice of the father utilizing his ideals and values in areas of equality, morals, and justice while views of the mother have gone unheard (Noddings, 2003).

Social Peer Group Influence on Identity

Knowledge of the role of peer groups on identity is crucial to the school setting because peer groups influence the disposition, ideals, and morals of each group member and thus also interferes with or enhances the acceptance of school rules and goals. Actually, the friends selected by an individual student often have a much greater influence on teen morality than parents (Hartnett, 2007). In attempting to define their identity, students define themselves in relation to how they are viewed by others instead of who they truly are inside. The early school years seem to provide a safe haven where no one notices the differences among their friends, but when cliques emerge somewhere in middle school, student identities begin to form or change based on what these social groups think (Pierce, 2005). Thus, the selection of a peer group in school could have a heavy influence on the entire academic career of a student. This could be due to the fact that because adolescents struggle with identity formation throughout the teen
years, they are constantly seeking to please the members of particular peer groups, no matter what the cost (Hartnett, 2007).

The beliefs a person holds about him or herself influence academic performance in great ways. If a child is convinced that he/she is intelligent, comical, and witty, his/her actions will show this. On the other hand, if a child’s self perception is that of being unintelligent, unmotivated, or not acceptable, then their academic performance will be greatly impacted (Jensen, 2000). Likewise, the self-esteem of youth and adults alike is greatly dependent on the beliefs possessed about how they are perceived by others (Head, 1997). Also, youth often evaluate their self-worth based on the perceptions of social peer groups and extracurricular group affiliation (McLellan & Pugh, 1999). Therefore, the way young people “turn out” can be substantially affected by the interactions among friends (Brown & Mounts, 2007).

It is the friends of adolescents who provide feedback, companionship, and a listening ear when needed, thus friends and not school personnel are a greater driving force for adolescent success or failure (Kinney, 1993; Pierce, 2005). Membership in a particular social group creates the need to act in certain ways and to comply with the expectations of the group (Haynie & Payne, 2006). Therefore, peer group affiliations can have a positive impact on student outcome, or it can have a very negative effect on the choices of an adolescent, which can deter choices afforded later in life (Head, 1997; Smyth & Hattam, 2004).

Students often cite peer pressure as the catalyst that dictates classroom participation and activity either in a positive or negative manner depending on the composition of the students in the classroom. This sometimes causes students to play differing roles in the classroom setting in order to achieve the goal of fitting in with classmates, so that schooling becomes viewed as a contest of sorts. Therefore, a studious pupil who knows the answers might refuse to participate
in a class because of the social groups gathered there and the fear of being ridiculed for being smart. It is often hard for students to open the door for rejection by peers in the classroom setting, so it is easier to maintain a code of silence instead of participating openly and leaving one’s self vulnerable to those assembled around them (Pierce, 2005). Thus, the desire for popularity and social status drives the identity formation of children in schools in many cases (LaFontana & Cillessen, 2002).

There is a shift from elementary school to middle school and high school where peers begin to have a greater influence on academic performance than parents (Stake & Nickens, 2005). The desire to fit in with peers often serves as a driving force for many decisions made by adolescents (Kessels, 2005). Lee (2002) asserts that the more people one values as significant in their lives, and the expectations of those people for one to act in a particular way greatly increases the likelihood of one presenting an identity acceptable by those significant others. This could be due to the fact that adolescents gain a sense of confidence and self-worth from positive relationships with those around them (Saitzyk & Poorman, 1994). Therefore, peers begin to shape the personalities and gender expectations of other peers upon entering school and forming relationships (Maher & Ward, 2002). Thus, the pressures to fit in often become priority to students at the risk of sacrificing school work and grades (Pierce, 2005; Skolnick, Langbort, & Day, 1982).

Peers are less likely to accept anyone who goes against what is considered appropriate for certain genders (Kessels, 2005). Conflict and rejection among peers when males and females do not conform to the “typical” male and female greatly impacts self-esteem (Smith & Leaper, 2005). For instance, a male who participates in sports is highly regarded in a peer group of athletes, while a male who studies dance may be crucified for going against the norm (Hartnett,
Likewise, while living in a free country, females often really do not have the choice to choose who they will be because their choices sometimes are made by determining what would be deemed appropriate for females and accepted by peers (Willett, 2006).

Females are more likely than males to allow the opinions of others to impact their self-esteem (Lee, 2002). The desire to be accepted by peers often forces females to mask their true abilities for the sake of belonging. They also often hide their true desires and wishes because these desires and wishes are in conflict with their peer groups, especially in early adolescence (Saitzyk & Poorman, 1994). Girls sometimes must select between being accepted and fitting in with peers or being cast as strange, odd, or abnormal (Currie, Kelly, & Pomerantz, 2006). Unfortunately, the negative connotations imparted by the popular group on those less popular can have lasting effects on the identity formation of those being ostracized (Kinney, 1993).

The desire for popularity often forces a girl to make choices about her identity that she otherwise might not have made, but the popular girls are viewed as the top subgroup of most school populations. Girls often feel pressured to dress a certain way and achieve a certain look in order to assure they are associated with this group. Also, males sometimes play a large role in female identity formation because females seek their approval and want to act and dress in a way in order to gain their attention. Also, girls pressure each other when it comes to looks and dress, and those who do not comply become labeled as outcasts. Thus, the wardrobe a girl chooses is often the most distinguishable element when trying to decide which peer group affiliation a female belongs (Currie, et al., 2006).

It is also quite common to see clothing trends that have been worn by musicians, athletes, and other cultural icons popping up in classrooms of adolescent youth (Boden, 2006). Some children use the messages and fashions conveyed in the media as a basis for forming their
identity (Boden, 2006; Smyth & Hattam, 2004). Therefore, it is often the media that drives how a student will fashion themselves in the world, with little notice of expectations set forth by the school. Because the media often sends a message to students that the academic world of schooling is attempting to suppress the social identity of youth, students are not always willing to conform to the rigid rules presented by schools on appropriate dress and other matters because of a feeling that clothing choice plays a key role in student identity (Smyth & Hattam, 2004).

Adler, Kless, & Adler (1992) conducted a study in an attempt to ascertain the driving factors behind popularity for males and females. For boys, athletic prowess or a knowledge of sports was the dominating factor. Also, those boys who engaged in power seeking behaviors while defying authority gained popularity. The financial situation and lack of restrictive discipline served as social status determinants for female students. Girls who are able to afford the latest trends in fashion and the most expensive gadgets carry the most social status in many classrooms. Appearance carries heavy influence on female popularity. Those females who attempt to grow up very early often gain male attention quickly during adolescence.

Girls sometimes mistreat other girls as a defense mechanism to hide their own misgivings and insecurities about themselves during adolescence, and they seek to gain power within their social peer groups by providing accounts of experiences unique to the other group members in hopes of becoming the leader of the group. Through talk with close friends in social peer groups, girls can test different identities in hopes of finding one that is suitable for a more public setting (Kehily, Ghaill, Epstein, & Redman, 2002). Thus, children tend to align themselves with particular social peer groups based on ideals of popularity (Adler, et al., 1992).

High schools in the United States have always housed cliques or peer groups, and at least one clique almost always conforms to the rules and regulations set forth by school
administrations, while at least one group engages in defiance and refusal to participate in school based activities. Thus, the conformists generally are more accepted and appreciated by school personnel than the rebellious group (Eckert, 1989). Educators and school leaders buy into the peer group stigma by allowing the more mainstream groups to get by with things that are not allowed with the misfits (Hartnett, 2007). Therefore, some students align themselves with groups based on popularity and they tend to perform very well and adjust rather positively to the school environment. However, there are also students who do not seem to fit in with the popular group, so they align themselves with others who are deemed misfits because they go against the mainstream school environment (Hartnett, 2007). Identification with certain groups at least allows students to find a place to fit while deciphering their true identity (McLellan & Pugh, 1999).

The adolescent years have been deemed as detrimental to the development of identity, therefore allowing labels created by peer groups to become a crucial factor in the way youth perceive themselves during the teen years. Students create names for groups of other students based on specific characteristics such as “nerd” for the smart kids and “jock” for the athletes, but these names can often carry a stigma that is negative thus impacting the adolescent wearing the title for life. Also, the popular group or the “in” crowd sometimes places popularity above the feelings of the less popular students, forcing the unpopular to dislike themselves and to feel displaced in the school setting (Kinney, 1993). Thus, it is believed that by changing the social peer group of students who are acting in unacceptable, often violent manners, the behavior will decrease because of the influence of the more accepted group and the sense of belonging fostered by that group (Haynie & Payne, 2006). However, Hartnett (2007) asserts that once a teen is cast as a member of a particular peer group such as nerd or geek, it is very difficult to climb the social
ladder to a different, more desirable group. Also, students run the risk of being classified as “wannabes” due to the fact that they are seeking acceptance into a group with which they do not relate (McLellan & Pugh, 1999). Thus, for many children, it is preferable to be associated with peer groups such as geek, scumbag, or jerk than to be invisible and unknown at all (McLellan & Pugh, 1999).

Students participate in social groups such as jocks and burnouts in an attempt to maintain the persona of “cool” with peers, while those students who align themselves with the label “nerd” seek to defy all the standards set forth by “coolness.” In fact, some females embrace the label of nerd, not as a negative stereotype but as a means to make a statement of nonconformity against the norm for more popular social peer groups. Actually, the female who chooses to maintain the label “nerd” opposes most of the societal rules for “cool” by going against the norm which suggests that cool girls dress in the latest trends and act and look in such a way as to conform to mainstream society’s definition of what is in. Thus, membership as a part of a group called “nerds” can encourage girls to embrace their individuality and not to change themselves for the sake of fitting in (Bucholtz, 1999; Currie, et al., 2006).

Studies indicate that the attitudes of males and females toward science could definitely be influenced by their peers. This phenomenon begins to emerge around middle school (Stake & Nickens, 2005). Early on in adolescence, females begin to focus on attracting the attention of boys which leads them to concentrate on appearance and feminine things to the exclusion of male-dominated subjects such as science (Brickhouse, et al., 2000). Thus, females are more likely to underachieve in the sciences out of concern for fitting in and having males accept them (Kessels, 2005; Neihart, 2006). Girls who are considered to be high achievers are likely to be less popular than underachievers. Also, girls who express an interest in subjects such as physics
are considered less feminine than girls who express interest in sciences such as life sciences, which are deemed more appropriate for females. Thus, a student’s popularity in the school setting can be related to the appropriateness of a subject for a particular gender (Kessels, 2005).

Rural and Cultural Influences on Identity

The opportunities one encounters throughout life stem largely from the identity created by the culture in which one is reared (Lee, 2002). Accordingly, one cannot exist in a particular culture without knowledge acquisition taking place because merely by existing in a particular setting, one is constantly learning how to exist and be a desired participant of the said culture (Brickhouse, 2001). Likewise, the messages presented by society impact those living in that society on many levels ranging from sex-role appropriations, opinions based on the norm, and cultural rituals to differing learning methods, peer acceptance, and societal acceptance (Jensen, 2000).

Early life experiences can impact the creation of personality characteristics that occur later in life, and the social realm greatly impacts a student’s identity both inside and outside the classroom (Brickhouse, et al., 2000; Farenga & Joyce, 1998). Society still holds traditional perceptions as to what the role of women in the family should be. While the family structure is expected to work around and accommodate the male’s occupation, females are expected to work around the family needs, thus sometimes neglecting work outside the home. Females often expect to get married sooner than males, but they do not perceive that family will interfere with their careers (Stevens, Puchtell, Ryu, & Mortimer, 1992). Thus, the motivation or interest in certain fields is often contingent upon one’s past involvement and exposure to the fields as well as perceptions of the field (Lee, 1998). This exposure may be particularly lacking for those reared in a rural community.
Students, especially from rural communities, may not seek to pursue professional careers in the sciences because there is a drive to continue with traditional values and less emphasis is placed on the pursuit of higher degrees in professional fields (Battle & Grant, 1995; Hektner, 1994; Jacobs, Finken, Griffen, & Wright, 1998). This could be due to the fact that traditional values seem somewhat static in rural communities (Jacobs, et al., 1998). Also, rural schools often lack funding to provide the educational opportunities afforded by more affluent urban and suburban schools (Broomhall & Johnson, 1994). Therefore, educational opportunities may become limited by one’s residence in a rural community.

Battle and Grant (1995) conducted a study on the college choices of rural gifted female students and found that the females often did not receive ample opportunity to think critically and problem solve in the areas of math and science during their high school science and math courses. Accordingly, Hektner (1994), in a study of career choices among rural youth, ascertained that a conflict in goals may be in existence among rural youth because seeking a high-paying, powerful position can often mean leaving home, family, and peers due to the relatively low number of career opportunities in existence in most small towns. Thus, the desirability to remain in their small town often limits educational and career choices for rural high school students (Broomhall & Johnson, 1994).

The National Science Foundation (2003) asserts that cultural ideals about the appropriate roles of women in society impact female willingness to participate in STEM disciplines because of the unwillingness to go against cultural norms. Different cultures have different expectations for achievement among females. For instance, Brickhouse, Lowery, and Schultz (2000) ascertained that while African American girls are considered very vocal, it is those girls that assimilate into the white, quiet schoolgirl role who usually demonstrate academic success. Also,
students from minority cultures may feel inadequate when they are placed in a classroom context where they perceive the students to be more affluent and smarter than they are (Brickhouse & Potter, 2001). Thus, those students hailing from low socioeconomic backgrounds, which is often the case of rural students, may feel forced to make choices between carrying on in an educational system geared toward university pursuits, which they often feel are out of their reach, or dropping out to pursue life in the workforce where they feel their future likely lies (Smyth & Hattam, 2004). Likewise, there is a tendency in society to lump all females and all males into definite categories so that the notion exists that a female cannot be feminine and still like science which is considered to be masculine by nature (Gilbert & Calvert, 2003). Therefore, culture often shapes stereotypes among youth because identity is created by living and surviving in particular gender roles created by the society in which they live (Liao & Cai, 1995). The phenomenon is of particular interest to this study which is embedded within an insular, rural, community (Jacobs, et. al, 1998).

It is often consciously and unconsciously learned by females (often early on) that science is a masculine career, thus making it less desirable for them later in choosing careers (Gilbert & Calvert, 2003; Steinke, Lapinski, Crocker, Zietsman-Thomas, Williams, Evergreen, & Kuchibhotia, 2007). Lack of interaction with real life scientists often leaves students to conjure images of scientists based on what they have observed in reading material, movie theaters, video games, pictures in periodicals, and television (Steinke, et al., 2007). Young people usually choose a person of the same sex to serve as recipients of admiration and role model status. Anderson and Caravello (2002) conducted a study and found that white children cited parents first as role models, followed by media characters or people in the entertainment industry, while Asian American and Latino children chose entertainers before their parents. Unfortunately, the
mass media bombards children with more male roles than female roles in the movies and
television shows they view. Also, male characters in cartoon form and other forms are usually
the successful, likeable, knowledgeable leaders that the female characters look to for leadership,
guidance, and sometimes even for rescue in the various media forms viewed by children. There
is a vast difference in the number of male superheroes in comic books as compared to female and
minority superheroes. Likewise, in video games, the characters are primarily aggressive males
who seek to rescue females in distress, and games designed to garner female interest stem around
virtual beauty and fashion simulations. The media often portrays the male as the stronger, wiser
color character leaving the female in more subservient roles, thus creating fewer role models for girls
and leaving stereotypical images of what it means to be male or female. Such stereotypes are
typically already in existence in most U.S. communities, including rural communities such as the
one in the study (Jacobs, et al., 1998).

Summary

Based upon the findings of the previous review of literature, one can gather that scientific
literacy and scientific career pursuits for females can be greatly impacted by female identity
formation early in life. Female identity can be altered by interactions between family, friends,
and educators. The messages conveyed in the media and by society at large can also send very
clear messages as to the appropriate female behavior, thus influencing female academic and
career choices. Because identity is not fixed, but is constantly evolving based on the
circumstances in which one is placed, the relationships forged and the scientific endeavors one
encounters can impact the desirability to look to future scientific pursuits. While culture plays a
key role in identity formation and in the formation of female science identity, little research has
been done to examine how the rural culture impacts female science identity. Some studies have
used rural schools as research sites for examining achievement issues (Bender, 1994; O’Hair & Reitzug, 2000). However, gender studies in a rural setting concerning female science identity formation have not been fully explored. Battle and Grant (1995) and Hektner (1994) have delved into science achievement among rural youth. However, there is a void in the research when examining how attending a rural K-12 school and spending one’s entire life in a rural community impacts female science identity and the ability of those females to transition into the world of higher education. Thus, the purpose of this study is to explore through interpretive biographies, three young women’s identity formation in science while attending a K-12 rural school within a farming community while also examining their science identity while transitioning into college.
CHAPTER III

METHODOLOGY

This chapter describes the methods utilized in this research study and the methodological framework within which the study was grounded. Denzin (1989) states that an interpretive biography is the creation of storied recollections of life events and descriptions of meaningful moments that have shaped the lives of those who experienced the events. He goes on to suggest that the key elements of such methodology rely on the condition that a “real” person exists who has had life experiences, and that those experiences can be captured on paper. Because this study is situated within the boundaries of how three females attribute their lived experiences to the shaping of their identity, particularly in science, and how their rural community impacted that identity, an interpretive biographical methodology was deemed appropriate in seeking answers to the research questions:

1. How do three recent female high school graduates from rural K-12 high schools narrate their identity?
2. How do the females narrate their experiences in a rural community and high school in relation to their science identity?
3. What do the participants describe as influencing their academic and career choices as they transition into the life of a college student?
Research Design

The purpose of this study is to examine those influences that impact female identity formation in science and the transition of females, who have been successful in their rural K-12 public school, as they enter into higher education. In addition, the study describes how females view the impact of their school science identity on their decisions concerning science coursework at the college level and upon the possibility of their selecting a science-related major. Because of the inequitable balance of females in STEM careers as well as in other science related careers, this study inquires into these unique phenomena to construct a clearer reality (Stake, 1995, p 101). Furthermore, recognizing that background events shape one’s ability to create comparisons and interpretations, key episodes or testimonies are represented through interpretations and stories (narratives) in an attempt to “sharpen the search for understanding” (Strauss and Corbin, 1998, p. 31). Narratives as re-presentations allow those under study to create their own reality, while the researcher attends not only to the stories being related by the study participants, but also to how and why particular stories are told (Gall, Gall, & Borg, 2003).

Interpretive Biography Methodology

Denzin(1989) defines interpretive biography as, “creating literary, narrative accounts and representations of lived experiences. Interpretive biographies are the “telling and inscribing of stories” (p. 11). Cole and Knowles (2001) add the assertion that “biography is an art dependent on fact” (p. 17). Likewise, Atkinson (1998) suggests that a life story is “a narrative form of qualitative research methodology for gathering information on the subjective essence of one person’s entire life” (p. 3). Denzin goes on to offer assumptions that are often taken for granted
when creating biographies: “1) the existence of others 2) the influence and importance of gender and class 3) family beginnings 4) starting points 5) known and knowing authors and observers 6) objective life markers 7) real person with real lives 8) turning-point experiences and 9) truthful statements distinguished from fictions” (1989, p17). These basic assumptions form a nexus to the goals of this study with its underpinnings associated with identity and sociocultural theory.

This study proposes to create biographies of three young women steeped in the use of thick descriptions. Thick descriptions “enable an event to be recreated along with as much of its context as possible” (Gall, Gall, & Borg, 2003 p. 439). Utilizing personal experiences allow for new awareness and enlightenment of a particular phenomenon (Denzin, 1989). Thus, the biographies of this research were created to capture the complicated dimensions of human experience as influenced by the social and cultural settings in order to convey the perspectives and stories of the young women negotiating those experiences. The life stories were shaped through dialogue between the researcher and the participant – each one participating in the creation of narrative images (Lawrence-Lightfoot, 1997).

In life story interviews, the interview subject serves as “a storyteller, a narrator of the story being told, whereas the interviewer is a guide or director in this process” (Atkinson, 1998 p. 9). In this research, the stories presented are of the participants own selection and are represented in their purest form in an attempt to give a voice to those whose stories would otherwise go unheard (Atkinson, 1998; Cole & Knowles, 2001; Denzin, 1989;).

Theoretical Framework

It is suggested that when creating a life story, theories should not be preconceived, but that they should be formed out of the story presented. It is appropriate to present the stories as they are told and to allow the reader to create their own theoretical perspective (Atkinson, 1998).
Thus, while theoretical perspectives may be preconceived, due to researcher bias, they should not interfere with the purity of the story that is told. Atkinson (1998) conveys the point of view that “the researcher’s role in considering applying a theoretical perspective to a life story would be to move back and forth from the part to the whole to discover the meaning that is in the whole” (p. 67). Therefore, while sociocultural theory, identity theory, and critical feminism serve as a guide for conducting this study, it is left up to the readers of the interpretive biographies to apply their own theoretical perspectives as those perspectives unfold through the reading and re-reading of the stories presented. Thus, care was taken to assure that no single theory clouded the stories presented.

This study uses a sociocultural framework as its guide. Sociocultural theory is steeped in the ideals that knowledge acquisition and learning are meshed within the limits of the contextual setting in which the learning takes place (Alfred, 2002). A tenet of sociocultural theory is that the participants in a context are affected by the setting, interactions, and experiences in which they are participating (Silverman, 2000). It is what the participants attend to while in that context and what they view as relevant that allows narratives of identity in science to be created (Riessman, 2008). According to Lave and Wenger (1991) identity is a construction of who and what one is, as well as how one acts. Identity is a human-made and a socially constituted construct that cannot be independent of the arena in which it takes place because it is filtered through the eyes of the one attending in the situation. Thus, identity formation is embedded within the social constructs in which they occur (Alfred, 2002). Identity is a process, as opposed to a product and as the context shifts so may identity. Furthermore, the very nature of sociocultural theory and its multiple layers of influence lend itself to this study because of the
resea
researcher’s interest in how an insular rural environment has shaped the science identity of the three female participants.

Along with sociocultural theory, identity theory provides an additional lens for shaping this study. According to identity theory, persons behave in a certain manner as a result of that individual’s mental structures and their sense of belongingness in different situations. Identity theory states that a person’s actions are dependent upon the expectations of dominant identities which are byproducts of day to day interactions with the important others in their lives. This theory asserts that social frameworks are crucial factors in deciding the types of relationships that will be created by persons over the span of their life. Also, the social realm in which one exists and interacts influences the type of individual one allows to be seen as their identity. This theory asserts that identity is ever evolving, and as one’s social frameworks change, new identities are created while others are lost. The longing to belong to a certain group may cause one to create a new identity role that is considered acceptable by that group (Lee, 2002).

Critical Feminism provides a third means for analysis of this phenomenon to bring to light issues related to the marginalization of young women in science. Those who profess to be feminists believe that females are subject to discrimination from acquaintances, while not being treated in the same manner as males. Feminism is steeped in the idea that the world at large is built so that males are advantaged over females. The goal of feminism is to seek to change the ways society views the place of women in the world, thus making it less discriminatory (Mills, 1995).

Feminists have striven to create curriculum that decreases the traditional power roles in existence in most classrooms and focuses on shared idea formulation between students and teacher. Feminists suggest that knowledge, including knowledge of science, is affected not only
by the place where the knowledge is acquired, but also by the perceptions of the person seeking
the knowledge in that particular place and time (Brickhouse, 2001). Some suggest that feminist
theory clashes with the very nature of science because of the technical aspects of science and the
lack of emotions involved in science (Barton, 1997). A tenet of feminist pedagogy suggests that
one must attend to the events, views, wisdom, and methods of learning that people who have
usually been left out of the world of science hold. It is a requirement of feminism that all ideas
of all students be respected (Howes, 2002). Barton (2003) asserts that critical feminism
challenges the power structures at work in society and in the science classroom. She suggests
that there are political and cultural forces at work that allow for the marginalization of certain
genders and races, and that it is up to the critical feminist to take the forces to task in order to
bring about change. As the biographies of these young women were created, it was the hope that
the existence or nonexistence of such forces would come into view for those reading their stories.

Research Context

Setting

It is not possible for an individual to convey a story that is completely free from cultural
and social influences (Denzin, 1989). Therefore, it is imperative that one has a clear picture of
the setting in which this study takes place. The setting is critical in the examination of the
biographies of the participants because of the descriptions provided by each young lady
concerning the role the setting has played in her life. The landscape for the study is presented in
detail to allow readers to connect on a deeper level with the cultural and social influences of the
location.

This study involved three female participants from a small rural community in a
southeastern state. The community is situated about fifteen miles from the nearest city. It is
primarily a close-knit, predominately white farming community with no United States Post
Office or even a stoplight. Many from the community of approximately 4000 residents proudly
describe it as “God’s country.” This could be due to the fact that there is a church on almost
every corner or that it is simply a beautiful area in their eyes. Also, because the community
members have resisted incorporation, no large industries, or businesses are housed within its
confines. Therefore, in many ways it is unspoiled where vast fields and acres of forested land
have gone untouched by modernization.

There are no true boundaries that define the community’s parameters, and many residents
playfully bicker about who is a true member of the community and who resides outside the often
self-defined boundaries of it. There are a handful of locally owned businesses and two gas
stations in operation along the main state highway that runs straight through the middle of this
small town and connects it with a neighboring city on one end and a neighboring state on the
other.

As one drives down this stretch of road, more often than not behind a tractor headed to
the fields, it is almost like stepping back into a time when life was lived at a much slower pace.
Trees align both sides of the road and the hum of tractors, International combines, and other
farming equipment creates an almost rhythmic song that is hummed on most days. Almost every
yard has at least one pet running free, and it is not uncommon for a horse or cow to escape the
 confines of an aging fence. On such occasions, traffic halts as neighbors pull over and help the
owner of the escapee give chase until the animal is corralled and safely returned home. Then,
those who do not have to rush to work will lend a hand in mending the fence to prevent future
escapes.
On a span of highway in the midst of the rolling green hills and swaying trees one finds the community’s only school, Meadow View. Meadow View is a public K-12 school that has been renovated and expanded many times throughout the years. Evidence of this is seen in the aged buildings on one end of the school and quite modern, newly polished ones on the other. There are 1308 total student population enrolled and attending Meadow View. Of this number, 97.82 percent are Caucasian, 0.93 percent are African American, and 1.17 percent are of Hispanic origin. Approximately 32.4 percent of the student population qualifies for free lunch or lunch at a reduced price.

The community takes an active role in supporting the school and school events because most of the students attending the school are second, third, or even fourth generation. The researcher conducting the study is well-established in the school and community because she comes from the community and attended this same school, as did her mother, husband, and children. She now has returned to the school as a teacher as have 62 other alumni who have returned to work as faculty, administrators, or staff members. The participants under study were graduates of the school who were also reared in the community.

Participants of the Study

The goal of participant selection in biographical research is to find a small group of individuals who are willing to devote much of their time to the researcher in order to add insight to a mutual area of interest. Therefore, the selection of participants whom the researcher knows well might be the most viable option (Cole & Knowles, 2001). Stake (1995) concurs that accessibility and desirability are factors to be considered in participant selection. Likewise, Atkinson (1998) states that the quality of the relationship and interactions between the researcher and participants will affect the story told, so this should be considered in participant selection.
Because the researcher’s interest lies in how females who recently graduated from a K-12 school in a rural community describe their science identities, and how their lived cultures impacted their identities in science, participants from the close-knit farming community where the researcher resides were selected, thus allowing for easier access. The counselor at the school helped provide information on females who demonstrated not only academic excellence by finishing with a class ranking in the top ten, but who also demonstrated excellence in their science coursework. Each female has lived their entire life in the community and has attended only this school. The females have already selected their institutions of higher education, and they have already enrolled in their courses. The researcher selected three females for the study, and they were given the pseudonyms Janie, Sophie, and Julie.

The three females selected were chosen, not only because they met the above criteria, but because the researcher is familiar enough with them that they already have a comfort zone when conversing about their lives. The three females have visited the researcher on many occasions throughout their schooling, and they all have participated in the Key Club, which the researcher sponsors, each serving as officers. The researcher was intrigued by these three females because all three have gone through their entire school career as the “model” quiet school girl. All three have been contacted by large universities about the possibility of attending there. However, all three have chosen to remain close to home and attend college locally. Two of them chose a four year university within driving distance, and the other one decided to attend the local community college and later transfer to the four year university. This leaves the researcher to wonder if the confines of the rural community in which they grew up have impacted their choices. Therefore, they are ideal candidates for this study.
Methods

As discussed earlier, this study utilizes an interpretive biographical, or life story, approach in order to create biographies of the research participants. This approach allows the social and cultural forces, as well as any other determinants of identity to be examined in an attempt to understand the lives of the participants (Atkinson, 1998). The following sections describe the methods utilized in this research.

Data Gathering Instruments

Participant Interviews

The goal of narrative interviewing is to produce descriptive recollections in place of short, broad answers which are often given when utilizing closed interviewing methodology (Riessman, 2008). Reissman (2008) asserts that the researcher and participants engage in a conversational approach to interviews when narratives are being created. The participants are asked open-ended questions which allow them to engage in thick descriptive accounts often filled with emotional attachments. It is their responses that determine the shape the interview will take. The researcher engaged each of the females under study in four open-ended narrative style interviews which were guided by the descriptive stories created. Therefore, the length and number of interviews was dependent upon the participants. While the interviewer had a list of predetermined open-ended questions (Appendix A) to facilitate the interview process, the responses of the females and their storied accounts determined what paths the interviewer followed. Thus, new questions emerged throughout the course of each interview and during transcriptions which led to additional questions for subsequent interviews. The interview sessions ranged in length from 45 minutes to two and one-half hours. As the participants became
more comfortable with the process, the sessions grew progressively longer. Each interview session was recorded and transcribed for multiple readings of the accounts.

Email Correspondence

The researcher and research participants communicated frequently by email. It was originally intended that the participants would use electronic correspondence to create e-journals which would add to the depth of the research. However, this technique proved unproductive as the females often forgot to correspond. When they did correspond the technique merely served as a sounding board providing a schedule of their activities. After speaking with the research participants, it was decided that the journaling was time-consuming and a bit of a hassle. Therefore, it was agreed that email would only be used to set up appointments for interviews.

Facebook

The researcher became friends with the research participants on the social networking site, Facebook. This allowed the researcher to gain insight into some of their thoughts and feelings about differing events in their lives. Their comments on the site affirmed many of the thoughts and emotions presented in their biographies. However, the only new information gathered through the site involved a personal matter of one of the participants and the researcher agreed to leave this information unexposed in order to save undue stress to anyone participating in the study.

Data Analysis

Reissman (2008) asserts that effective narrative analysis pushes the reader to reason below the surface of the words conveyed and develops a deeper understanding. Stake (1995) further suggests that there is no particular moment when data analysis begins in qualitative research, but that it actually begins as soon as the researcher begins attempts to decipher sense
out of things. Thus, analysis is born out of reading and re-reading the data in its multiple forms, and then allowing understanding to emerge as narrative. This process allows new experiences to be created from what was previously considered common. In qualitative research, the analytical lenses and representational aspects are held nearly exclusively by the researcher. The perspectives of the reader and the author mesh together creating meaningful insight into the lived experiences of the research participants. Therefore, it is imperative to keep the aim of the research in the forefront and suspend forming themes unrelated to the research goals (Cole & Knowles, 2001).

As an author of a biography, the researcher is inserted into the life of the research subject. However, the understanding and the value of the story conveyed may be different for the storyteller than for the biographer (Atkinson, 1998). Atkinson (1998) reminds us that because of the personal nature of telling life stories, a degree of subjectivity exists in analysis. This could be due, in part to the fact that it is a rarity for two people to relate the same events in exactly the same way. Thus, biographical research hinges on the researcher telling the life story exactly as it is presented by the storyteller.

A reciprocal relationship often emerges from doing life story research. When the participant discusses events of importance in their lives, it is near impossible for the researcher to listen without engaging in reflection on his or her own life (Atkinson, 1998). These reflections become a part of interpretation and analysis. Cole and Knowles (2001) stress the importance of making sure that each individual story is told and that individual portraits of each participant are created. While doing this, they ascertain that the researcher’s own portraiture of self will begin to emerge, but care is taken that the researcher’s story does not
overshadow the stories of the research participants. In order to assure the purity of the stories told, analysis must begin with a constant reading and re-reading of the data collected.

Denzin (1989) offers a series of steps researchers should follow during the interpretation, analysis, and creation of life stories. He suggests that once narratives are created, each individual story should undergo a careful reading by the researcher. During this phase of analysis, patterns and meaning of experiences are sought (p. 56). This is when the biography is restructured, highlighting key events of the life presented. This restructuring should key in on 1) the processes that have framed the life 2) theories related to key life events and 3) the unusual and general components of the life (p. 56). After this phase of the process is completed for each individual’s life, comparisons are then made between all of the lives under study. Themes and patterns common among the lives or at odds between the lives are sought in an attempt to gain a better understanding of those telling their stories. Themes were sought that were in keeping with the research questions pertinent to the study. However, as is the nature of qualitative research, the themes were allowed to emerge naturally.

Validity and Reliability

Quantitative research analysis is greatly dependent upon measures of reliability – extent to which results are replicated over time, and validity – measure of which results compare to expected outcomes (Atkinson, 1989). However, Cole and Knowles (2001) suggest that to hold life history research to these rigorous constructs would be likened to “examining the contents of a barrel of apples in order to decide which orange to buy” (p. 123). They propose that qualitative researchers and writers of life stories should engage in a form of triangulation in order to seek validity and reliability. Such triangulation can include peer examination, involving participants in all aspects of the study, and declaring researcher biases (p. 123). They go on to add that the
research process should be somewhat transparent so that all key aspects of it and the decision-making process are clear to all readers of the research. The researcher’s footprints should be easily traced. Also, the participant should be “the expert and the authority on his or her own life” (Atkinson, 1989 p. 59). Therefore, it is suggested that participants be allowed to read and re-read their life stories once written, making changes as they see fit (Atkinson, 1998; Cole & Knowles, 2001; Denzin, 1989).

In keeping with the suggested guidelines aforementioned, each participant engaged in open-ended interviews. The interviews were in a conversational style, and their paths were largely determined by the research participants. Each interview was recorded and transcribed. The research participants were allowed to read the transcripts, and to offer suggestions or changes. The transcripts were then coded seeking patterns and themes. The research questions remained in the foreground during this process so that the research purpose was not lost.

Once the coding process was complete, individual biographies, or life stories of each participant were created. Research participants were again allowed to read their story, making suggestions to assure accuracy. There were minor clarifications made by all three participants, and one entire section was omitted by a participant who suffered a break-up with a boyfriend during the process and asked that all information concerning him be deleted. Each biography was then read and re-read, seeking patterns and themes across the life stories. The researcher also wrote recollections of her own life as they were evoked throughout the research process.

The dissertation chairperson, served as a co-researcher. As a co-researcher she was provided copies of all transcripts and data sources to analyze. As data were collected, meetings were scheduled to discuss and negotiate analyses that led to final narratives. This process created a way to see the words and meanings in multiple ways that generate trustworthiness of
the biographies. The participants, however, were presented with drafts and final versions of their biographies, as a member check on the accuracy and authenticity of the work.

Researcher’s Role

Strauss and Corbin (1998) assert that qualitative researchers lack apprehension in calling on their own life events when engaging in data analysis because it is the lived experiences that pave the way for making comparisons and adding depth when deciphering patterns and emerging themes. Stake (1995) adds that the researcher plays many differing roles such as instructor, confidante, narrator, and advocate. These roles are largely dependent on how the researcher decides to interact with the research subject and the emerging data. However, it is Denzin’s (1989) stance on interpretive biography that most strikingly asserts the researcher’s connections to this study. He said:

Lives and the biographical methods that construct them are literary productions. Lives are arbitrary constructions, constrained by the cultural writing practices of the time. These cultural practices lead to the inventions and influences of gendered, knowing others who can locate subjects within familied social spaces where lives have beginnings, turning points, and clearly defined endings. Such texts create “real” persons about whom truthful statements are presumably made. In fact, these texts are narrative fictions cut from the same kinds of cloth as the lives they tell about (p. 26).

Thus, to fully understand the role of this researcher, it is imperative to look at her life experiences.

As a lifelong member of the community that provides the contextual setting for the study, I would be remiss to think that my lived experiences in this small town play no role in the framing of the study. This study was born out of an interest in female identity that developed
during a college course, when the professor asked us to define our identity without referring to any significant person in our lives. While at first glance this sounds like an easy task, I quickly realized that I could not describe who I was. I wanted to say wife, but that would entail a relationship with my husband. I wanted to say mother, but that would describe my relationship with my son. I couldn’t say daughter because my relationship with my parents would come into play. If I said Christian, that would bring up my relationship with God. It was at this point that I came to the very real conclusion that our identity is dependent on our life events and those people with whom we interact. This forced me into reflection on just what did shape the person I had become both as a female and as a science teacher.

In the small community where I have lived all of my life, and where the study takes place, a very traditional, old-fashioned mindset exists. At a very early age, I discovered that women and men had well defined roles, and that to step out of those roles would be to create a major social mistake. It was up to the women to do normal household chores while the men were the main bread winners. My mother was one who dared to work outside the home, but she still did all of the cooking and cleaning. Also, as the sister of an older brother, I learned early on that there were things he was allowed to do that I could not because of my being female. I was reared to make good grades, help with chores in the house, and find a good man to marry. I will never forget being told that I could not have a curfew past 10:00 because I was a girl. I could not watch certain movies that my brother was allowed to watch because I was a girl. I could not mow grass because I was a girl. The list goes on and on and on. The phrase “you are a girl” still hits a sore spot with me each time it is uttered. I always felt as if I was being punished because I was a girl.
In school, there was never any mention of females who worked in careers considered nontraditional for females. In the late 70s and early 80s when I was in school, I remember hearing something about a feminist movement, but such talk was quickly quieted. I saw news segments of Jane Fonda and others speaking out and burning their bras, but in church those women were chastised. Teachers would never have allowed us to engage in debates and discussions about issues that went against the very moral fiber that was the backbone of this small town. A rebel was growing inside of me the entire time these events were unfolding, but that rebel was afraid to speak. I would quietly engage in acts of rebellion such as slipping in past curfew, or sneaking in to see a movie that was deemed inappropriate for girls, but I never truly stood up for the feminist inside of me.

Science during this time was also very limited. The school was small and housed only a few science teachers. Therefore, there was not a large selection of course offerings. Also, funds were limited so there were not many resources available. I remember taking 7th and 8th grade science with male teachers who stood and lectured for almost the entire class period each day. The one experiment that I recall was making a mold of our hands out of wax. Of course, the 8th grade teacher was quick to point out that the girls did not have to do it if they did not want to. I was the first to jump up and give it a try. I did enjoy science. I was finding an interest in it, but that interest was about to be halted.

The only course offering in science above 8th grade was Biology. It was offered, but it was optional, and if students did not want to take it, they could opt to take Home Economics or Art. I was interested in the Biology course until I met the teacher. I first encountered the female Biology teacher as a sixth grader. She was an older woman with horn-rimmed glasses that she glared over at everyone. She was truly old school in her thinking. She was also the Beta Club
sponsor. This meant that she was over the Walk-a-thon, which was a charity event sponsored by our school each year to raise money for the March of Dimes. I participated in it every year. However, in sixth grade when I went to sign up, the Biology teacher peered over her glasses at me and said, “I hope you are nothing like your brother! If you are, I will straighten you out when you get in my Biology class!” As a quiet, meek, sixth grader, this event scared me to death. My parents told me not to worry that she didn’t mean anything by it and that she was merely trying to make a point. However, that point continued to be made each time I saw the lady in the hall and she peered at me over those glasses as if she were the witch from Hansel and Gretel warming her oven and waiting patiently. I would not dare enroll in her Biology class. Therefore, I began to study Art.

I would not encounter a science course again until my senior year. The school system hired a female to teach Chemistry. I signed up for the class in hopes of doing a lot of chemical experiments. I was eager to experience the chemical world. However, much to my disappointment, the course consisted mostly of solving chemical equations. We listened to lectures, read about cool experiments, and solved equations. This was a real disappointment because they had just built a science lab, and I thought for sure that we would get to use it. Thus, my science identity still remained buried.

Upon graduation from high school, I could not wait to move away to start my college career. I was going to branch out from the confines of this small town mentality and see what the world had to offer. Unfortunately, the big world was quite a scary place. I had never been outside my safety and comfort zone. All of a sudden, I was on my own, living in a large city with no boundaries or limitations. I had freedom. This freedom eventually became my demise as I began skipping courses just because I could. I was a number at this large university, and it
didn’t take long to realize that when professors know their students only by a number, they did not care if classes were missed. Thus, it was not long before my poor study habits and poor class attendance caught up to me. I returned to my small, safe, haven of my small community to join the world of work. However, there was a feeling of inadequacy and failure that loomed over my head. I felt that I had given up my one opportunity to become more than what other females from my community had aspired to become. I took classes at the local college, but I simply could not afford to pay for them. Therefore, my academic career was halted.

After I worked for a while and married my husband, I began to yearn for the atmosphere of academia. I felt there was so much more I could learn. I had graduated with a class rank of 12 out of my graduating class of 62, and I knew I had the potential to do more than work as a secretary the rest of my life. Luckily, my husband could sense my desire to return to school, and even though my step-daughter was eleven and my son was two, we decided that it was time for me to finish my collegiate endeavors. Therefore, with his support, I enrolled in the local university because it was only a twenty minute commute from my home. Once enrolled, I realized that even though I still lived in the confines of a small town, doors were beginning to open for me. I completed my degree in three years, and quickly returned to the very high school where I had walked the halls many years before, this time as an elementary teacher.

As a teacher, I wanted to reach out to all students so that none ever felt the burdens of stereotyping that I had once felt. I wanted to instill a love of learning in them and to show them that they could set their goals higher than the goals that were once pushed on students before them. I also wanted to create a love for science inquiry that could carry them throughout their school science careers. Because Meadow View is a K-12 school, I knew that I could follow their progress once they left my sixth grade classroom. I wanted to see greatness from all of my
students as they went on to higher academic pursuits. I wanted to see them set their goals high and help them to never feel trapped by small town mentality. I wanted to make a difference.

My science classroom consists of a room with no sink and table top desks. The desks are configured in such a way that the students sit in cooperative groups of five. The groups are heterogeneous in composition so that girls and boys work together to solve inquiry-based labs. There are crates of AMSTI materials stacked everywhere. There are also cabinets filled with materials for other experiments that I engage my students in throughout the year. While I have no lab and no running water, we have found ways to improvise by bringing in water in two liter bottles and stretching extension cords all around the room so that electricity is available when needed. My classroom is always messy, and it bothers some of the administrators who venture in from time to time, but my students are actively engaged in doing science. The females and males alike are active in critical thought and problem-solving. There are also posters on the walls with words of encouragement and depictions of females working in science careers. Thus, I must be helping females to create a strong science identity to take into high school. However, my observations over recent years indicate that I may not be maintaining the impact that I hoped to create.

In the past few years, I have witnessed a phenomenon that has caused me to once again question the impact that this small town and rural school has on the lives of female students. It seems that the brightest females from our school are still pursuing careers aligned with the careers of their parents. If their mother is a teacher, they major in education. If their mother is a nurse, nursing becomes their chosen profession. Also, many who graduate and go off to college end up right back in the small community working. Could it be that the same events that impacted my science identity are still in existence now? Could the teachers still be conveying
negative messages that are pushing the girls away from science coursework? Could it be that the girls are as ill-prepared for life outside of high school as I was? Could their life experiences be binding them so tightly to this environment that it is inconceivable to live anywhere else? These are all questions that plague me and drive the very structure of this study with its bindings in sociocultural theory with underpinnings in identity theory and feminism. I returned to Meadow View out of feelings of safety and the desire to make a difference. Are some of the primitive views housed within the confines of this community still at work and impacting the science identities and career choices of females even now? It is hoped that the narratives of these young women will help provide some insight to modern day Meadow View and its impact on their science identities.

Summary

This chapter outlines the qualitative methods associated with interpretive biographic research as well as the procedures used in the study. Interpretive biographical analysis lends itself to creating narratives that emerge as thick, rich descriptions of three young female high school graduates as they embarked upon their first semester of college. The study’s context shifts from a rural community wherein the three young women reside and where they attended the same rural K-12 public high school to college and university life. Data was gathered utilizing open-ended interviews. All interview transcripts were analyzed and coded for interpretive meanings and shaped into interpretive biographies of each young woman. In the following chapter three life stories are crafted in the voice of each of the female participants.
CHAPTER IV

ANALYSIS

This study is situated within the boundaries of how three females attribute their lived experiences to the shaping of their identity, particularly in science, and how their rural community impacted that identity. An interpretive biographical methodology was deemed appropriate in seeking answers to the research questions. Because this research is guided by questions aimed at relatively young females whom just completed their high school careers, and are beginning a new phase in their lives, “voiced research” was utilized in order to allow their voices to be heard. “Voiced research” is a fairly novel mechanism used in order to give those who might have been silenced a voice to tell their story (Smyth & Hattam, 2004, p. 24).

Young people are often lacking in opportunities to express their ideals and opinions in a forum where they can be heard and taken seriously (Smyth & Hattam, 2004). Thus, the biographies of the three young women crafted here are presented in a manner that attempts to capture the very essence of their voice. The stories provided are of the participants’ own selection and are represented in their purest form in an attempt to give a voice to those whose stories would otherwise go unheard (Atkinson, 1998; Cole & Knowles, 2001; Denzin, 1989; Smyth & Hattam, 2004).

This chapter presents the biographies of the three young female research participants. Their stories emerged from interview sessions with the young women. The females each engaged in four in-depth interviews that were originally intended to last 45 minutes. As the
participants became more comfortable and began to find their voice, each session grew longer. Thus, the interviews lasted anywhere from 45 minutes to three hours. Each female underwent approximately eleven hours of interviews by the time research concluded. The interview protocols utilized at each session were framed at getting to the heart of the research questions. However, many new questions developed during the interaction between the researcher and the young women. As the level of comfort increased, more detailed stories began to emerge. The research sessions were conducted in the home of the researcher, and a close bond was created between participants and researcher. The research sessions often were accompanied by meals created while conversations were carried on. This allowed for a close kinship to develop between the researcher and all parties taking part in the study. The questions were largely created from the conversational style of discussion between the researcher and the research subjects.

The interview sessions were recorded and transcribed. The researcher then coded each interview transcription seeking to piece together the story of each female under study. The stories are presented in a logical progression so that the reader can easily gain the true essence of the story being told. Because of the narrative nature of the study, the researcher chose to weave together the emergent story lines in the words of the participants. Because all four interviews followed an interview guide with key questions, the biographies are organized utilizing the following categories: small town life, parents, religion, peer groups and peer pressure, high school, science identity, college transition, and careers/future. This approach allows readers to hear the story from the teller’s point of view, without imposing the researcher’s ideals upon the findings. However, the researcher offers her interpretations of the biographies and later reflects on her own story in relation to the recollections elicited during the reading of each story.
Atkinson (1998) states that when the participants discuss events of importance in their lives, it is near impossible for the researcher to listen without engaging in reflection on his or her own life. Cole and Knowles (2001) add that it is crucial to assure that the researcher’s story does not overshadow the stories of the research participants. Care was taken to prevent such an event.

It is hoped that as readers engage in actively reading the biographies, they develop their own interpretations in an attempt to formulate answers to the research questions:

1. How do three recent female high school graduates from rural K-12 high schools narrate their identity?
2. How do the lived rural community experiences of three female high school graduates shape their identity in science, and what happens as they transition to college?
3. With respect to their described science identity, what do the participants describe as having an impact on their academic and career choices as they transition into the life of a college student?

Meet Julie

Julie has lived her entire life in Oakville. Her mother also grew up there. She attended Meadow View for the entirety of her school career. During that time, she was involved in various clubs, serving as an officer in most of them. She also played many sports including cross country, track, softball, and volleyball. She was nominated for several awards by her teachers during her high school career. She also won numerous elections based on popularity among her peers throughout her school career. She was voted most dependable by her classmates in the Senior Who’s Who. She ranked number five in her graduating class of 121. Her story, as told by her, follows.
Small Town Life

The best thing about living in a small town is that I know a lot of people. I am so used to it. If I moved, I would miss driving down the highway seeing everything and everyone that I am used to. The main road goes one way through the middle of Oakville, so you are sure to pass somebody you know. I would miss going by people’s houses and waving at them. We are all close. I think people in the city are not as close. They may know tons of people, but they are not as close as growing up with a little over one hundred students in your class. I mean that’s a lot of students, but I felt really close to all of them because they were there K-12. In city schools, you have a lot of students moving in and out every year. It wasn’t like that at Meadow View. The people from larger cities don’t know everybody in their class. They don’t know them on a personal level. They may say hey to them at school, but they don’t know their lifestyle or anything.

I liked being a kid in Oakville. It was just the country. I think the back roads made it the most fun of all. I used to tear those back roads up with my bicycle. I stayed outside all of my childhood. My babysitter let us play outside 24/7. I was either outside on the bike running around or in a pool somewhere. I have so many memories of growing up here. When I was a little girl, my best friend and I used to think her house was haunted. She had this shed outside, and we would go out there and act like we were trying to find bones and stuff. One day we found some little ties, and we thought it was bones. At night, we would think ghosts were in her room. We thought the lady next door hung her pets because we found a rope in the shed. I also used to love playing with Barbies and playing dress up. I used to get my babysitter’s grandson in a chair and play beauty shop. I would always mess with his hair. I had imaginary friends, too. I was stupid.
Growing up, I was really close with my grandparents. I used to think my grandfather ate a whole bunch and I called him pig. One day, I went to Wal Mart with my grandparents. I call them Grams and Gramps. I was looking for Gramps in the store, and I kept yelling, “Pig! Where are you Pig?” That put an end to me calling him that.

My grandparents used to take me to the beach every year. I loved traveling with them. Destin was our beach. I loved it. They always took me on trips. They would do anything for me and take me wherever I wanted to go. They have been to almost every state, and if they didn’t take me, they brought back souvenirs for me. I remember always looking out the windows in the car. I would sit where I could see out. When I got tired, I would lay across the back seat. I would listen to the music and ride.

When my grandfather was stationed in El Paso, Texas, we traveled there. He was doing a graduation from the army and we went. It was my mom, my mom’s younger sister that is nine years older than me, and me. We got there and the car broke down. We had to wait on my grandfather to come get us. On another trip, my grandmother was driving. My aunt and I were asleep. I woke up, and we were in a ditch. It had begun to sleet while we were driving, and she hit a spot that was slick. She said traffic was coming, and we slid across the median and ended up in the ditch by a fence. I slept through the whole thing.

Another of my favorite things about small town life is the holidays. I loved Christmas when I was young. I would always try to be sneaky. I was always trying to open things or figure things out. I was always wrong. I would think I had it figured out, but when I opened it, I would be totally surprised. Christmas with the family is my biggest thing. I thought it would be different when I was thirteen and my little brother came along, but things are still pretty much
the same. I just wasn’t as spoiled after he was born. My parents still try to keep the presents even, though.

Life in a small town is more secluded and sheltered than in a big city. People are more laid back in the country, while city goers get out and do more. They see more of what is going on. The country people just keep to themselves on the farm or whatever. City people meet people after people because they are always busy. The city people get out and see things. They see prostitutes or whatever on the street. They are so used to it that it doesn’t offend them. They are not going to say anything about it. They know it happens, but if I saw it I would be shocked. Country people don’t see stuff like that. We see cows and farms. In bigger cities, you have homeless people. You see homeless person after homeless person. When I went to Georgia I was like, “Gosh! I wish they would just leave me alone.” It was kind of scary. They also have gangs in the city. We don’t have that around here. You have to watch out for more there. If I lived there, I would freak out.

You don’t think about bad things happening as you grow up in a small town. When you are young, nobody wants you to know about it. Your parents keep you from it, and you don’t watch the news. My mom always taught me not to talk to strangers or go anywhere with them, but I never felt unsafe. Until we had that horrible thing happen last year, I never thought anything bad could happen here.

Last year, one of my softball teammates was killed by her father. She and her mom moved here after her parents separated, and he tracked them down and shot them. Her aunt and cousin were there, so he killed them too. Then, he shot himself. That scared me. You don’t hear about that in a small town. That even made the national news. It was on CNN. It scared me. It wasn’t a complete stranger that shot her. It was her own dad. We were scheduled to play
a big game that day. We started thinking about what would have happened if he had come to the
game. It could have been some of us.

I think up until that happened, people thought Oakville was the safest place you could
live. They thought nothing like that could happen in our community. When it hit, it hit hard.
That was a mass murder. I didn’t think anything like that would ever happen here. I think it
changed people. I don’t trust people as much. It is still a safe community, though. I would still
raise my kids here because that wasn’t some psycho person. It wasn’t some serial killer. It was
her own dad. It is not like every week we hear there is another person dead in Oakville. It was
a family thing gone wrong.

In a small town, you also have more gossip. I mean there is gossip in a big city, but big
city gossip is probably more about what a girl is wearing. In places like New York, they
probably care more about looks. In Alabama, we could care less. I mean people talk about what
other people wear here, but I think small town gossip is different. I think gossip here focuses
more on the wildest people. Once you have done something wrong, or run around with a lot of
people, that gets out. From my experiences, when you just sit and talk in a group, if someone
brings up someone’s name, everyone knows about them. Everyone sitting there will start talking
because they know about them. It doesn’t matter if you are from a different school or what,
everyone has already heard. Because we are in a small community, everybody knows how that
person is. They talk about how she is wild, and she has done more than people know. They talk
about who hooked up with her. There are so many doing that in a bigger city that if I heard, I
probably wouldn’t remember. In a smaller community, once you have heard it, it is going to
stick with you for a while.
I think it is hard to change your reputation in a small town. It would be hard unless you calmed down and people started noticing. If you changed your ways completely, then people will start talking about how much you have changed. If someone has a bad reputation in a small town and moves to a big city, they could fall in with the city goers. They would go to all the clubs, dinners, and shopping. It would be easy to stick with your bad reputation because nobody knows you yet. Then again, with everyone knowing you in the country, you could go to a city where nobody knows you and act all perfect. Everybody would think your reputation was awesome. Of course, my parents have raised me to keep a good reputation.

Parents

I think family plays a large role in who a person is. I think people get their personality from their family. I know you have your own personality, but you get it from your family and friends. You live with your family all of your life, and you have your friends your whole life. I mean some people think they are more important than other people. If you look at their parents, they act the same way. They think they are high class. Then, you look at people that have a good personality they are really friendly and stuff. They probably come from a friendly family and have nice friends. I really think people get their true identities and personalities from their family. I think they watch their family. As a kid, I watched. I used to watch how my aunt acted. I still do that. I also would watch how my cousins were as kids. As a kid, you watch how people act. You grow up around your family. You know how they act, so you think you should act like that.

People are different, though. They like different things. I took my love of sports from my dad. I am not a musical person. I never have been. My mom wasn’t musical either. She wasn’t into sports, but my dad was very athletic. I knew he had played sports before, so I started
playing. There are some people that love to play instruments. They could care less about sports. Some people like to draw. I could care less about drawing. I think people adopt different habits or hobbies. A lot of what you enjoy doing is based on what you grow up doing, and what your friends like doing. If your friends are doing it and like it, you are going to try it.

Another thing that influences how people act could be TV. It could be TV that changes people. Many shows and movies say it is cool if you do certain things and act certain ways. When I was younger, I never saw gay people. It may have been because I didn’t know about that lifestyle. I never even saw a gay person on TV. As I got older, that changed. I seriously never saw gay people, and now I see them everywhere. I think the whole social networking system in society changes people. If you think about it, shows like *Family Guy* and *South Park* have cussing and sexual scenes in them even though they are cartoons. Movies also have a lot of sexual scenes. When I was a kid, there wasn’t much of that. People also try to dress like people on TV. If famous people suggest that something is cool, everybody listens. *Jersey Shore* has a dance move that is like fist pumping, and now everybody is doing it. I think a lot of what people see on TV is who they become.

I get a lot of my actions from my dad. People tell me I act like him. He is crazy. He is really out there. He says stupid stuff all the time, and he is very loud around family. He played sports in high school. He played baseball at Bakersfield (a school in a neighboring community). He used to tell baseball stories all the time because he was a pitcher. That is where I got my desire to be a softball pitcher. He wanted me to go to Bakersfield, but mom wouldn’t hear of it because she went to Meadow View.

When I was a little kid, Dad never got on to me. It was always mom who punished me. I think he may have spanked me once. That was because I bit him, and he told me not to do it
again. I did it again, so he spanked me. I have always been a Daddy’s girl. Even now, he texts me on the phone to see where I am, if I am late getting home. Mom is just like whatever. Neither of my parents is real strict, though. They are both laid back.

My mom is a workaholic. She is a charge nurse in a city about an hour from here. My dad is a pressman at the newspaper. Working wise, they both work hard to provide for their family. They don’t just randomly call into work sick like a lot of people. Dad goes to work even if he is sick. If he is throwing up, he still goes. He will not call in sick. Mom even picked up an extra day at the hospital. She was just working three days because they have twelve hour shifts. My tuition was coming due, so she picked up Friday as an extra day. That means she works four days, but she gets overtime for that extra day. She is getting more money on that one day she’s working. She had it figured out so that it would pay my tuition plus more.

They want to support themselves. They want to have fun and spend money on what they want to spend it on. They want to support Braxton and me. They are more concerned about us having what we need than what they need. I know one time Mom quit working at the place she previously worked. She got mad about something and quit. She was out of work for about two months. My dad was freaking out because that is a big chunk of money. We were all freaking out. I had that new Mustang. They had a house payment. They had all these other bills, plus groceries. We were living off Dad’s paycheck. He was figuring out what all we could sell. We have land, and I am not sure if it is paid for or not, but he was figuring out what to sell. He didn’t want to overdraft or anything. When Mom got her new job, it was a relief. Now, things are fine and they are both working at good jobs.

Both of their jobs really could have something to do with science. Dad’s scientific side would be mechanics. He can fix anything. They call him in to work to fix the machines. He has
to fix them so that the paper can be printed for everyone. He likes working on stuff. He likes working on cars and anything like that. Mom’s job would be scientific because of the whole nursing thing. You can ask her anything about medicines and things and she knows. Also, when I am doing my anatomy homework, she normally knows the answer. If I ask her questions about the body, she usually knows. She sometimes helps me find the answers if she doesn’t know. She usually remembers, though.

Growing up, my parents always encouraged me to try new things. They really encouraged me in softball. They also got me into riding roller coasters. I love that now. We have gone to a theme park every year but one. They encouraged me to live life, to go out there and do things, to be adventurous. They really pushed me academically. When I told them about the Top Ten, they started pushing. I was already placed in it, and when I told my dad about it, he told me to try to stay in it. Mom talked about how she was going to be in it but something happened.

Back when she was in school, it didn’t matter if you were on Standard or Academic diploma. A person getting a standard diploma beat her by just a few points. When I found out about that, then found out I was in it, I knew I needed to keep a 4.0. That is what made me really concerned about making A’s on everything. If I didn’t make a high A it was kind of a disappointment because I knew how you could fall out of the rankings. I think in my eleventh grade year, I was number eight. I kept checking to see where I was. I always wanted to know and when I would hear about people making B’s or worse grades, and I would go ask the counselor if it had changed. It went up three spaces, and I ended up at number 5. The counselor always told me how tight it was with our grade level. You could be a genius and still not place in the Top Ten. I think because my parents pushed me, it made me work harder to move up.
My favorite memory of my parents is when they bought my car. I think I love it so much because of the way they gave it to me. We had a volleyball tournament in the city. Dad didn’t get to come to the tournament, and I knew something was up because Momma kept on calling him. They kept talking on the phone, and she told me we might go look at cars after the game. I had always told them I wanted a Camaro or a yellow Mustang. Dad had always told me I wasn’t getting a Ford, because he thinks Fords are a piece of crap. I was disappointed because I really wanted a Mustang. I was convinced that it was out of the question, though.

We went to the dealership and the first thing I saw was this yellow car. It was a Mustang, my dream car. This yellow Mustang was sitting there with a big red bow on it. Mom said it had a bow on it because it was Labor Day weekend and there was a sale going on. I showed it to Dad and he said it was way too expensive. I kept on begging for that car until he convinced me that there was no way I was getting it. He showed me a 2004 charcoal grey Mustang and told me we might try it. I was okay with that.

We went into the office and they were talking to the salesperson about the money. She handed me some keys and told me they were the keys to my new car. I thought they belonged to the grey car, and then she told me they were to the yellow one. I couldn’t believe it! I was so lucky! They wanted to do that for me because I have never been in any trouble or done anything bad.

Religion

Religion is very important in my life. My mom was Church of Christ and my dad was Baptist. When they got married, they stopped going to church because Dad didn’t like her church, and she didn’t like his. He started working on Sundays, so they didn’t ever go. My grandparents stopped going too. Then, when my aunt started dating this guy, she started going
back. She also got my grandparents back into church. That was when I was pretty young. I was probably ten when they started going back. Up until then, I had been going to a Baptist church with my babysitter. I got back into Church of Christ with my grandparents. Also, when I started dating this guy, I went with him. I have always been to church. I think it is important, but I think a lot of people these days don’t go. I think church is a lot more important in small towns. I don’t know if because the town is smaller it just looks like more people go or not. It could be that the same numbers of people go. It is just that cities are so big. It doesn’t seem like as many people go. I know college can really force people from cities and small towns to think about their religious views.

Biology class may make people start to question their religious views. In biology, we have been studying evolution. In my textbook, evolution goes back millions and millions of years. I was sitting there thinking that the earth hasn’t even been in existence that long and wondering where they came up with all of that. It will make somebody that doesn’t know religion curious. If they don’t believe the Bible, they will go by what the scientists are saying. Dinosaurs and all that confuse me and I go to church. Listening to the professor, you start thinking it might be true. Then, when you go to the Bible, you are like, “No!” People that don’t know are going to believe the scientists over the Bible. I just sat there and wrote down whatever he said. Nobody even questioned him. Our professor just went by the book, though. He didn’t put any of his beliefs in it.

There is this crazy guy that has been coming to my college. He sits there and tells everyone basically that they are “going to hell.” He said, “If you join a sorority or fraternity, if you are this or that, you are going to hell.” He did not know what he was talking about. He said that marijuana was in the Bible and stuff like that. He said, “If you have a facebook or myspace,
if you are gay, or if you are this or do that you are going to hell.” It turns out he has a youtube video, but facebook and myspace are bad. He said, “If you smoke pot and stuff you are going to hell,” but when he was younger, he was a drug dealer. I am surprised he didn’t get punched.

An Atheist started arguing with him and he was just good. The other guy didn’t know what he was talking about. People started questioning him, and he would start rambling on about something else. The Atheist was really, really smart, and he would name books. He knew his stuff. It would make you just sit there with him saying all that and wonder. I think that a person that is not very religious would listen and think maybe he was right. It was weird. My friends and I were all sitting there in shock. We were like, this really makes you think. Someone who has never been to church is going to go by the scientist or someone who doesn’t believe in God. He could probably pop so many things in my head to make me think. I believe he had probably read the Bible a time or two just to try and figure things out. If I was standing there and didn’t know my Bible, I would believe him.

I think if people would just sit down and read just a few verses, they would realize that the Bible is real, and that what other people are saying is not real. I think some people are twisting things in the Bible around and making it into something else. I think that’s why back in the day there were more people going to church. Everybody believed what the Bible said. As you go along through centuries and generations, people’s opinions start to change.

I don’t think evolution should be put into science. I think something about dinosaurs should be, but I don’t know that I believe that a major asteroid killed them off. It all confuses me. If I was a teacher, I wouldn’t know how to teach it. I would just tell them that I don’t know how. I wouldn’t want to go by scientists’ words over the Bible. I think it is different in a small school. I think more people would ask you about evolution in a big city. I seriously don’t ever
remember hearing anything about it in school. The only time I have ever heard evolution mentioned in my whole life is somebody talking about it at church or right now because I am studying it. I think city schools probably talk about it more than county schools.

Some people that aren’t that religious are good people. They are really good people that have good lives. On the other hand, a lot of people that don’t know anything about religion stay in more trouble and they don’t really care when they do something wrong. Some of them are even Atheists. I really believe that people who don’t grow up in church or who don’t have religious families stay in trouble more. They are like the serial killers. People who go to church know right from wrong because they have learned from the Bible. God said this was wrong and that was right. They just know how to act, I guess. I know that some people who go to church are buck wild and crazy, but there is a difference between a wild stage and just a plain trouble maker. Those who go through a stage usually go back and change their ways. The troublemakers are usually the ones that are stealing, breaking the law, smoking pot, and staying in trouble all the time. The people who go to church, may start partying, and they will drink a little. They might smoke. They might get into that because their friends are doing it. They do it, but then usually after a couple of years, they change their ways.

I have never dated a guy that wasn’t a Christian. If I ever do, I will try to change it. If he wasn’t Church of Christ, we would probably discuss our views. I would try to get him to go to church with me. If he didn’t want to, then I would just have to suggest we swap back and forth. If we decide to marry, we would have to make a final decision. I think sometimes it is just better to date a guy that is the same religion. It cuts down on conflict.
Peer Pressure and Peer Groups

I think guys have a harder time with peer pressure than girls when in high school. If one guy is drinking a beer, the other guys are going to drink one too because they don’t want to be made fun of. Girls are just like, “I don’t do that.” I have some friends who go to different schools that drink, but at Meadow View we don’t. If we go somewhere and they ask us, we just tell them that we don’t drink. They could care less if we drink or not. I think the guys worry that they are going to be talked about, or that they are not cool if they don’t do it. They worry that the girls who party won’t think they are as cool because they are not smoking their cigarettes or drinking. I guess the guys are more pressured into stuff than girls.

There were all kinds of groups in high school. I think freshman year is when the groups formed. We always had groups, but every year they changed some. You would be in a different group from one year to the next. I was friends with this girl in elementary, but I never talked to her in high school. If we were all sitting together, I did, but I never hung out with her. We weren’t close. It is weird how some people that spent the night with each other in elementary never did that in high school. We just all split. A lot of people I stuck with were people I played sports with and they were usually my good friends. Some people thought we were stuck up because we played sports or we didn’t do the things they liked. I think it is just that people got in their different groups and held different opinions of the people from other groups.

Basically, all of the sports people stuck together. You had sports guys and sports girls. They were a big group and some people would call us jocks. I talked to everybody, but I hung out with the sports people. That is just what I was used to doing. Then, you had the band people. You had the weird, artist type that liked to draw. The people that we called weird were more like artsy, drawing those fake cartoons and stuff. They would wear weird rock band t-
shirts. They wore mostly black. The biggest group was the sports group, though. The second was the band. We didn’t have many nerds, and if we did, they were in the other groups. I would say there were three main groups. They were the sports, the band, and the weird.

The groups mostly got along. I think in every group, somebody is going to talk about somebody. I think the people that mostly talked bad about the groups were the people in their own little clique and not in a group. I mean everybody talks about somebody at some point, and then your friends are going to agree with you. I don’t think that happened much, though. I don’t remember talking much about anybody. I might have said they were dressed kind of weird or something. I am sure a bunch of the weird people and band people thought we were stuck up. I never had anybody call me stuck up, but I know they called some of the girls stuck up. They also called some of the guys in our group jerky.

I would say some of the guys in our group were jerks. They thought they were all that. A couple of the football players were mean. If somebody said something, they would just be like, “psht” and ignore them. They were not like that to any of us. They were mean to the people that we never talked to. Some of them were even mean to their own friends. They had their nose in the air like they were all that. They were normal, real jocks.

A couple of those jocks are having a hard time coping in college, now. A bunch of people do not like them. My two best friends hate them because they think they are all that. They have always been that way. They are really not that bad, but if I didn’t know them, I would think that about them, too. I think people that act like that in high school end up with no friends after graduation. They don’t stand out in college. You can’t act that way in college because there are too many people that will either say something to you or ignore you completely.
There are groups in college, too. I talk to people around me in class, but in the student union building everyone gets in groups. You have your different fraternities at tables. The sororities split into their own groups. Then, whichever fraternity combines with whichever sorority sits together. The gay people sit together. At our table, we have all of the Meadow View people and the cross country people. A lot of times, the different sports teams like the baseball team sit together. I think it is just because once you get used to people, you are going to sit with them. I sit with the Meadow View and cross country people. I know some people say that once you go to college, everybody splits, but we are stuck together like glue. Of course, I barely ever see or talk to my friends that go to other colleges. I haven’t spoken to some of them since high school.

High School

I don’t think county schools prepare people as well academically as the city schools. If you think about it, city schools have this big academic reputation. The county schools just get thrown out there. One of our county schools has a pretty good academic reputation. They have AP classes and that helps a lot. City schools have tons of those. I think if we offered those, our reputation would be better. People think you must be stupid when you tell them you went to Meadow View. My dad has always joked about Meadow View people not being as smart as other people. I do think city schools have harder teachers. I don’t think I learned as much in high school as I would have in a city school. I had one teacher who taught me how to study. If I hadn’t had her, I wouldn’t know how to study. Because of her, I am doing fine in college.

I think all schools are basically the same in elementary. I learned a lot of the basic stuff I needed to know, like my times tables, in elementary. In high school, though, you need to learn a lot more. They [high school teachers] need to go into more detail, because when you get in
college, they go into tons of detail. If you don’t cover that detail in your high school years, then you are kind of lost. I think in high school, they need to push harder for students to know more. I think a lot of the teachers are good, but a lot of them are just there to draw a pay check. A lot of teachers give you free days, but there were some like our math teacher, that never gave you a free day. We were always doing math. I would say she could be a college professor. I really did learn math from her. She did really well at explaining and was a good teacher. My college English professor told our class that he could tell that some of our teachers didn’t teach us much.

Some of the teachers had football Fridays. We wouldn’t do anything in class because the football players had a big game. During volleyball and softball seasons, they never mentioned the girls’ big games. The boys’ sports were treated as more important. It wasn’t like that in elementary. In high school, the boys were all that mattered. Their teams were worse than the girls’ teams, but they were still more important to the teachers. The boys got to goof off a lot more than girls, too. It could be just because the boys were a lot more obnoxious. They got in trouble more, but it wasn’t real trouble. They got away with a lot more.

Don’t get me wrong. I loved high school. I am having the time of my life in college, but I loved high school. My favorite grades were seventh and eighth grade, and of course, senior year was great. Senior year, we had a lot of people that wanted to get out. I didn’t care about leaving. If I could repeat senior year, I would. I would just make every year senior year. I loved it. When I got to the end, I was excited about going to college, but when I got in college, I wished I was back in high school. If I could, I would go back to when I was five right now and do it all over again. I don’t have any regrets about any of it. I really liked my whole lifetime. Maybe I should have given some people more time. I should have talked more to those people that we called the weird people. I mean I was always nice to them if I saw them in the hallway.
I would always speak. Even today, if I see somebody that I didn’t talk to that much in high school, I speak to them. I really think the only thing I would change is that I would talk to them more.

I guess the best thing about a small school is that everybody knows you. If I had gone to a city school, I would have three or four hundred people graduating in my class. I have talked to people who had classes like that, and they didn’t even know everyone in their class. They also only knew a few of the people younger than them. If I had gone to a city school, my teachers wouldn’t know me as well. At Meadow View, everybody knows me. If they don’t know me personally, they know someone in my family or one of my friends. I do think larger schools offer more in the way of science, but I would still rather be in the small atmosphere.

Science Identity

I think people who watch channels like the Discovery Channel are the ones who are interested in science. I also think kids are naturally interested in science. When I was younger, I was really interested in animals and all that stuff. I know people that will just sit there and wonder how things are made. I do it all the time. Little kids probably wonder about things like what causes rainbows. I think kids think a lot about stuff, but it never gets brought up in the classroom. It is just supposed to happen. I don’t think teachers push enough.

If you get a good science teacher or have a good high school science lab, you will be more interested in science. We did a lot of experiments in elementary. We also did a lot of AMSTI stuff in eighth grade. After eighth grade, we didn’t do any of that. I had a male teacher in eighth grade. I had one other male teacher, and that was in seventh grade. We didn’t do anything in his class. He was a coach. That may have more to do with it than anything. A lot of our science teachers were coaches. In seventh grade, we had a coach. We also had a female
basketball coach as a high school science teacher. One of the other science teachers was the cheerleader sponsor. We really only had two science teachers that didn’t coach anything, and I learned the most from them. I think coaches tend to be easier and lazier because they have so much to do and so much on their minds. I never learned anything in their classes.

My anatomy teacher didn’t coach, and I learned so much from her. She taught me more my senior year in anatomy than any of the other years combined. When we had biology tests or chemistry tests, I looked over it thirty minutes before we took the tests. I would read over it, and then I would take the tests. I always aced them. They were easy. I couldn’t do that in anatomy, though. I really had to study and learn it. Because she was so hard, I learned a lot of things that I didn’t know about the body. I had to name all the bones. I had to label them. I think that is what made me like anatomy so much. Now, that I am in anatomy in college, if I hear something, I already know what it is because I learned it in high school. I remember anatomy, but I can’t remember the other stuff because I didn’t learn it as well.

Anatomy in college is hard. It is just a lot to remember. We dissected a rat our second week. In biology, we didn’t dissect anything. We mostly looked at plants and stuff under the microscope. The rat is like a human if you were to dissect a human. Our lab book has pictures comparing the two. It is weird that they are comparable. There was one rat that was pregnant when someone in my class dissected it. It was so sad. The teacher said she did not want to see that. I broke one of my rat’s legs when I was pinning it down. My lab partner got hers pinned down and when I was pinning mine down, part of it just snapped on me. Then, she broke one of its lower legs. It was nasty. I heard it pop and everything. The smell during dissection was starting to make me sick at the end. We have two more things to dissect. I think our last lab is to dissect a cow eye.
I like science more now that we are doing stuff. The lab helps. When you have so many students, you can only teach what is in the book. In lab, we have a different lab book. We cover what we have learned, and it is a lot more interesting. Maybe if other fields had more labs, or if high school teachers did more labs, more people would go into things like chemical engineering. You don’t know if you like it if you have never done anything with it. We never did anything in the science labs. On TV and in the movies, you see people wearing gloves and safety protection, working with chemicals and conducting experiments. Maybe if people experimented with chemicals and stuff in the lab, they would want to become something more. I think the lecture turns people off. It did me. I just got the study guide, copied it down, looked over it before class started, and took the test. I would have no idea later what I took a test on. I don’t remember any of it.

I remember more by doing it. Now, I think I should have gone to trade school during high school since I have decided to major in nursing. One of my friends went to trade school, and she already knows how to take blood pressure. I don’t know how to do that. I will have to learn it when I go to clinicals, and a lot of other people will already know it.

I don’t know a lot of boys that like science. Boys are more outside people. They always came to us for all of the answers in science and on homework. They are more the hunting type. They like being outdoors, so they might like environmental science more. A lot of my guy friends could care less about chemical bonds. They just like nature. I do know that there are more guys in chemical engineering, though. That might be because girls think it is a harder job, and they might get hurt. It is not as safe as other jobs. That might be why girls are not engineers. It is really dangerous. If they have kids, they don’t want to risk something
happening. They want to see their kids grow up. That may have a lot to do with all the choices they make concerning college.

College Transition

When I first started college, I figured I would flunk out because everyone told me how hard it was. It is real laid back, though. I thought the teachers would be a lot stricter than they are. They are not as bad as one might think. I figured the classes would be like on TV with those 300 seat auditoriums with the professor at the bottom, but they are just regular classrooms. When we did the campus tour during freshman orientation, we just walked past the buildings. We never went inside. They say the building that looks like the castle is haunted. That is where my history class is.

I love college. I think if you go in with the mindset that you are going to do good, then you will do good. I thought I would make B’s and C’s and not have my 4.0, but I made all A’s. I thought I had a B in one of my classes, so when I saw my A, I was so excited!

Now that I am in college, it is weird because I have to go to the city everyday. All of my classes are spread out. I have these long breaks between them. I have class everyday. I also work Tuesday, Wednesday, Friday, and Saturday. I have four days of work and five days of school. On Mondays, I am at school until nine at night. I study during my breaks because none of my friends have the same breaks this semester. I usually go through a drive-thru and then go to my Paw Paw’s auto repair shop. Last semester, when my friends had classes with me I went to the student union. Not having them with me this time is really weird. I feel like a loner. I do know two guys in my anatomy class. I sit by one of them, but I am a lot quieter. Everyone probably thinks I am nonsocial. Once I know someone, I am not shy. I just don’t have anything to say because I don’t know the people in my class. I am afraid I will say something wrong. I
have never answered a question in class. A lot of times, I know the answers, but there is no way I am raising my hand.

The whole fraternity and sorority thing has also been hard to get used to. It is weird how some of them are not friends with each other. That whole party scene is strange, too. I don’t go to fraternity parties to party. I just go there to see people. It is weird when you see people you know from your school or different schools out there partying. One time, I was at a party and this guy from school was really drunk. He kept pushing me to dance. I told him I would another time. I went to a Halloween party, and it was so crowded we didn’t stay 15 minutes.

I have seen everybody at parties. I have seen people that graduated last year. I have seen people that graduated five years ago. People are crazy. They are wild. I am just not used to that stuff. I didn’t go to parties in high school. This past summer, I went to a few at people’s houses. That was the first time I have been to parties with people I don’t know. That whole environment was wild. When you walk in to those parties, you are sure to see something you are not expecting. It probably wouldn’t shock me as much if I had grown up in a big city. I think city schools are more used to throwing huge parties because there are so many people there. They are probably used to seeing that stuff because they probably go to the fraternity and sorority houses. The older people probably invite them. In the country, we are in our own little secluded world.

Growing up in a small town, I didn’t see as much stuff as city school people probably saw. I was shocked when I went to college because one day two girls made out. They were right outside. I was shocked! There is another guy that I know is gay because of the way he dresses. One day he was wearing high heels. It was weird! I don’t think my friends would have taken people being openly gay in Oakville very well. There were a couple of people we suspected, but
they weren’t open. I don’t think we would handle it well. I think it would be hard for them to come to our school. I think if they did, they would have a lot of controversy because I think the red, rednecks and people of Oakville would go crazy. They would probably end up getting beat up or having something said to them. People in city schools probably see more couples like that. They are probably talked about, but it is probably more common. I mean I am not racist or anything, but I think it would even be hard for a lot of blacks to come to our school because it is overpopulated in whites. There have never been many blacks there.

Career and Future

I used to want to go to a school down south. I wanted to major in pharmacy, then. I found out how hard it was to get into pharmacy school, so I figured I would choose something else I like, go ahead and get my degree, and be making money. Another thing that changed my mind was that I found out how in debt a lot of pharmacists are. One of mom’s friends told her about that, and that pharmacy school is also too far away. I didn’t want to move, so I chose to go to college locally.

I think I’ll like nursing more than I would pharmacy, anyway. Mom used to always come in and talk about her job when I was little. I think that is what got me interested in nursing. In second grade, I wanted to be a nurse and then I changed my mind about five times. At one point, I wanted to do something like CSI. I know a lot of people watch that show and that kind of made me interested in forensics. I would love to do that, but the whole thing standing in my way is moving. I also wanted to be a mortician. My uncle is a mortician, and for some odd reason, that interests me.

As much as I love anatomy, I could teach. I could teach it. I really could care less about grass or learning about the environment, though. I would rather learn about the human body or
animals. I used to see myself as a veterinarian. I think that is one reason I am going into nursing. I like to know what is going on with the body.

I am going to college two extra years so I can be a nurse anesthetist. I am going to try to get a job at the hospital where Mom works. They make pretty good money there. The hospital asked her to be a charge nurse. She was already a charge nurse, but now they are asking her to work all the floors. She doesn’t know if she is going to take it or not, but she has to be in control. She works three or four days a week, depending on when my tuition is due, so she has more time to spend with us. I am thinking about going somewhere like that. I could live here and drive. If you work two years for some hospitals, they will pay for your anesthetist degree. You have to sign a contract saying you will work for them a certain amount of time. I am going to see if somebody will do that so I can go the extra two years.

I can’t see myself moving off. If I have to, I will drive everyday like my mom does, but I don’t see me moving. I love the country. I like the fact that I know everybody and I know the stuff I pass everyday; the same roads, the same everything. I know where everything is. I’m good. I don’t like change at all. If I met a guy that wasn’t from here, I would see if he would move. I will probably end up marrying a redneck from Oakville. I mean a country boy, because I like hunting and stuff. I figure I will marry somebody that gets into all that, or I will marry someone really into sports. I hope he is from here, or I will just tell him he has to move. Seriously, if my husband had to move for work, I guess I could get used to the change, but I would have a hard time with it. I really don’t want to move. I would be miserable in a big city. I would still come down here all the time.

The perfect life for me would be to have my degree and be a supervisor or charge nurse like my mom. I don’t know if you can do that as a nurse anesthetist, but I know you can as an
RN. If I was an RN for a little while, I could be a charge nurse. I would like to supervise and keep everything in control. I don’t care to be told what to do, but I like to make sure everything gets done. I want to have a good job, have my own house, hopefully not be in debt at all, and have a family.

I just want to have my own little family. My ideal life would be that I marry a guy with a good job. He better work. I won’t have a slacker. I would marry someone that I know would work for sure. If he wanted to be something like a writer or a musician, I would be supportive, though. I would rather him be happy than rich. I would support him, but I would suggest he get a college degree while he is doing that. He could teach or be a businessman and still do that. He could work while he was doing that, because if that fails, what does he have? I would be supporting him. I would be supporting everybody. He has to work. I just see it as lazy if he could be working, making money, and supporting his family, but he is just sitting on the couch watching TV all day instead. I would work even if I didn’t have to. I would get bored if I didn’t. That is why I work now. I get bored. I would also want my husband to help me around the house. Dad loads and unloads the dishwasher. He washes and dries clothes. He takes out the trash. I want someone that will do little things like that to make me happy. If my husband was demanding like you have to have this done by this time and this cleaned by this time, I would be like, “Nope!”

I want two kids, ideally a girl and a boy. I would send them to Meadow View, or at least a county school. I want my kids to be in with everybody like I was. I want them to have good friends and know people in their class. I would want them to go to a small school for that and for sports. Academically, I would probably rather they go to a city school. If Meadow View started getting AP classes, I would send them there. I would make them take the harder rank. I would...
also probably dual enroll them in college because I didn’t know much about that. I only found out about that my junior year. I didn’t know about it, so I was kind of scared to go to college. Now, that I have college classes with people that are high school seniors, I realize I should have done that. Our counselor wouldn’t help us find out anything about it in school. She would hand you a piece of paper, but you were basically on your own. I think if enough teachers complained that we needed AP courses, it would happen. All county schools should have them. Those exams they required us to take didn’t prepare us for college one bit because they were nothing like a college exam. I would have much rather had an AP course.

I would still send my kids to Meadow View, though. I don’t like the idea of them growing up and becoming really good friends with all these classmates, then having to switch schools. They would have to make friends all over again. I don’t like the whole switching thing because I spent all of my school years at one school. When new people come in, it is strange. I wouldn’t send them to two or three different schools. I would let them stay at that one small school and hope they got harder teachers.

Interpretations

As Julie narrates her identity, family life emerges as a major influence upon the person she has thus far become. Her statement that, “family life plays a large role in who a person is,” almost precisely coincides with research findings. Research findings indicate that support of family members has demonstrated positive implications for the development of female identity when entering adolescence (Saitzyk & Poorman, 1994). Likewise, students often create an identity formed out of interaction within the home before entering school. This allows moral codes and perceptions to be instilled into children while they are young, thus shaping identities very early in life (Davidson, 1996; Liao & Cai, 1995). This is evidenced in Julie’s description of
being a watcher. She watched her family and learned their behaviors. As she described this, I almost envisioned her lurking around corners and behind doorways with a pad and pen taking notes on the actions of her aunts and parents.

Julie also beamed as she spoke of how her parents encouraged her. She described them as laid back. She seemed to find a balance between both parents when demonstrating which parent has the most influence on her identity. She spoke of herself as a “Daddy’s girl” and related how her father could never punish her. She described how family members told her she has her dad’s personality, and she spoke of how she inherited her athletic ability from him. However, Julie described her goals for the future in directions that parallel her mother’s career choices. Research indicates that the educational attainments of mothers and their perceptions of their daughter’s abilities impact the educational goals of many females (Reeder & Conger, 1984). Other researchers suggest that females often maintain goals of becoming successful and respected in the career world like their fathers (Gilbert & Calvert, 2003). Julie provided examples of her thinking as she described her aspirations to be a charge nurse like her mother. She also painted a portrait of how the both of them like to be in charge in order to assure that, “things get done.” It was also her mother whom she turned to for help with her homework. Along the same lines, she described how once her parents found out she was in the top ten they pushed her to stay ranked in it. As she talked, it seemed that her determination was spawned by the fact that her mother fell out of the academic top ten during her senior year. It is evident that they did not want the same thing to happen to her and that she did not want to let them down.

When asked about peer pressure, Julie acknowledged that friends do play a role in personality traits. However, she was quick to point out that she does not care what people think when she tells them she doesn’t participate in drinking alcohol. Hartnett (2007) suggests that the
friends selected by an individual student often have a much greater influence on teen morality than parents. Pierce (2005) concurs by stating that students define themselves in relation to how they are viewed by others instead of whom they truly are inside. To the contrary, Julie exhibited a degree of confidence in her ability to withstand peer pressure when making choices about how she conducted herself socially. She cited the Bible as a major source of her strength.

In discussing the different groups at Meadow View Julie very quickly aligned herself with the athletes or jocks. She described three main groups. She called them the jocks, the band, and the weird group. She described the jocks as the largest and most popular group, followed by the band, and then the weird group. She did not seem to mean the title of weird as a negative connotation, nor did she seem to consider how that title might affect members of that group. She described the weird group as the group that was into art and wore rock band t-shirts. She related how most of the groups got along, but that some in her group were seen as “stuck-up” or “jerks.” However, she was quick to point out that she was never mean to anyone, but that she does have feelings of remorse for not talking to the members of the weird group more. It almost seems as if she has some inkling that perhaps even she was not as kind to the less popular groups as she could have been. She was content to be in the top group and if she associated too closely with members of the other groups, there could be some risk of being ostracized and losing her social status. Identification with certain groups at least allows students to find a place to fit while deciphering their true identity (McLellan & Pugh, 1999). Students create names for groups of others students based on perceived characteristics or behaviors such as “nerd” for the smart kids and “jock” for the athletes, but these names can often carry a stigma that is negative, thus impacting the adolescent wearing the title for life (Kinney, 1993). Once a teen is cast as a
member of a particular group such as nerd or geek, it is very difficult to climb the social ladder to a different more desirable group (Hartnett, 2007).

As the conversation shifted to science, Julie began to reflect on her high school science experiences. She quickly pointed out that she was frustrated with her high school science courses for the most part. She conveyed feelings that many of her high school teachers were merely there to draw a paycheck, and that most of her science teachers were coaches. She explained that coaches are preoccupied with their sport, leaving little time for science instruction. Julie described still exhibiting a degree of anger that her science teachers had football Fridays. They actually gave their classes free days on Fridays. This bothered her greatly because as a female athlete, she felt female sports were underappreciated. Researchers indicate that teachers tend to allow more vocal attention-seeking boys to divert attention away from girls, and this can often hurt the self-confidence of girls as they are overlooked (Digiovanni, 2004; Maher & Ward, 2002; Owens, et al., 2003).

The classroom experiences in high school and in college provide almost the entire basis for how Julie narrates her science identity. She attributed her fondness for studying the body to her high school anatomy teacher. She also conveyed that this was the only teacher who prepared her for college and taught her how to study. She demonstrated her learning preferences by stating that science lectures have turned her off to science, while labs like she is currently involved in with college anatomy are enjoyable. In reflecting back upon her experiences she believes that teachers should push kids harder to build upon their natural curiosity about the world. Her ideas affirm Barton’s (1997) findings that teachers should strive to utilize multiple teaching techniques in order to engage students from all walks of life and all backgrounds. Julie’s collegiate experiences seem to have created a more desirable format for science learning.
However, she expressed some discomfort with the topic of Evolution. She pondered the topic a bit and admitted, “It makes you think.” However, her greatest concern was how the topic impacts those who don’t have a religious background.

Julie’s self-confidence seemed to decrease a bit as she spoke of how people from larger schools view those hailing from rural schools. She believes students from city schools are better prepared [academically] because of their abundance of AP course offerings. She detailed how people consider graduates from Meadow View stupid because of their lack of advanced courses. However, she quickly added that she has maintained a 4.0 grade point average as she enters her second semester of college. Research suggests that rural schools often lack funding to provide the educational opportunities afforded by more affluent urban and suburban schools (Broomhall & Johnson, 1994). Also, students from minority cultures may feel inadequate when they are placed in a classroom context where they perceive the students to be more affluent and smarter than they are (Brickhouse & Potter, 2001).

Julie went on to explain that college has not been what she expected. She acknowledged feelings of loneliness and isolation because she had no classes with her friends. She had classes with many friends from high school during her first college semester, but there are none in her second semester classes. She described being much quieter and afraid to speak in class at the risk of saying something wrong. She has gone from dining in the student union building with her friends to leaving campus and going to her grandfather’s business for lunch to avoid being alone. She also spoke of her amazement as she revealed how she had seen people from Meadow View High School engaging in “party behavior” at sorority and fraternity parties. Additionally, she was somewhat taken aback by the number of people who openly exhibited alternative lifestyles.
Clearly the social realm of interactive experiences greatly influences a student’s identity both inside and outside the classroom (Brickhouse, et al., 2000; Farenga & Joyce, 1998).

As we spoke of college and career choices Julie explained that she loves the familiar feeling of coming home to Oakville each day, and that she doesn’t like change. It was apparent that her choices were based to a large degree on her desire to remain in her hometown. Her initial choice of college major was pharmacy, but in addition to moving away, she discovered that many pharmacists maintain a high amount of debt. She is determined not to be in debt when she finishes college, so this was an issue. She also learned how difficult it is to get accepted into pharmacy school, and that process did not appeal to her. Likewise, she ruled out forensics or becoming a mortician before settling on nursing. Her love of studying anatomy and the fact that her mother is an RN led her to decide on pursuing a degree where she could remain in Oakville and become a nurse anesthetist. The educational attainments of mothers and the perceptions of their daughter’s abilities impact the educational goals of many females (Reeder & Conger, 1984). Complex influences interacted in Julie’s decision but she clearly made her college and career choices based upon the educational choices of her mother and her desire to remain in her small town.

In addition of her aspirations of becoming a nurse, Julie spoke of her desire to marry and have a family. However, she insisted that she would work even if it was unnecessary. Her expectations are that she and her husband will work and he will help her with household duties. She explained her feelings that things have greatly improved when it comes to women being accepted as a part of the workforce. She asserted that if she could not work she would get bored and pointed out that she has worked since she began driving. While research indicates that societies instill sex-role expectations onto males and females and then train them to abide by
rules, behaviors, and ideas acceptable to particular genders (Howes, 2002), she demonstrated a
great degree of confidence in the fact that gender roles have become blurred.

Meet Sophie

Sophie has lived her entire life in Oakville where both her mom and dad grew up. Her
family is one of the more prominent families in Oakville since her grandfather had 12 siblings
that all farmed in the community. Sophie’s mother attended Meadow View High School, just
like Sophie and her brother. During her school years, Sophie was very active. She was involved
in almost every club available, and she served as an officer in several of them. She was also
elected to homecoming, coronation, and prom court on many occasions. She was chosen to
represent her class as junior class secretary, and senior class president. She received many
nominations from her teachers and awards during her high school career. She ranked number
eight in her class upon graduation.

Small Town

I have always lived in the same place. My parents built the house when Momma was
pregnant with me, so the house is basically the exact same age as I am. It was a good place to
grow up. We have the woods, the pastures, and the animals so I was always outside. We have
plenty of room to ride our motorized stuff. When my brother and I were really young, it was just
the two of us. Our cousins moved close to us later. There was also another guy that lived right
down the road, so he was always over there. My brother’s friend that lives up the road was also
always over there. We always had people to play with us. They were mostly just boys, so I did
the same things they did.

I like doing pretty much anything outside. I like riding horses, dirt bikes, and four-
wheelers. I like just sitting outside and reading or going to my grandparents’ house. I don’t
really have an exciting life. We live about two miles from my grandparents. My favorite thing about living in a small town is spending time with them. I love being outside with Grandpa and watching TV with Grandma.

My grandparents have always had horses and llamas. They have also kept peacocks and all kinds of other exotic animals. I love going to the farm and being out there with the animals. Grandpa is seventy-three but we still go riding. This past weekend, we went riding four-wheelers. He also has a dirt bike that he rides, and he just got a street bike. I loved growing up here where I could spend every summer with them.

Growing up in a small town, you have so many family traditions. We have Christmas at my grandpa’s house with all of the main family on my dad’s side. We eat, and then we all go in the living room. We all sit and open presents together. We draw names because there is a bunch of us. We open the presents, one person at a time, so it takes a while. We spend a lot of time talking, and we video everything.

We also have family reunions with my dad’s entire family at the creek at the old homestead, which is where my great grandma’s house was. On the Fourth of July, the entire bunch goes on a canoe trip up in Tennessee. There are about thirty canoes. The person I was in a canoe with this year flipped us over on purpose. That was the first time I have ever flipped. My parents flipped last year. There was a log, and it caused everybody to flip. It got my parents, it got my uncle, and it got like five canoes at one time. It was crazy. That was the first time my parents have ever flipped, and it scared them to death. Momma doesn’t like the water because she doesn’t swim. She used to, but now I think she has a mind thing where she thinks she can’t. She won’t get in water that she can’t stand up in, so it scared her. My dad doesn’t like getting wet and he doesn’t like to swim anymore.
Dad’s side of the family also used to go to Colorado every other year before all of Grandpa’s older siblings got too old. We went two years ago. I also remember going when I was seven, so I have been on that trip twice in my lifetime. We have family reunions with my mom’s family twice a year. We go there on Thanksgiving and sometimes around the Fourth of July. We have birthdays at my grandma’s. We usually wait until about three people have had one, and then we will have a combined party. I like each tradition for different reasons, but as far as getting together and being close to people Christmas and my mom’s get together are my favorites.

I like living in a small town. I like it here. Some people hate it because they think it is boring, but I don’t really like going to town. I am content just to sit at home with my family doing nothing. I like how this small town is not big. It is country and all, but you are still right down the road from town. If you need to go, you can still go there, but you are back in the country when you get home. That’s what I think I like about it. I don’t want to move. I don’t like traffic and city stuff. When I get older, I want to have a farm in the woods and not have to worry about anything like you would have to worry about in the city. I just don’t care about the city.

I think being in a small town allows you to more identify with who you are. In the big cities, there are so many people and nobody cares about you. You are just another person walking down the street. In a small town, people know you. They know who you are and how you are. They know your business and stuff. That doesn’t bother me because I don’t have any business for people to know. I guess you are just more able to identify with yourself and who you are probably a little more.
Parents

I think I have pretty much the perfect parents. We get along really well, and they have raised me real well. They don’t ever have to worry about my brother or me. They trust us. They talk to me a lot. Some people may say I have lived a sheltered life. I guess it has been a little sheltered. My parents didn’t expose us to bad things. They put good morals in us. I would say they are my heroes because they raised me and taught me things.

One of the favorite things my parents and I do together is when we go up to Natchez Trace each year. We usually go in the fall, but this year we went in the spring. There is this big rock there, and we take a picture on it every time we go. Mom and Dad get their pictures made, too. After that, we hike around on the trails and take pictures and things.

I have never had any rules. I guess it has just been understood. My parents never really told us rules. We have always just kind of known. I do remember one time my brother and I were tickling each other on the couch and he fell off and broke the coffee table. I got my phone taken away for a weekend, but that was a stupid reason to get grounded. That is pretty much the only time I have ever really been in trouble. I mean I have gotten home late a couple of times, and I kind of got in trouble, but not really. They say I am in trouble, but they never really do anything. I have never been more than a couple of minutes late, though. I have really never been around anything to get in trouble for. I don’t go to parties. I have never been to a party besides spend the night parties.

I am probably closer to my mom because she is a girl. She is shy like me. I tell my dad things, too, though. I basically tell them everything. My friends always come to me to be their little mediator person when they argue. I have never been in an argument with anybody. My
mom is kind of like that, too. That is probably where I get it. I think I get a lot of my traits from her.

I guess Momma is the typical mom really, because she doesn’t do things outside. She does some things, but not mowing the grass or anything like that. Mom does things like folding clothes and things. My mom handles everything inside. My dad will help her if she asks him to. My dad handles outside jobs like cleaning the gutters. I help him sometimes. I clean gutters. I cut grass. I weed eat. I do help with the laundry, but mom really doesn’t expect us to do anything yet. She wants us to just enjoy being kids. I guess I will have to start doing more soon.

My mom went to school at Meadow View, and my Dad went to Bakersfield. After high school, Dad went to college. He majored in public relations, something that is totally not him. He is not a people person. He ended up working in insurance. He works in my grandpa’s insurance office. He thought about becoming an agent because my grandfather will be retiring soon. He just can’t sell stuff to people, though. You have to be able to sell life insurance and convince people they need it. He is just not that good at that kind of thing. I don’t know what he will do when Grandpa retires. I guess he will get another job somewhere.

Religion

My parents instilled Christian values in me. That is pretty much what everything in my life is based on. If it is not right, we are not going to do it. They just taught me basic principles of how humans should live. People call us boring because we don’t have instruments and stuff in our religion. That doesn’t bother me. I think that is why I like my history and English teachers. They both talk about God. They aren’t Church of Christ, but they believe in God. I would rather have professors that do believe in God than those that don’t. I will just have to deal with it when I get one who doesn’t. I think I could stand up and defend myself if I had to.
It bothers some people that women are not allowed to take part in conducting the worship services in our religion. The women not speaking in worship doesn’t bother me because it is in the Bible. In the Bible, you had Aquilla and Priscilla who had roles in worship. They just didn’t have speaking parts. Since it is in the Bible that way, it doesn’t bother me at all. If it didn’t say it in the Bible and we still didn’t let women do it, then I could see where it would be an issue. It says it in the Bible, so that is just how it is. It is not like they are just making it up.

High School

I liked going to Meadow View because I knew where everything was. I liked being in a K – 12 school because I liked seeing the little kids during the day. I did the tutoring program, so I would go and work with kids as young as Kindergarten during part of my day. I miss that. A lot of people complain that Meadow View doesn’t prepare you for anything, but it hasn’t bothered me. I do the same thing I did in school, and I make A’s in everything. I guess it just depends on the person. I know the big city schools offer more opportunities to get scholarships and they have higher level classes. I know they have AP classes, and we didn’t, but I am doing fine in college. You might not have as many opportunities as in a big city job wise, but you can still learn just as much. I mean I went to a small school, but I feel like I have accomplished just as much as people in a city school. I am just as smart as them.

I loved going to the same school all of my life. I do think it might have been fun just to change schools and see what that would have been like, but I don’t regret not doing it. My cousin went to different schools all through her school years. She changed from elementary school to middle school to high school. My experience is probably a lot different from hers since I have been in the same school all of my life. Also, if you consider blacks and whites, we are
pretty much an all white school. I have never really been around other races, but she has always been around all ethnicities. She also meets a lot more people by changing schools.

I have never really struggled with anything in school besides being shy. I think by being shy, I held myself back sometimes in elementary. I heard people that didn’t know me then say that they thought I was stuck up because I didn’t talk to them. I just don’t like talking to people unless they talk to me first. I would say that in the last three years, my shyness has kind of gone away, and I have had more friends. I would say that my shyness going away and my getting contact lenses made a big difference. I think that was a huge confidence booster because that is when I started having a big group of friends. I just felt self-conscious about my glasses and being shy. I guess I just never had any self-confidence. I did, but not enough confidence that I would put myself out there and talk to people. I just sit back and listen to people a lot. If I can be in on their conversations at lunch or something, I will just sit there and let them talk. I think people sometimes misjudged me because I was quiet. When I started coming out of my shell, I was in about eleventh grade. That was my favorite year because I had more friends and I started winning elections and things like that.

Winning elections like homecoming and class president helped me a lot because I knew people liked me. I think it made me more outgoing because I tried to be nicer to people. I always tried to do that anyway, but I started trying to talk to everybody. I think it probably impacted my self-esteem a lot. Once people reach about ninth grade, I think some of that sixth grade drama stage begins to go away. By eleventh grade, people start to see past it. I mean there is still drama, but it is not as bad. It may be on the outer surface, but deep down, I think people change a lot. I don’t know that they show it, but I think they do change. Neither of my parents was popular in school. Dad won Most Handsome in the Who’s Who at his school, but he thinks
the kids did it as a joke. At our school, I think once people reach a certain grade, they start noticing who is really nice. I think unless you are in that inner group that wins stuff all the time, you begin noticing how people act. They start voting for people who are real and genuine. I think maturity has something to do with the change in their views of who should be popular.

There were a lot of peer groups in our school. There were the popular people. Then, you branch into the people that were sort of popular, but not really. There were all kinds of little groups. I guess I was in the middle because I was friends with everybody. I think the groups started forming around third grade. At school, I talked to pretty much anybody, but I only had three friends that were my best friends. Those were the people I actually did stuff with outside school. We would have spend the night parties at different houses, and go out to eat. Once we got old enough to drive, we would go to town, and just hang out.

People tell me I’m different. They say I don’t act like other people. I just don’t let things affect me. I don’t let people’s opinions change how I feel about things. I think it is stupid for a lot of the kids I went to school with to go out and party. I think the whole party thing is stupid but I overanalyze everything. I think about things. I don’t just do stuff out of the spur of the moment. I guess I think about the consequences and just have never been tempted to do anything. That comes from my strong Christian background. That pretty much affects everything I do. I don’t let people persuade me outside my beliefs to do things. I don’t give in to peer pressure. That just really doesn’t bother me.

I wish I had played more sports in high school. I did track for three years, but I wish I had played softball and basketball at least once. That is probably my biggest regret about high school, is not doing sports. I used to be athletic. Now, I have gotten bigger and I can’t run. I used to be good at soccer, but now I’m not. I guess I reached my max and all the guys got bigger
than me. It was co-ed soccer. I guess I just leveled out in my athletic ability, unless I hire a personal trainer or something. I still play, though. I played for nine years, and I never missed a season. That is two seasons each year for nine years. I guess if you look at it that way, I have played the equivalent of eighteen years.

One time, during a game, I was running after some guy with the ball, and I tripped. My hand smacked his butt. That was embarrassing. I about died. I guess he felt it, but he didn’t really look at me or anything. He just kept on going. Another time, I was trying to hit the ball. It smacked me in the ear and knocked me down. I have embarrassed myself many times on the soccer field. I still wish I had played more sports.

**Science Identity**

I probably didn’t realize I liked science until I was in school. I really didn’t understand what science was until then. I have always known I liked the outdoors, and I have always been an outdoor kid. However, I guess realizing it was science was probably around second grade. My earliest memory of school science was probably the caterpillar habitat from second grade, but even when I was very little, I loved animals. I liked dinosaurs. That was my favorite toy, that and horses. I always got some kind of dinosaur toy or horse toy when I was little. My grandparents own a farm, and my aunt lives with them. We were over there all the time and she would carry us to the creek to look for fossils and crawdads. My grandpa had an incubator on the farm, and we would watch chicks hatch. I guess because my aunt is a science teacher, she made sure we were exposed to science when we were young.

My aunt is a biology teacher and she was always talking about science. She would babysit us and we would go to school with her. She would take us with her, and we would go in the lab and look at all the animals in the jars and everything. She had fish and all kinds of things like
that. I have always loved finding out about things. I liked to study any kind of new animal or
bug. I was always interested in any kind of critter. I also was always taking things apart and
putting them back together. I loved building things with sticks and stuff. I would say I’m pretty
sciencey. I am probably more interested in science than the average person. I am probably most
interested in science that has to do with the environment. I am not very mechanical, though.

If I were to describe myself as a scientist, I would say I am definitely a nature lover. I
love exploring things and finding out new stuff. Today, I went hiking over to my aunt’s house.
She was in a fire and almost died. She is doing better now, though. She made a complete turn
around so they brought her home a few days ago. They took her over to look at the house that
burned, and it didn’t even upset her that bad. It burned her legs pretty bad because her pants
melted to her. I go over there almost every day to get her dogs some fresh water because the
water has been freezing. I enjoy wandering around and there are a lot of old barns and stuff back
there where she lives. I haven’t been back there in a while so I messed around back there. The
pond was frozen, so I threw rocks on it but it was so frozen that I tried to walk on it. It was only
frozen about half way out so I really couldn’t get too far out. I’m not really the experimental
type and I don’t like the chemicals and stuff, but I like to understand how nature grows, works,
and lives. I guess life science is more my speed.

In high school, I would have liked to do more hands-on things like the AMSTI stuff we
did in eighth grade. It was kind of fun even though it mostly dealt with mechanical things. I
would have liked it even more if the experiments had dealt with nature. I do like other stuff, too.
I guess I just like that more. I do know that the boys usually left the work up to the girls when
we were experimenting. A few boys would do it, but most of the boys would just get in a group
with smart girls, and the girls would do all the work. The boys would go over there and start
burning stuff they weren’t supposed to burn. They didn’t really do the experiments. They were more interested in goofing off.

The girls were in charge in my high school science classes. I don’t understand why there are not many girls in science careers. I think in the past twenty years or so, the sex of a person hasn’t really been a factor. I don’t think it really matters nowadays. Maybe the females are just moving into more male dominated fields like becoming cops or construction workers. I know even way back, Mary Shelley was a scientist. I don’t think being female is the reason. I mean I know women like to nurture and men want to be tough, but I think we are past all the boy/girl stuff. It is not that big of an issue anymore. I mean by the time I have kids, we will probably have a girl president or something. If that happened, there would probably be more women’s rights kinds of things. I guess if she was for abortion that would probably sway people more toward her beliefs because she would have more power being President. People would probably listen to her side more than a random activist. I guess it would depend on who she is, how strong she is, or how she feels about it that would determine the direction of the war. I guess the Muslim people would disrespect us even more because they don’t esteem women very high. Then, some countries have always had female leaders, so I guess they would respect us more for having a girl. Those are things to really think about when choosing colleges and majors because women in powerful careers could change the world.

College Transition

When I first started thinking about college, I wanted to go to a Christian school, but that costs too much and I really didn’t want to move. I would have liked to have gone there if I had the money, though. My college now has a good Christian Center. I received two scholarships to go there. I got one that was $4000 from TVA, so I have already used it up. My other one is
from my ACT score. It will give me $2800 a year, so I will have $1400 a semester for as long as I am in school. I have to come up with $2000 next semester to pay for the rest.

Nothing has really been hard in college, yet. They say in college, you have to change your study skills, but I really haven’t. I still study the last minute the night before, and I can still pass a test. That may change when I get to my harder classes. As of right now, that is getting me by with A’s. I guess just keeping my schedule right has been the hardest thing for me. There are a lot more things you have to remember. You have a lot more things due. They don’t tell you and remind you every day like they do in high school. At first, it wasn’t really scary, but kind of confusing. It was confusing trying to get everything figured out and trying to get in a routine of what days to go where. I had to get my paths figured out. I tried to figure out which paths were shorter. I walk the same way every day.

College really wasn’t what I expected it to be. I don’t know what I really expected, but I think it was a little bit different. It is not that it was a disappointment or anything, but just different. I really think I expected it to be worse than it was. I thought it would be more like on TV with bigger classes and everything, but it was really more like a school kind of atmosphere. I guess that wasn’t a disappointment. I guess that was better. It is like they kind of know you. When you pass your papers in, they kind of learn who you are.

I still haven’t met any new people yet. I go to class and then I leave after. I don’t stick around. I do have an hour and an hour and a half break between my classes two or three days a week. Last semester, I just went and sat in the student union building, but it just gets so boring. I usually did my math homework. That is really the only kind of homework you can do while sitting in there. You don’t really have homework in your other classes. I have seen people in the computer lab getting on facebook and stuff, but I don’t know if you are supposed to do that. I
usually just bring a book and read. The break really went kind of fast. I just sat there and ate my lunch.

I think peer pressure in college is bad for a lot of people. I hear people complain about their parents all the time. I guess they think it is cool now in college, because they are adults now and they think they can just do whatever they want. I hear people talking about going to parties but that doesn’t apply to me. I’m not in a sorority, and it is mostly sorority people that I hear talking about it. All they ever talk about is partying.

I am probably not going to like this semester as much because I have more breaks. I hate breaks because there is nobody for me to sit with, and I don’t think I have any friends in my classes. I don’t think it will be harder because I have biology now instead of math. I will probably have a lot more writing to do because I have English, and we have to do research this semester. I have speech, too.

I am dreading speech so bad. I dread getting up in front of all those people and talking. I hate it. It makes me get embarrassed just thinking about it. When I had to give that speech at graduation for class president, it just about killed me. That was the worst thing I have ever done in my life. It was awful. I think I have the class at ten in the morning. I have history at nine and speech is at ten, then I will be done for the day. My history teacher teaches history at eight, nine, and ten. You can go anytime during that block. It is pretty cool because if my other class gets cancelled, I can go early. I have biology lab on Wednesdays at twelve. I am going to hate that day because I won’t have time to eat. I will have to eat in my ten o’clock class. I will just bring something on that day.

So far, college semesters seem short. It seemed like it flew. Of course, I had a lot more time because the latest I got out was one o’clock. I had the rest of the day to do nothing. I don’t
plan on going in the summer because Momma says that the faster you do it, the faster you have
to get out and work. I may as well take my time.

Careers and Future

I still haven’t decided on a major. I don’t want to major in anything where I have to
move off. I am kind of thinking of majoring in education because I could get that anywhere. I
could teach at any kind of school. I am really shy, though. I teach the little kids’ class at church,
and even the little kids embarrass me. I am not a big people person. I mean, I am, but I have to
get to know you. I think my mom was shy when she was young, too. I think when I get older I
will probably grow out of it. Just being the center of attention has always bothered me. By the
time I get out of college, I will be in my twenties and it won’t matter anymore.

I have also thought about environmental biology because I met this lady at this career fair
I went to at school, and it sounded pretty interesting. I could work at TVA, which wouldn’t be
that far to drive. The woman told me that they are the ones who go out to the river docks and
check them. They also take samples of the river and monitor it. That sounded interesting
because I want a job where I can be outside sometimes. I think I would have to major in biology,
though, and that is a lot of information to have to learn. That is what I put down in the yearbook
in my biography for Top Ten. I put environmental biology because at the time, that is what I
was thinking and I had to put something. I have thought about being a forest ranger, too, or
working with Natchez Trace. I want to do something in some kind of field like that.

I just really don’t know what I want to do. I haven’t really done anything to help me
decide. I have talked to people about it. I have talked to my parents about it. There is a program
at the student union that is like an assessment. I need to go do it, I guess. That is what it is there
for, to help people decide what to major in.
Ten years from now, I will be almost thirty. I hope I am married and have kids. I love family. Family is important to me. Being wealthy is just not important to me, as long as you live comfortably and provide for yourself and your family, being wealthy doesn’t matter. I want to have a good job and a career of some sort. I want to do that, settle down, and have a family. I don’t have anything extravagant that I want to do. I hope I am still here somewhere with a kid or two. If my husband made enough money, I would be content to work part time in a school or something.

Interpretations

In speaking with Sophie about the impact of her rural community upon her identity she described the isolation and seclusion of her rural community and small town lifestyle as embraceable. This was highlighted by her statement, “I think being in a small town allows you to more identify with who you are. In the big cities, there are so many people and nobody cares about you. You are just another person walking down the street. In a small town, people know you.” It seems that because a city is much larger than her small town, she believes she would have greater difficulty in understanding herself or that she would somehow become lost in the shuffle of the faster paced city life. She spoke with disdain as she conveyed her negative perceptions of city life. Her statements provide support for research findings that the opportunities one encounters throughout life stem largely from the identity created by the culture in which one is reared (Lee, 2002).

Sophie described how her parents and grandparents played a large role in shaping her identity. She reminisced of the joy she felt while spending endless days on her grandparents’ farm. She also described with fondness riding four-wheelers or dirt bikes with her grandfather and watching television with her grandmother. She described numerous interactions with her
family as she spoke of canoe trips and visiting the creek with her aunt. According to research, early in life parents and other guardians play a key role in the definition of the identity of their children (Davidson, 1996; Head, 1997).

Sophie had a prideful tone as she described her parents as, “pretty much the perfect parents. She described a deep bond between her parents and herself. She spoke of her relationship with her mother at length. Liao and Cai (1995) suggest that mothers sometimes play a greater role in shaping female identity than fathers. Reeder and Conger (1984) stated that women are influenced to a great degree by the same sex parent. Sophie’s description of her relationship with her mother seemed to affirm these research findings. She stated that she is closer to and more like her mother. Their common bond seems to lie somewhere within the fact that they are both shy. She mentioned this fact more than once. She also described, with what seemed to be admiration, how her mom is the typical mom who does all of the household chores. This is in keeping with historical stereotypes that have commonly existed with respect to the roles of men and women in society. Societies instill sex-role expectations onto males and females and then train them to abide by rules, behaviors, and ideas acceptable to particular genders (Howes, 2002). She stated that her parents do not make rules because they trust her, but that her mom still calls her after school to insure that she does her college homework.

As we began to discuss peers and peer pressure, Sophie cited a realization that getting contact lenses was a confidence booster for her, but she embraced the fact that people tell her she is different. She stated, “I don’t let people’s opinions change how I feel about things.” Sophie described the groups at Meadow View as the popular group, the sort of popular group, and “all kinds of little groups.” She seemed to have more difficulty with labeling them. She was not sure which group she was associated with. While she won numerous elections, and she attributed that
to the fact that she was nice to everyone, she still described herself as falling in the middle. She explained that she talked to everyone, but that she only had three close friends outside of school, and she wasn’t concerned with what the other groups were doing. Her biggest regret about high school was that she did not play more sports. However, this regret seems to have more to do with personal accomplishments than with peer group affiliation. She has definite knowledge of the popular group, but difficulty seems to arise when attempting to describe the groups beyond that point. This could be because she takes pride in the fact that she was nice to everyone, and to label groups might take away from her disposition of being kind. Her statements seem to refute research suggesting that because adolescents struggle with identity formation throughout the teen years, they are constantly seeking to please the members of particular peer groups, no matter what the cost (Hartnett, 2007).

Sophie strongly suggested the presence of an inner strength in dealing with peer pressure. She asserted that this immunity from temptation, “…comes from my strong Christian background.” She described religion as having a major impact on her identity. Investigations into religious identity on college campuses is a fairly new area of research, but Moran (2007) suggests that a large community of religious college students exists on most college campuses in America as evidenced by the number of religious student centers available at most universities. While there is a void in the research concerning religious identities of college students, Barton (2003) asserts that the components of one’s identity includes their lived past, their background knowledge, their morals, religious ideals, and cultural experiences. Sophie praised her parents for providing her with a strong religious background. She stated that everything in her life is based on her Christian beliefs, and that she follows the Bible in everything she does.
As our discussion of high school continued we began to speak about Sophie’s experiences in science and her science identity. She agreed that she would rather the high school science teachers utilize more hands-on instruction like the elementary teachers. However, Sophie’s recollections focused on different aspects of the science classroom as she revealed that she viewed science as classes where the girls did all of the work while the teachers allowed the boys to goof off. Furthermore, she stated that the boys got in trouble more. Brickhouse, Lowery, and Schultz (2000) suggest that teachers tend to ask boys the difficult questions in science because they often have lower expectations of girls than boys when it comes to thinking scientifically. This does not seem to be the case in the classrooms described by Sophie.

Sophie perhaps explains her science identity outside the classroom context more explicitly by saying she is, “more sciencey than the average person.” She stated that she has always loved nature and animals, but did not equate those things with science until she was in second grade. Sophie attributed the facts that her grandparents own a farm and that her aunt is a biology teacher to her innate desire to be outside investigating and exploring. She described herself as a nature lover who is interested in the environment. Despite acknowledging deficiencies in her high school science courses, she holds on to her early science identity in spite of those deficiencies. She described her passion for exploration and it doesn’t matter whether it is something as simple as exploring a frozen pond or something more complex. In either case she professed that life science is where her interests lie. Science identity can be defined as a student’s awareness of self as related to peers and how science affords one opportunities to improve personally (Kozoll & Osborne, 2004). Science identity encompasses not only knowledge of science, but how the students interact with science whether inside or outside formal science relative to their personality and the person they want to become. Thus, one’s
science identity can be impacted by sex, ethnicity and cultural identities and it changes within context over time (Carlone & Johnson, 2007). Therefore, if students are to have opportunities to establish their science identities, learning episodes must allow them to decipher meaning from previous knowledge and to acquire this meaning as a part of a community instead of expecting them to merely take the knowledge dispensed at face value with no regard to their own ideas (Reveles, et al., 2004; Tan & Barton, 2007). Sophie seems to have a strong grasp of her relationship with science both inside and outside the formal classroom. This could be due to the informal experiences she was afforded as a child to explore the science world.

As we began a discussion of life beyond high school Sophie stated an awareness that she would have received more opportunities to take AP courses which would have possibly resulted in more scholarship opportunities if she had attended a city school. Despite the lack of AP courses, she felt that she learned as much as she could have at larger schools. She stated, “I am just as smart as them.” She mentioned that she didn’t expect college to be so much like a high school atmosphere, but she, too, has made all A’s thus far. Sophie has had difficulty adjusting to her new surroundings on the college campus. She stated that she hasn’t met or talked to anyone yet. Between classes, she reads or sits in her car. She occasionally sits alone in the student union building while awaiting the start of her classes. She grimaced and expressed anxiety when speaking of her speech class. She is dreading the speeches she will have to make in front of a classroom full of strangers. This is largely due to her self-professed shyness. Brickhouse, Lowery, and Schultz (2000) suggest that those girls who assimilate into the white, quiet schoolgirl role usually demonstrate academic success. Also, academic identities are constantly created and recreated as students define themselves as member of a particular community in a
particular context while interacting in a particular way (Reveles, et al., 2004; Tan & Barton, 2007). Sophie seems to be struggling socially while prospering academically.

When asked about college and career choices, Sophie stated that she loves country life and has no desire to live anywhere else. She never considered moving away, and she only applied for and accepted scholarship money to the same university as Julie. Unlike Julie, Sophie struggled to choose a career path. She does not want to move from Oakville. She also wants a career that is in keeping with her love of the outdoors and the environment. These options demonstrate her continued sense of science identity. She has considered becoming an environmental biologist in hopes of working locally for TVA. However, she is unsure if she wants to learn all of the content included in a biology degree. She has considered becoming a forest ranger on Natchez Trace. This career would also allow her to remain in Oakville. In fact, she is so determined not to move that she has considered teaching as a means to remain local. However, she worried that her extreme shyness might interfere with a teaching career. She acknowledged that she would be content to stay at home and not pursue a career if she married a man capable of providing for her and her future family. The desirability to remain in a small town often limits educational and career choices for rural high school students (Broomhall & Johnson, 1994). Thus, a conflict in goals may be in existence among rural youth because seeking a high-paying, powerful position can often mean leaving home, family, and peers due to the relatively low number of career opportunities in existence in most towns (Hektner, 1994).

Meet Janie

Janie has spent her entire life in Oakville. Both of her parents grew up there, as well. Janie, her sister, and her parents all graduated from Meadow View. While at Meadow View, Janie was in almost every club at the school. She served as an officer in many of them. She was
also a member of the National Honor Roll for her entire school career. She was selected by the faculty at Meadow View for various awards, and was chosen to serve on a youth leadership board for the county. She was a cheerleader for six years, serving as co-captain her senior year. She was voted the girl with the funniest jokes and the girl most loyal to school by her class. She was ranked number ten in the top ten of her class.

Small Town Life

If I was going to describe life in this town to someone and convince them to move here, I would begin by telling them that life is more toned down here than in a big city. It is laid back. You know everybody. Life here is like living in a big family. Everyone knows everyone here, and they know everything you do. If you do something wrong, everyone is going to know about it. That can be good, or that can be bad. Oakville is just different, even compared to other small towns. People are closer. I mean it is just so laid back. You don’t have to worry. In large cities, there are shootings every night. While we have had things like that happen here, but they are few and far between. This is a very peaceful place to live.

I know city life is more upbeat, and there is probably more to do, but that is what makes a small town fun. You have to think of stuff to do. You have to be creative rather than just going and wasting money. Ordering pizza and watching movies is fun for me. I don’t have to have all the snazzy stuff. Order me some pizza and rent me some movies and I will be good.

I loved everything about growing up in a small town. I got to do whatever I wanted when I was a kid. I mean my family had discipline. I knew what I could and couldn’t do, but I was a real good kid. I wouldn’t do what I wasn’t supposed to do. I wasn’t one of those problem kids. I never got in trouble because my parents taught me right from wrong at a young age. My
childhood was awesome. I was kind of spoiled, though, so I got whatever I wanted. I really didn’t get into much trouble.

I know I always wanted to be the center of attention, so I was a little jealous of my sister. Just the other day, I watched a video of us. It was on Halloween and she was Minnie Mouse. She had a tail on her costume. I was Baby Bop and I also had a tail. Dad was filming my sister. He told her to turn around and greet him with her tail. I jumped in front of her and showed him my tail. I wasn’t jealous, but I wanted the cameras on me. It had to be about me. If the camera was on, it had to be about me.

Growing up in a small town gave me so many holiday memories. We have many places to go on holidays because we have all of our family close by. On Thanksgiving, we always go to lunch at my grandmother’s house. It is just us and my step-granddad’s kids, which is kind of awkward because we never see his kids. We also used to go to my great granddad’s for Christmas breakfast, but since they both died, we just rent the civic center. We do that get together early in the season, so that always gets me in the Christmas spirit.

On Christmas Eve, we have always gone to my grandmother’s, and on Christmas morning, we used to go to my other granddaddy’s house. However, since he died, my grandmother has been coming to our house to eat breakfast. We wake up. I am usually the one to get everyone up on Christmas morning, and we open our presents. After that, my grandmother comes over and we eat. Then, we spend the rest of the day playing with our toys. Later, on Christmas night, we go to my uncle’s house to open presents. Then, one day passes, and it is my birthday. December is jam packed.

One of my favorite holiday memories was the year we had a big ice storm. We lost electricity, and we had to go stay with my uncle’s family because they still had power. His
power line is hooked onto the nursing home, so they get priority. Ours was off forever, so we got to stay with them. I got really close with my cousin while we were there. We stayed with them for a week or a week and a half. It was just fun. The whole family got to stay together. We stayed there Christmas Eve night, and the next morning we got up and went home. Santa had been there, so we were happy. We had worried about it. They kept telling us Santa would come to their house, but we wanted to have Christmas at our own house. We got up and went home. Dad put a big kerosene heater in the middle of the room. We were going through our Santa stuff with our ear muffs on. That was just fun. Even with all the snow storms, it was fun.

How do I describe my home to someone who hasn’t been there? It is a small town, and I don’t want to make it sound like a hick town. We are a small tight knit family, pretty much. If you do something bad, everyone is going to know. At some point you think everyone is real close, and then you hear people talking about other people and judging them. I am always like, “Who are you to judge?” Everybody knows everybody’s business. That can be good or bad. I have to admit that when I was younger, I wondered what it would be like to live in a big city. When TV showed people in big cities, I felt like I was missing out on big events. I mean you didn’t have anything to do here really, except for going to town or to different friend’s houses. I have never really hated growing up in a small town, though. In the end, when you think about it, that is the best way to grow up.

Parents

If I had moved from place to place growing up, staying in Oakville would be no big deal. However, I have lived in the same spot and attended the same school all of my life. My parents both grew up here and attended Meadow View. This is where my roots are. I want to stay close to my family. This is home. This is where I want to be. If my parents moved, I would consider
moving to be close to them, but if they moved within driving distance, I would stay here. If they
packed up and moved to Alaska, I would have to go closer to them. I need them near me to push
me and encourage me.

My parents have always pushed me academically. I don’t think they really pushed me
into cheerleading. There really wasn’t anything to push with that, they would have been okay if
I hadn’t done it, and they would have saved a lot of money. They could have pushed me in
tumbling and stuff, but I was never going to be a college cheerleader. I just enjoyed cheering
and that was that. My dad pushed me in tennis. He wanted me to be real good in that. We
would practice, and he also took me to play. He gave me the worst push academically, though.

Throughout high school, I never really had to study. I would go the day of the test, look
over the material, and make 100. My sister really had to study. She had to work hard to make a
grade of B or C. She had to work really hard. To me, it just came naturally, so if I brought in a
B on a paper or something, I would get in trouble for that. I don’t know if it is because I was the
baby, or if it was because I had always made good grades but they expected good grades out of
me.

Even now, I have a C in English and Dad is just harping and harping on me about it. I
keep telling him it is passing. He keeps reminding me that I have always made A’s. I keep
stressing to him that this is college. It makes me mad to some extent because I am trying as hard
as I can. They just keep harping on me about it. Then, when I think about it, they are just trying
to make me better. I would rather have someone who is harping down my back about academics
than someone who didn’t give a rip. If not, I probably wouldn’t be in school, and I would just do
whatever the crap I wanted for the rest of my life.
My dad went to college, but he dropped out. He always says he shacked up with his friends and that was the end of it. They all goofed off and didn’t ever do anything. They got all their classes together and would goof off. They skipped classes. So, when he was in college, he partied. All they wanted to do was party, and he was going to flunk out so he dropped out. He has always told us he wanted better for us. He says he doesn’t want us to end up like him. He dropped out of college, and he has been in and out of jobs since. He doesn’t want me to have to deal with something like that, especially with a family. He has had to work different jobs that he hated doing, and he has worked all different shifts. He was away from us and he wants better for me.

Dad likes to do woodworking and stuff, so I go out there and help him with that. I nail and stuff. He has taught me how to do a lot of things. We both like to paint, so we do a lot of that. We built some birdhouses together. I go out there and he teaches me how to do stuff. He wants me to know how to do things so that if I ever need to know how to do it, I will know. If he has to do anything with technical stuff, he will come and get me to watch. He has taught me more about computers than I ever wanted to know.

He wants me to be able to take care of myself. I have been helping him with his photography. He takes pictures at the football games, and I have been taking pictures on the sidelines. I am not that good, but he is teaching me. He has Photoshop, and he straightens all the pictures. He can adjust the temperature and fix red-eye. It is really neat because he will do the contrast to bring in the black. He spends hours fixing his pictures, straightening them up and cropping them.

Mom has always worked at the bank, so she has always had a 9 – 5 job. She does have a degree in social work. She got a new job in that at one time. She hated it. She doesn’t like to
talk about it, but Dad thinks it is because she gets attached to the kids. You have to take them here and there. It is a lot of work, and then you get so attached to the kids. Then, they are sent off. He thinks it was that part, the getting attached, that bothered her. Dad wanted her to stay in it because it was more money, but she just couldn’t handle it. I think she thought about going back to college for something else, but money was an issue, so she went back to the bank. She has to work some Saturdays, and every two weeks she has to stay until eight o’clock. That has never been a big deal.

At home, we all pitch in and help with the house. Dad grills a lot, and we all usually help out when we are cooking. My sister and I wash dishes while Mom and Dad are getting everything cleaned out with the food. They get their lunch set for the next day while we wash dishes. Mom always does the laundry. We don’t ever really help with that. I mean I put a load in every now and then, and we fold the clothes in the dryer. We don’t actually wash them. My dad does all the yard work. Mom will get out there and garden, like put flowers out and stuff, but Dad mows the grass and weed eats.

I am probably closer to my dad. I am not more like him, but I am closer to him. He’s the one I go to when I need something. My sister goes to him for stuff, but she can talk to Momma easier than I can. I would rather come in and tell Dad something where I think my sister would be fine telling either one of them. I am a daddy’s girl. It has really always been that way, but we have really gotten closer in the last two or three years. It is just Dad and me.

I am close to my sister, too. It hasn’t always been that way, but we started getting along during her senior year. I was in ninth grade and she was a senior. As she started getting into college, we got closer. We are closer now than we have ever been. When we were younger, we would fight all the time about anything and everything. We fought about stupid stuff, but then
she got older and more mature. We can stand each other now. We don’t get on each other’s nerves anymore.

I was also really close to my Maw Maw. She died when I was eight. She lived right beside us, so she would pick us up from school, or the bus would drop me off at her house. I was with her all the time. Sissy would stay after school for practice, and I would be there with Maw Maw. My cousins never came down there, so it was just me.

She would sit out on the back porch and smoke her cigarette. There was a pole on the porch that she would tie a rope around. She would hold the other end and turn the rope. We would count how many times I could jump. I also used to help her in the garden. She had one of those gallon buckets, and we would sit on her porch and shell peas. We would sit there talking and shelling peas all day. We talked about anything. She would talk about gardening and stuff. We just really talked about anything. Maw Maw liked to cook. She would always get dough and cut our hands out in it. Then, we would bake them so we could keep them. She would give me sliced apples with peanut butter on them, Hershey bars, and caffeine-free Pepsi. She always had to buy groceries at Big Star. She never wanted to go anywhere but there. She would buy us a coloring book every time we went. I would break the crayons, and she would fix them with white masking tape. Just doing anything with her was a blast. She always let me mow. I would sit on her lap and we would mow the yard.

My grandmother was probably my favorite person in the whole entire world. I guess I would have been closer to my mom’s mother, but when my granddad died, I was about two, and she remarried. They moved to Tennessee. My step-granddad loves us, but you can’t just go sit down and talk with him. He just doesn’t like that. They have always been wealthy, so in place
of coming to sit with us, she would just send us some money. She would give us money when
we really would just rather she came and talked to us.

When Maw Maw died, I was real upset. When it happened I was eight. I was eight, and
I realized she was dead, but now as I get older, I am really starting to miss her more. She used to
live right beside us so it really gets to me now sometimes. It gets to me now more than it did
when I was little. I wonder what my life would be like if she was still here. I might not be the
person I am now. I might be totally different. That gets to me a lot. That is probably one of my
worst memories of growing up.

Religion

I think people are more religious in a small town than in a big city. I guess it is the way
you are born and raised because if you are brought up in church, you are going to bring your
family up in church. I think your religion makes you who you are. If you are an Atheist, then
you are going to go out and do whatever you want whenever you want. As a Christian, I know to
keep myself out of bad situations. I don’t go to a party where I know bad things are going to be
happening. If that means sitting at home all weekend, then I can sit at home all weekend. That
is what I do most nights because I am not going to put myself in that situation. I know that if I
put myself in that situation once, then I can do it again just as easy. I go to church every Sunday
and every Wednesday. I have some friends who go to church with me and that helps. My sister
and I are pretty close and that helps.

If I had grown up in a big city, I don’t think I would be as religious. People move fast in
the city. They are always out doing stuff. It is more like be whoever you are. Nobody cares. In
the country, that’s set. You go to church. You love God, and that is your thing. In the big city,
nobody cares what you do really. You are just there. I mean city people just have so much
going on. I don’t want to say they don’t believe in going to church, but they don’t look at it as a priority as much as people in a small little town would. Of course, I get most of my ideas about life in a big city from television. I must watch a lot of TV.

Peer Groups and Peer Pressure

I don’t remember ever being made fun of or anything because of my religion. In high school there was a split between the people who partied and the people who went to church. I had friends that went out and partied and stuff, but that didn’t mean I was going to go out with them. They are still good people. It does put pressure on you, though. You don’t want to get made fun of for not going somewhere. I mean I am sure they had fun. I just don’t think I could bring myself to go out and party knowing there is drinking. I wouldn’t be comfortable around that. I would be afraid that I would get sucked into that, and then I would start doing it. That is not what I want. I was always the goody two-shoes. I kind of liked being that. I had a good reputation.

In high school, our whole grade was close. During school, we were all close when it came to school stuff, but on the weekends everyone would split. You had your own sets of friends that went out and did stuff with them. You had your nerd group. You had your band and show choir people that all hung out together. All of the football players and baseball players hung out. You had your preppie girls. I don’t know what you would call my two best friends and me. I hung out with the football guys and them. Then, you had your outcasts. Those were the offbeats. Those were like the gothic people. There were even a few gays.

One of the gays brought his boyfriend to senior class day. We kind of knew he was gay. It was kind of obvious, but when he actually said it, it was gross. I mean I know it is wrong, but I am not just going to demolish him. I am not going to shun him. I mean my belief is that it is
wrong, but I will still be friends with him. It was shocking, though because I have never been exposed to anything like that.

The preppy people would be best friends at school and up each other’s butts, but then they would be talking about each other on the weekends behind their backs. They were backstabbing each other within their group. They talked bad about each other behind their backs. I don’t think any of the other groups ever went against each other. We were all just close. We never really shunned anybody. We never fought at school and stuff. We accepted each other. We were all pretty calm. On the weekends, you hung out with your best friends. No one got mad about that.

I do remember a lot of the preppy group getting mad at me over the senior top ten. I was number ten and one of their best friends was eleven. At the beginning of the year, I was eleven. My grades were better than hers in the end, so it swapped. Right about the time it swapped, we started helping the high school counselor get ready for Relay for Life. They all began to say that the counselor swapped it because I was helping her. I told them that she didn’t have the authority to do that, and that I would be happy to tell them my average.

That really upset me. It made me feel like crap. I didn’t really like any of them anyway. It wasn’t like I was scared of them, but I wasn’t going to sit there and fight with them over that. They weren’t worth it. They would hold a grudge until the day I died. It just made me feel bad. I worked hard because I knew I was eleven. When I went to the counselor at the beginning of the year, she told me I would have to work really hard because those rankings are usually set and do not change. I worked so hard to get my grades up, and then they were going around saying I didn’t deserve it.
I haven’t really hung out with any of them since high school. I never really did. I have talked to one of them some, and I think she has grown up a little. One of them is off at college, but I think the others are going to be immature for the rest of their lives. That is just the way they are. Some of the guys from the other groups have changed, though. They have formed a pot head group. Other than that, I think all of the groups have stayed pretty much the same since high school. I think they smoke pot because they think it is cool or something. I mean one of them has always done it, and I don’t know if he sucked the others in or what. I think it takes one person. One person wants to do it, and they all do it. The sad part is that the main one gets it from his dad. I think that has a lot to do with it. He thinks if his dad does it, it must be okay.

People who go out on the weekends and do stuff like going home drunk, or having a wreck while drinking, should learn from their mistakes. A lot of them are out drinking again as soon as possible. They must be stupid. Some people just take the attitude that it was fun and they go do it again. They do it for the thrill, the thrill of dangerous things they have done and lived through. They just keep testing it. They keep digging a hole. Bumps and bruises make you who you are. You are up the creek if you don’t learn from the bumps in the road.

High school and science identity

When I think about going to a city school, I think you wouldn’t get as much attention as you get in a smaller school. In a small town school, I think teachers connect more with kids than when you are in a city school. Most of the teachers who teach in a small town live in that small town. Everyone is close.

I remember my first day of school. I remember the first day of Kindergarten. The teacher had a big gingerbread man. She told us to go find it. We went to the office and they told us they had just seen him. They gave us a clue, and we kept looking until we found him. I also
remember that I brought my teacher some flowers in a vase one time. She wasn’t at school yet and we were all sitting by the door. My best friend walked in and I jumped up to hug her. When I did, I broke the vase. The janitor had to come clean it up. I just had to give her flowers with no vase. I cried, and I felt so bad the rest of the day.

I loved centers in elementary. I just loved playing with the clay. We were always building something or making something. We were always doing something. In elementary, they do things hands-on to make sure you understand everything, and then in high school you just write notes and take tests.

Starting in seventh grade, I had a coach for a teacher. All we did was write definitions and take tests. We never really learned anything. That was pretty much the pattern all the way through high school. We didn’t do anything hands-on. It was all definitions and stuff. We did stuff on the internet where we looked at the moon, but that’s pretty much the only experiments we did. I liked all the hands-on in elementary. I am a visual person. I like to do stuff. You can just tell some people and they get it. I am not like that. I have to see it and do it.

If I could change high school science courses, I would add more hands-on. We would be in the lab. I think we should have been in the lab once a week doing something. Our classes consisted mostly of taking notes from power point slides for a test on Friday. I think my teachers knew what they were saying, but if you asked them a question, they didn’t know how to explain it well enough to actually answer the question. They would just kind of skip around it. Most of them didn’t care. They were just there for a paycheck.

I think in high school a lot of teachers just don’t care because you have coaches. All they care about is coaching. They don’t care about the class. In elementary, I felt like the teachers
cared and they were trying to help me. In high school, it is like they don’t care as much. You do whatever you want. I just really don’t think I am prepared for science in college.

All of our teachers in science were females except for in seventh and eighth grade. It was kind of like there was always the Momma/son thing because we had a girl teacher. I felt like they babied the boys more because of that. Then again, boys get in trouble the most. I think if a girl did the same thing a boy did, the boy would still be punished worse for it. The coach we had in seventh grade that was male called on the boys more and seemed to expect more from them. He gave them more attention, but I think that was just because of football. He knew all of the boys. I think most male teachers do that. They call on boys more than girls. The teachers seem to think that the boys want to do more while the girls just sit back and watch. I always wanted to do the experiments, but they would ask the boys to do it first. Of course, we didn’t do much experimenting at all. In chemistry, we did a little more hands-on, but in biology you just read about it and learned by someone telling you.

I know city schools are supposed to offer more academically, where here in the country, we kind of do whatever we want. I think city schools have more structured discipline guidelines where country schools just really don’t care. They don’t care as much what we do, but I have met a lot of people from city schools this year that really aren’t prepared either. A lot of them haven’t even had some of the stuff that I have had. In biology, I met a girl who had never done anything with the periodic table. I had more advantage for that, so that made me feel a little bit better. I haven’t met any big city people though. I don’t know if they went to bigger colleges or what.

My lack of hands-on experience in high school has affected my confidence in college. Right now, we are using microscopes, and I don’t know what the heck I am doing with a
microscope. I am trying to find amoebas and all this stuff, but I don’t know what I am doing because we didn’t do that stuff. We never got a microscope out. I do think we had to label the parts on a picture, but we never used one. We might have gotten a microscope out once or twice in ninth grade when we were real young. Now, that’s all we do. We do everything with microscopes, so I wasn’t prepared. I do enjoy what we are doing because I have to see it.

I really do like some of the stuff we are doing. I like the stuff with phenotypes and genotypes. I really love that stuff. I also like balancing equations. I know that is chemistry, but I like that. We are mostly learning about mitosis and meiosis now. That is stuff you just have to read about and learn. It is not something that you do. It isn’t interesting. We haven’t dissected anything yet. I don’t think anything is on the syllabus about it. Last semester was really easy. I had a girl lab teacher and she was new. I don’t think she really knew what she was doing either. I have a man this time, and he is probably more demanding than she was. He just reads off power points. He did say that we would go on two field trips, though. I don’t know what they are for yet. We also did some fossil stuff today that was pretty cool.

I think I get my love of hands-on from my dad. Dad likes to learn how to do things. He takes things apart and puts them back together. Mom is not anything like that. My dad’s work has always had a little to do with science. When he worked in the t-shirt factory, he had to mix dyes and stuff like that. The textile industry has a lot to do with science. Now, he has to draw out blueprints. That is science related. I can’t think of anything at the bank where Mom works that would have anything to do with science. She just counts money.

I really haven’t had a science class that is hands-on since elementary. I would like it better if it wasn’t memorize this for the test. That is kind of crappy. I really think it is not actually the science part that I dislike. I think the problem is my teachers. I seriously think that
it is the boring classes that you have to take along the way that stands in the way of science careers. I mean it is so boring, and half the time you don’t know what they are talking about because they just read off a definition and you learn it. It is not really explaining what this is or what that is. It is just information. Nobody wants to have to learn all of that. I think there needs to be a lecture. Then, there needs to be an experiment where you actually do it and you see it happening. Maybe there should be something where you answer some questions and make your own hypothesis. After that, you go over it as a class. I think more hands-on and more field experiences would help. You start thinking about your career, and then you go to the handbook and see what you have to take. When you find out you have to take a bunch of sciences and math, that career is out. I think if you were able to work in the field early on, you could see how well you liked it.

A semester where you could job shadow early on in college would be good. For instance, if you wanted to work as a marine biologist, you could go out and work with one early on. It would help because you actually get to see what you are getting yourself into before you go through all the work and then find out you don’t like it. I think people would be willing to do it because colleges are portraying science as just a bunch of information you have to learn instead of portraying science as being fun and a subject where you learn how to do stuff. If people had a chance to work in the field early on, they wouldn’t waste time on courses for a career they end up not liking.

The only other part of science that bothers me is the evolution part. My sister said that her first day in biology 104, the teacher walked in and asked what they thought about evolution. No one wanted to speak. No one wanted to say the wrong thing. Everyone just sat there and kind of looked at each other. After about five minutes, the teacher finally told them that she
thought Darwin was an idiot. I am going to be one of those people that won’t know what to say. We haven’t talked about it yet, but if they start disputing my beliefs, even though I am not usually one to get up and talk to a classroom full of people, I am going to stick up for myself. I am not going to be one that just sits in the back and doesn’t say anything because that’s something I believe strongly in.

I don’t remember talking about evolution in high school. They probably talk about it more in city schools because I think city schools are more open to debate. In a small town school, if we started talking about evolution, everyone would think that was stupid. In a city school, I think you would have more diversity. A bunch of people would think evolution is right. I would think city schools talk about it more. I really don’t remember talking about it, but we never talked about religion either. I truly am not one to just speak up and state what I think unless someone confronts me personally and says I am wrong. However, when people start trying to tell me there is no God, I am going to tell them they are stupid.

I think if you really believe in evolution, you are going to be more willing to teach science. If you think about it, there are typically more girls than boys in church youth groups. That may be why fewer girls major in science. I think it would be harder for a girl to go into science knowing that she is going to have to teach evolution when she is not even for that. If she is totally against it, I think it would be harder. I think there is a little bit of a clash between science and religion.

When I start teaching, if my school says I have to teach it, then I will. I guess if I have to teach it, then I have to teach it. That doesn’t mean I have to believe in it, and it doesn’t mean that I have to go around telling everybody I think it is wrong. I would teach evolution and tell them I don’t technically believe it, but that I am required to teach it. I would tell them that I
want them to form their own opinions. I would probably also teach about Creationism. I am not just going to teach one side.

College Transition

When I think of college, I think of going off and living in a dorm. You are at this big place. You are off on your own. I found out it is not the way you see on TV. On the show, *Saved by the Bell*, they all go off. They are in their dorm. They don’t act nineteen. They act like they are grown ups. We are still immature. I am twenty minutes from school, and I still live at my parents’ house. I do think it would be cool to go off and live in a dorm, but at the same time Mom and Dad are paying for everything.

My biggest issue is money. I wanted to go to community college because of the money. I tried to help my parents out because of the money issue. I won a pell grant there because our money is tight. They are cutting hours where my dad works. He is real worried that he is going to get laid off again. I have to reapply for my grant soon, and he thinks we will get more grant money in the fall because he hasn’t been getting enough hours.

I will have to look at money when deciding where to transfer. It is not where I want to go it is where I can afford to go. I am looking at a school that has about the lowest tuition in the state. My sister wishes she had gone there anyway, because they have a good teacher education program and they accept all of your transfer hours. She also says they are easier to work with on observation hours and clinicals. It is in driving distance of home, too.

The big surprise about college is that I thought I could go in, be like high school, make straight A’s, and do really well. That didn’t work out. It shouldn’t have been a surprise because everyone told me it was different than high school. You can’t just go in and be like you were. It took me a really long time to adjust. That wasn’t really a shock because I loved high school. I
would stay in high school for the rest of my life. I am warming up to college now, but the grades are probably my biggest surprise. I had to have straight A’s in high school, and if I didn’t I was upset. Now, I am just praying that I receive a grade of B.

I do think I am more responsible than I was in high school. In high school, you had a set schedule and set rules. You had to go and you did what you were told. In college, they don’t care. You have to push yourself to get up, go to class, and to do your homework. No one is there making sure you are doing everything. I also have a job, and I am paying for all of my stuff. I really think I am pushing myself more to stay ahead and not wait until the last minute. I have to choose my own classes and decide what to take. I used the course book and just mostly took everything in order. Everything has to go right in order. My ducks have to be in a row. If I couldn’t get my classes in order, I would stress all semester about it. I really would. I think I would panic.

Making friends in college is a lot harder than high school. More people go out and party. People are smoking at school. You don’t know really who to talk to because you don’t know what they do outside of school. I don’t go out and party on the weekends. I don’t smoke. I don’t drink. I don’t curse. I am around it all day though. In college, when you have a break, people go out and smoke. I have never been around so many people just cussing around you, talking about all these parties they have been to and stuff.

The most shocking thing I have seen so far is people who are drunk at school. We were coming out of biology one day and there were people coming in that had can holders over their cans. They were hammered. When they got in, they took it out and threw it away in the garbage can. We turned around and walked the other way. I also saw two girls holding hands one day.
Of course, I am not out walking around a lot. I go to class, go to my car, and go to my next class. We don’t really have anywhere to hang out like at the bigger schools. We leave and go eat, then we come back and sit in the testing center. There are two couches and four little chairs in there. There are also a couple of tables where you can bring your computers. We go in there and sit on the couches because that is the most comfortable place. It is usually the three guys from high school, two or three people on computers, and me. There is not like a big place where everyone can go.

Talking to people is getting a little easier. I think that is because I met a few people last semester. They have friends in the classes, so I’ll start talking to their friends. I haven’t really started just going up to anybody and talking, yet. Maybe I will as the semester goes on. I have my first two classes with a girl I became friends with last semester, so I am pretty comfortable in those. In my math and history, I don’t know anybody. It is definitely a work in progress, but I do feel more confident now that I know what I am doing. I think as I get older and get into my career, I will be better able to talk to people.

Careers and the future

When I was little, I always wanted to be a veterinarian. Up until seventh grade, I wanted to be a vet or a nurse. Then, I found out I was allergic to just about everything out there, and that I would have to work with more than just dogs and cats, like snakes and stuff. That was out of the question, so I decided to be a teacher.

A lot of my guy friends are going into welding. I have always asked them if there were any girls in that field because that would be cool. When they told me there was one or two in there, I thought it was weird because when I think welding, I think guys. They told me girls are actually better at it because their hands are small. They can curve it better. Then, I really
considered it because they make pretty good money, but when you think welder, you think big man. I don’t think it is like that everywhere, but here there is men’s work and women’s work.

I could weld, though. I would feel funny at first. I would feel like they were looking down on me and thinking I couldn’t do it because I was a girl, but if that’s what a woman wants to do, she should do it. It could be a problem only if the women let it be. I mean one girl with about twenty boys could cause some people to say she was only doing it because of the boys. When it comes down to it, though, do what you love.

I do think it is kind of weird when a guy does a job that women normally do. I mean if a guy was a home economics teacher that would be weird. I would think he was gay, but if that is what he loves to do, more power to him. I think people would be more accepting of women doing men’s work than of men doing women’s work. I think people that are more old fashioned are still thinking men work while women stay home and cook and clean. As a whole, however, I think people have gotten better about it.

I think people are changing their attitudes because girls have become more confident over the years. I think they have started standing up for themselves. They say if a boy can do it, I can do it. I believe TV has portrayed girls more as working women. Sometimes, they have stay-at-home dads. The woman is out making all the money. When I see TV shows, now I see women outside gardening and stuff. They are riding the lawnmowers and stuff.

There are many females in the media that are powerful women. When I see Dolly Parton on anything she is always so poised. She is really humble. I would hope to be like that if I was famous. I would hope that I wouldn’t be a little snotty celebrity. I would hope to be as humble and poised as she is. She is a southern belle, but if she really wanted to do a man’s job, I think she would do it. She would be one to stand up for herself. Tyra Banks, Sarah Palin, Oprah
Winfrey, and Hillary Clinton are also powerful women. Hillary Clinton could be intimidating. I don’t know anyone personally who stands up for themselves like those women. I would like to say I do, but I don’t.

I do think we may have a female governor or president someday. She would have to be well-liked. She would have to be smart and firm. She would have to stand up for herself and what she believed in, and not waiver from that. She couldn’t ride the fence. I would think a woman would pack up and bring the troops home. That is just what I think. I think of women as being the mother type, “Bring my baby home.” I think Hillary Clinton cold negotiate us out of the war. She is buff and ready to rock. She would have to stand firm. Women have more patience.

As far as women doing science and engineering careers, I don’t know what is going on with that. I think of engineering as more like labor work. I really don’t know about the science, though. Almost all of the boys have dropped out of my biology class. There are only about five left. There are more girls that are passing and staying with it. The boys will just get up and leave because they don’t care. The boys are better at math. In my math class, all of the girls are having a really hard time, and we have to get together and study. The boys are just spitting out answers. They don’t even take notes. I think they just remember math better. I don’t know if it is something to do with numbers or what. I just think they understand it better.

As far as me pursuing a science career, I am interested in certain things in science, but I am really not into science work. I loved chemistry in high school and I have seriously thought about doing something like that, but I am just scared I will get in it and fail miserably. As far as going out and researching, I would like to do that. Our lab teacher put this lab together where she had to go to different lakes and find fish and stuff. She recorded information about them.
That would be cool, but as far as talking about science in the classroom, I am not into that. I like the hands-on. I used to want to work at Sea World and swim with the dolphins.

My dream job would be to work in team sales. I think it would be cool to sell for teams like Alabama. Broadcast journalism would also be cool. I would like something like that, just not science or math. I really think teaching is what I want to do, though. I know teachers don’t make $200,000 a year, but they make good for what they do. They are also off on weekends. Their hours are always set. I won’t have to worry about it changing. I do want to be able to provide for my family and myself.

If the economy doesn’t get better, I will probably have to move away to find a job. However, I don’t want to stay away. If I have to move off until I can get a job closer, that will be fine, but I am not going to stay off. If that is what it takes to get a job, I will. I am not saying I will like it, though. I know there are more businesses in a larger place. There is more everything in bigger cities, but the cost of living is probably more, too. At the same time, you would probably make more money there. If you are going to go there and make more money, but your cost of living is going to be more, it is going to balance out. Having life in the country is a lot more rewarding than growing up in a city. If I was going to move away, I would really move far off. I would go to a big city. If I was going to do it, then I would really do it right. I would move for just a few years, but then I would have to come back. If I met a guy while I was away, then he would just have to come back with me. If he wouldn’t do that, then it would just be over for us. I want to raise my kids in a small town, preferably Oakville. I sure don’t want to raise them in a big city.

I know my kids would probably be better at a city school or a bigger school, but my roots are at Meadow View. I liked how things flowed there. I think that would be best for them
because you are not stressed about everything all the time there. You are laid back. I know sometimes that is a bad thing because the teachers are not real strict, but they are strict enough that you know you should be in your place. You know what to do, but you are not freaking out. I think that kind of hurt me too, because when I went into college, I had to do this, I had to do that. In high school, as a student, I did just pretty much whatever I wanted.

I am nineteen right now. I know I have to get married and get my ducks in a row, but I need to get done with school. That is a priority right now. I need a man, but when I actually sit down and think about it, I don’t need a man to complete me right now. I have my whole life ahead of me. I don’t need to worry about that. When I do graduate, and get everything ready, marriage is a big factor. I want a big family. I want four kids.

Ten years from now, I will be 29 years old. I need to be working at a good steady job where I will be set by then. I am going to be teaching. I eventually want to be back at Meadow View teaching. If not there, I would like to teach at a nearby school. I want to be in a county school. I hope I am married by then, and maybe I will have a kid. I would like to have a nice house, and not many loans to pay off. Of course, if I married a rich man, and I didn’t have to work, I wouldn’t work. I would stay at home and take care of my kids. I would go to the gym and have a nice body. I would get a personal trainer and be fit. I might even do something like photography if I didn’t have to work. I wouldn’t just sit at home; I would have to do something. I have to have a hobby. If I was good, I might even open my own studio.

If my husband was rich, I wouldn’t have a maid. I think I should do the housework. I want to do all the mom stuff like cook and clean. I think women who don’t have to work, but still have maids are lazy. I mean if the woman can work, go out and work. If she is well off, and she is a stay at home mom, she can clean up her house.
So far, everything in my life is laid out just like I dreamed it. Money is always going to be an issue, but other than that, I am going to school like I planned. Everything is fine. I used to think I would go back to high school if I could. One part of me still would, but I would want to know what really matters in my life. Most of the things we made big deals out of in high school, just shouldn’t have been a big deal. Most of the things we got upset over were just stupid. On the other hand, I wouldn’t be the same. If I hadn’t made the mistakes I made when I was younger, I wouldn’t have learned from them. I wouldn’t be me. Living in a small town can limit your options, but if you get out there and find it, you can be anything you want to be.

Interpretations

Like Julie and Sophie, Janie attributed her family members to shaping the person she has become thus far. Tears came to her eyes as she spoke of growing up next to her “Maw Maw.” Janie’s relationship with her grandmother provided explicit experiences one may refer to as old-fashioned as she described the makeshift jump rope, and how her grandmother and she baked cut-outs of her hands. Traditional activities of sharing time and simple experiences with grandparents are heartfelt family traditions also evidenced in her description of sitting on the back porch shelling peas. Research indicates that family life plays a major role in the creation of self-esteem, aspirations, and emotional stability early on in childhood (Alomar, 2006). Likewise, traditional values are somewhat static in rural communities (Jacobs, et al., 1998).

Accordingly, Janie could not fathom ever moving away from her parents. She described doing everything with them. She stated, “My parents only want the best for me.” She demonstrated great pride in the fact that she is a “Daddy’s girl.” She described how she goes to her dad for everything and feels much closer to him. She spoke very highly of him as she related all of the things they do together like photography and woodwork. At one point, she even
remarked, “It is just Dad and me.” This relationship example seems to refute the research finding that fathers can often create a stigma about what is appropriate behavior for females by never asking them to participate in routine tasks such as household repairs (Brickhouse, et al., 2000). However, Janie seems to belabor the fact that her parents push her so much academically. She stated that she understands they are trying to make her better, but that it does get old.

Research along these lines states a parent’s views of their offspring’s capabilities can impact their confidence and abilities (Bouchey & Winston, 2004; Jacobs, et al., 1998).

As questioning shifted to peer pressure Janie admitted that it is tough to stand up to the pressure of peers, but that she enjoys being known as a “goody-two-shoes.” She emphasized that she would rather sit home on the weekends than to put herself into bad situations. Girls sometimes must select between being accepted and fitting in with peers or being cast as strange, odd, or abnormal (Currie, Kelly, & Pomerantz, 2006). As Janie described the peer groups, she had several labels. She stated that there were nerds, band and show choir people, football and baseball players, preppie girls, outcasts or off beats, and a few gays. She, like Sophie, was unsure where she and her two best friends fit. They spent most of their time with the athletes. While she insisted that the groups all got along well, she described how the preppie girls stabbed each other in the back on many occasions. Girls sometimes mistreat other girls as a defense mechanism to hide their own misgivings and insecurities about themselves during adolescence (Kehily, et al., 2002). Janie recalled how the preppie group mistreated her during her senior year, and that she has had difficulty in forgiving them. She brushed it off as “that is just the way they are.” Also, as she discussed the small group of people with alternative lifestyles she pointed out that she doesn’t agree with their choice, but that she would never mistreat them. She indicated very definite feelings about the power structures in the groups as she described those
who were mean to her. It is almost as if they mistreated her and while she didn’t like it, she expected it, thus forcing her to accept it. Likewise, by stating that she was not going to mistreat the people with alternative lifestyles, she seemed to be displaying an ideal that she is better than those people who mistreat others. However, she uses herself and her preconceived notions of appropriate behavior when passing judgment and forming such ideals.

Our discussion of peer groups in high school led into a conversation about Janie’s high school and college science experiences. Janie explained that with the exception of one or two classes, her high school science experiences consisted of taking notes and studying for tests. She concurred with Julie that coaching duties could have been a culprit interfering with effective science teaching and inequitable treatment by the teachers between male and female students. Janie frankly stated that she finds coaches make “lazier teachers.” According to Janie, the inequitable treatment was because most of their science teachers were female, and they had a “momma/son relationship” and they “babied the boys.” It extended beyond the female teachers as she recalled that the seventh grade science teacher was a male football coach and he only called on football players. This frustrated her because on the few occasions they did experiments he never called on the girls to participate. The unspoken words of teachers and their actions can be part of a “hidden curriculum” that may overpower the regular curriculum (Owens, et al., 2003). A silencing of students can occur when educators fail to allow for freedom of expression and fail to openly listen to student opinions (Maher, 1999; Smyth & Hattam, 2004).

Janie, like Julie, seemed to have difficulty describing her science identity beyond the confines of the science classroom. She stated that her dislike of science has more to do with the teachers than the subject matter. She feels that as a visual learner, her needs in the high school science classroom were often unmet because of the lack of hands-on instruction. Research
indicates that high school teachers are often so content driven that they fail to recognize the differing abilities of the students assembled before them (Pierce, 2005). However, Barton (1997) states that teachers should strive to utilize multiple teaching techniques in order to engage students from all walks of life and all backgrounds.

Janie finds science boring and admitted that she would not pursue a college major if a lot of science coursework was involved. She feels that colleges should provide a means for field experiences allowing students to work in science fields early on in college programs. She suggests that even at the college level, science is portrayed as a boring subject filled with meaningless facts. She admitted that her expectations of science were based on popular crime scene shows and other TV shows portraying students working in a lab pouring chemicals. The lack of interaction with real life scientists often leaves children to conjure images of what they have observed in reading materials, movie theaters, video games, pictures in periodicals, and television (Steinke, et al., 2007). Janie dismissed almost every aspect of evolution, but stated that she would teach it if necessary when she becomes an educator. She also stated that she will likely teach Creationism, as well. She cannot comprehend just, “teaching one side.” At this point in her career journey she is naive and oblivious to the fact that she will be in violation of federal law if she carries out this strategy.

We moved on to a discussion of Janie’s adjustment to college life and her possible career pursuits. Janie suggested that while city schools offer more academically, she has met a few students from city schools who are also unprepared. However, she cited that most students from city schools went to larger colleges instead of community college, so she has not had interactions with many students from bigger schools. Research suggests that rural schools often lack funding to provide the educational opportunities afforded by more affluent urban and suburban schools.
(Broomhall & Johnson, 1994). Also, students from minority cultures may feel inadequate when they are placed in a classroom context where they perceive the students to be more affluent and smarter than they are (Brickhouse & Potter, 2001). Janie related that she expected community college to be more like high school. However, she was surprised by the degree of difficulty, and she was struggling to adjust. Nevertheless, she stated that she is “surviving with A’s and B’s.” The problem of isolation also seems to plague Janie as well. She relates how there are only four male friends from high school that she has lunch with occasionally. To her dismay, she doesn’t have classes with them. Therefore, she too, takes on a quieter disposition in the college classroom. She cited that she had begun to talk to a few people, but that is a work in progress. Her experience with students bringing alcohol to class seems to have left her a bit nonplussed.

Janie was the only one who eluded to the fact that her college decision was a financial one as much as a longing to remain in the small community. For Janie, money was the deciding factor in her choice to attend the local community college. She knew she did not want to move, so she went the cheaper route in order to assist her parents because economic hardships have befallen them. Research findings indicate that students hailing from low socioeconomic backgrounds, which is often the case of rural students, may feel forced to make choices between carrying on in an educational system geared toward university pursuits, which they often feel are out of their reach, or dropping out to pursue life in the workforce where they feel their future likely lies (Smyth & Hattam, 2004). Dropping out has never been considered by Janie, but she makes it clear that money will always be an issue. She will eventually need to transfer to another institution to complete her degree, but she is aware that money will be the determinant between the two transfer options for her.
Of all the girls, Janie expresses the least propensity for science. However, as she recalled some of her perspective career choices, many of them were science oriented. Students often do not relate science content to the larger world, and their science identity is affected. Also, preconceived notions about science can cause students to overlook how science actually has an impact on their lives (Kozoll & Osborne, 2004). This may be the case for Janie as she discussed her career choices because she seemed to display preconceived notions about science that are causing her to overlook how the careers she has considered are actually science related. She does not seem to see past school science in order to see how science relates to her world. Her preliminary choices in grade school were to be a veterinarian or a nurse. Both of these fields have strong ties to the world of science. Her allergies forced her to give up her desire to study animals, and she moved on to other interests. She admitted that she also had a desire to work at Sea World where she could swim with the dolphins. Janie even considered a career in welding, and she even spoke with some males about it. She openly considers men’s work as a possible career, but apprehensions about entering a male dominated field eliminated this choice as she described, “men’s work and women’s work.” Research indicates that students, especially from rural communities, may not seek to pursue professional careers in the sciences because there is a drive to continue with traditional values and less emphasis is placed on the pursuit of higher degrees in professional fields (Battle & Grant, 1995; Hektner, 1994; Jacobs, et al., 1998). Additionally, because society portrays images that science, technology, engineering, and math (STEM) disciplines are male disciplines, females often lose interest in pursuing such fields for fear of going against what is considered the norm (NSF, 2003). These research findings seem to support Janie’s decision to settle into the more traditional field for a female of teaching. While she admitted that team sales or broadcast journalism are her dream jobs, teaching provides her
with a more structured career path. Unlike the other two girls, she stated that she would consider moving in order to find a teaching job, but she quickly added that it would be a temporary move. She would return to Oakville and pursue a career at Meadow View as soon as possible. Also, she, like Sophie, confessed that if she married a man who could provide for her and her future family, she would be content to remain home and do the “mom stuff.”

Researcher’s Reflection

In listening to these young women speak of life in a small town I am reminded of why I returned to the same small town. As they reflect on their experiences with driving down the same road everyday waving at all the people who know them, and life being so simple, I actually begin to feel warmth coming over me. This small town provides a place of refuge from a faster paced life where people often go unnoticed. I recall the time my family visited a friend in New York City, and we were chastised for smiling and being overly friendly to people. We were told that we were not in Oakville, and that being overly friendly in a big city sets you up to get mugged by those unsavory characters who perceive that you are tourists. To the contrary, if you do not wave and smile at people in Oakville, that is a sure sign that you are a tourist or an outsider.

The Christmas traditions spoken of by the females under study were a great source of reflection. Christmas has always been steeped in tradition in my family. My mother is the oldest of ten children, and Christmas Eve at my grandmother’s house always provided a wealth of excitement, laughter, and fun. The entire family would get together and exchange gag gifts. You never knew what to expect, but if you got a gift that said from Santa, you were assured there was going to be something full of embarrassment inside. Now that my grandfather has passed away, and my grandmother is approaching ninety, those Christmas Eve gatherings are nothing
more than a cherished memory that I fondly relate to my grandchildren. I also engaged in very similar traditions on my grandfather’s farm in the same small community almost four decades ago. I was privileged to ride with him on the tractor to the fields. I loved the smell of the dirt as we broke the ground where the potatoes and other crops were planted. I also witnessed more than one chicken running around the farm yard after its head had literally been cut off. I always had a better understanding of that old saying than most people. The static traditions passed on to me shaped my identity, and at times it seems my experiences in this small community were very similar to those same traditions and values illustrated by these young women.

It would seem that each girl had a relative(s) in close proximity whom influenced their early identity. I grew up next door to five of my aunts. Because my mother was the oldest of ten children (six girls and four boys), some of my aunts were very close in age to me. They taught me many important things and often gave me unsolicited advice. In fact today, all five of them call or come by regularly to assure that I still heed their advice.

I am fortunate that my parents raised me in church in this small town. However, as these young women speak of their religion, I am reminded that I did not always embrace my religious foundation. In fact, there was a time in my life in the latter years of high school and early years of college where I completely shunned my religious heritage. I did not embrace it as these young women do, nor did I stand up to peer pressure the way they have managed to thus far. I was very resentful of the fact that my religious beliefs, or should I say those of my parents at the time, had limited my life experiences. I rebelled against everything I had been taught. I caved in to peer pressure and did anything I could to disassociate with the good girl image I had been plagued with earlier in life. I am saddened that I did this, but I fall back on the words of young Janie who speaks infinite wisdom when she states, “Bumps and bruises make you who you are.” I am
thankful that I have been able to resurrect my religious beliefs and good moral upbringing. I only wish I had been as strong as these three females.

Like these three young women, family is of utmost importance to me. I want to maintain a career, and also make sure that I am always there for my husband, children, and grandchildren. I am reminded as I listen to them speak of their goals and aspirations, that I tried on many hats before finding one that fit. I changed my major several times in college, and even dropped out twice. It was not until I was married and my son was born that I found my passion as an educator. Fortunately, that hat fit with my personality and also gave me the ability to spend much time with my children. I am thankful that I have always been able to be at school with them, but I am also very aware that life is tough for a teacher’s kid. I always attempted to call very little attention to the fact that my children had a mother lurking in the halls at the school. I never went and checked up on them. I tried to maintain a very normal life for them and let them tell me all of the important events in their school life before their teachers did. Of course, they always remembered I was there when they needed money.

Describing one’s identity is a very difficult task. These young women coming into their own have done a tremendous job of reflecting and analyzing upon who they are as a person and their relationship with science. They have also opened up to me in order that I can examine how growing up in a rural community has impacted their lives thus far. As they allowed me to examine their identity, they also caused me to reflect upon my own on a deeper level. It seems that we are all akin in the fact that we are deeply rooted and attached to this small town of Oakville, and to describe ourselves, we must describe this place we call home and its complex relationships. There is really no way to separate the two.
Summary

This chapter has provided readers with a first hand account of how three young female college students from a rural community describe their identity, their science identity, and the impact of their rural community on those identities. Their biographies were presented in their voice. Following the biographies is the researcher’s interpretive analysis illuminated by salient research findings. The final interpretations are ultimately left up to the reader. Chapter five will link the research findings to the research questions. It will provide an in depth examination of key elements which emerged that either support or refute the Review of Related Literature. Each research question will be examined in relation to the biographies of the young women. Implications and suggestions for further research will also be provided in chapter five.
CHAPTER V

DISCUSSION

Identity can be defined as the type of individual one is viewed as being at any given moment in time and in any specific situation (Gee, 2001; Lee, 2002; Tan & Barton, 2007). Likewise, the components of one’s identity include their lived past, their background knowledge, their morals, religious ideals, and cultural experiences (Barton, 2003). Identity is not a fixed entity; instead it begins early and is an ever evolving process that shapes females throughout their adolescent years while they shift in and out of several identities (Bucholtz, 1999). Thus, research into female identity formation and how this formation impacts female transition into college and the adult world is needed so that researchers might begin to understand how females evolve as they choose career paths. Studies, such as this one, which delve into the components of female identity could begin to shed light on why an overwhelming number of females opt out of careers in science and engineering (Monhardt, 2000). Smyth and Hattam (2004) suggest that it is the goal of youth to become somebody as they negotiate their school life with a life that will gain them financial independence. It is this negotiation into adulthood that is of interest in this study and leads to an exploration of the career choices of females from a rural community as they navigate into the role of a college student.

Three females from a rural community who were successful in their science coursework and who ranked in the top ten of their graduating class participated in this study. Research findings suggest that there is little difference in science achievement between boys and girls at the elementary level, but this begins to change around junior high and definite differences,
especially in physics and general science emerge at the high school level (Klein, 2004; Thom, 2001). Therefore, females who seem to refute the research on differences in male and female science achievement were selected for the research project. The females attended the same K-12 rural school and lived their entire lives in the same small community. Though this context seems to be an ordinary one for many, there is meaning to be explored and a void in the research when examining the impact of a rural community on female achievement and career choices as related to science. Thus, it is hoped that this study will add a new dimension to the phenomenon of why so few women choose science careers.

An interpretive biographical approach was utilized in the study highlighting Denzin’s (1989) view that each individual’s life has meaning, and how an individual portrays that meaning gives value to life experiences. Hence, “voiced research” was used so that meanings could be conveyed from the voices of the three young females under study. “Voiced research” is a fairly novel mechanism used in order to give those who might have been silenced a voice to tell their story (Smyth & Hattam, 2004, p. 24).

The conversations between the research subjects and the researcher centered upon influences deemed to impact female identity. Those influences were parental, peer, teacher, media influences such as television programs, and environmental influences such as the experiences encountered by the females because of their residence in a rural community. Additionally, religion emerged as a salient influence in shaping each female’s identity. The stories were of the females’ own selection and were presented in their purest forms thus allowing the voices of the young women to be heard (Atkinson, 1998; Cole & Knowles, 2001; Denzin, 1989; Smyth & Hattam, 2004)
This chapter presents a discussion of themes revealed in the biographies of the young women in relation to the three research questions that include:

1. How do three recent female high school graduates from rural K-12 high schools narrate their identity?
2. How do the females narrate their experiences in a rural community and high school in relation to their science identity?
3. What do the participants describe as influencing their academic and career choices as they transition into the life of a college student?

Analysis is largely left up to the individual when utilizing the interpretive biographical approach (Denzin, 1989). Therefore, the themes are organized around the three guiding questions and are based on the researcher’s interpretations. However, it is hoped that readers of this research study will engage in their own form of analysis as they read the study. This chapter concludes by outlining the implications of the study, suggestions for future research, and a summary of the chapter.

Question One Discussion

How do three recent female high school graduates from rural K-12 high schools narrate their identity?

It is necessary to revisit the frameworks utilized by the researcher during the course of this research study in order to better understand the approach to interpretation. While these frameworks provide one lens through which to examine the data, it is imperative for readers to remember that interpretations vary based upon who is reading the study in interpretive biographical research. This researcher used sociocultural theory, identity theory, and critical
feminism frameworks in an attempt to gain an understanding of how the females under study narrate their identity.

Sociocultural theory is steeped in the ideals that knowledge acquisition and learning are meshed within the limits of the contextual setting in which the learning takes place (Alfred, 2002). A tenet of sociocultural theory is that the participants in a context are affected by the setting, interactions, and experiences in which they are participating (Silverman, 2000). It is what the participants attend to while in that context and what they view as relevant that allows narratives of identity in science to be created (Riessman, 2008). According to Lave and Wenger (1991) identity is a construction of who and what one is, as well as how one acts. Identity is a human-made and a socially constituted construct that cannot be independent of the arena in which it takes place because it is filtered through the eyes of the one attending in the situation. Thus, identity formation is embedded within the social constructs in which they occur (Alfred, 2002). Identity is a process, as opposed to a product and as the context shifts so may identity. Furthermore, the very nature of sociocultural theory and its multiple layers of influence lend itself to this study because of the researcher’s interest in how an insular rural environment has shaped the science identity of the three female participants.

The context of a small town seems to have definitely impacted how the females view themselves in relation to the outside world. All three females drew upon their many experiences from childhood when attempting to describe who they are, who they are being, and who they want to become. Each young woman described the isolation and seclusion of their rural community and small town lifestyle as embraceable. None of the young women seemed phased by the lack of modern opportunities as they told stories of their existence as a child in a small rural town. It is almost as if they have been shielded from exposure to life beyond the town
limits, and that they have based their views of life in large cities largely upon what they have seen on television.

On different occasions, each female indicated that television played a role in their ideals about city life. Each one spoke of the gangs and violence in cities, but only Julie spoke of actually visiting a large city. She related details of her encounters with homeless people on the streets. However, she also mentioned crime scene shows, as did Janie, when describing the influences on her notions about living in the city. Likewise, Sophie indicated that she was basing her perceptions on what she saw on the news and stories she had been told. Janie went as far as to say, “I must watch too much television.” Thus, in keeping with sociocultural theory, these young females have very narrow views of life beyond the context of what they have lived. Judging city life experiences against their own small town experiences it became apparent that they viewed city living as somewhat contaminated. It also appears that their experiences as members of a small, rural community highly influenced their talk of self, their identity in relation to the outside world.

Along with sociocultural theory, identity theory provides an additional lens for shaping this study. According to identity theory, persons behave in a certain manner as a result of that individual’s mental structures and their sense of belongingness in different situations. Identity theory states that a person’s actions are dependent upon the expectations of dominant identities which are byproducts of day to day interactions with the important others in their lives. This theory asserts that social frameworks are crucial factors in deciding the types of relationships that will be created by persons over the span of their life. Also, the social realm in which one exists and interacts influences the type of individual one allows to be seen as their identity. This theory asserts that identity is ever evolving, and as one’s social frameworks change, new identities are
created while others are lost. The longing to belong to a certain group may cause one to create a new identity role that is considered acceptable by that group (Lee, 2002).

Each female grew up in close proximity to their grandparents, and it seems that those grandparents played a major role in shaping the person the participants have become. They also cited aunts, sisters, and other relatives as having an impact on their identity. Because I am from this same community, it is easy for me to understand the role that extended family plays in the shaping of identity. In the community, several generations of the same family often live within five miles of each other. It is not uncommon for those families to eat almost every meal together, and it is very unusual for family members to go more than a day without seeing one another. As all three females described the day to day interactions with their family members it became apparent that the influences levied by them are very vital to each female and that the disappearance of any of the relationships would cause devastation. This could alter their identity to some degree. Janie already questions how she would be different if her grandmother were still alive. Thus, it is evident that the females strive to live up to the expectations of those who are most important in their lives which is the very basis of identity theory.

While grandparents and other relatives have played key roles in the shaping of the identities for these three young women, all three indicated that their parents have played the most important role in the person each has become. The closeness between these young females and their parents is portrayed in detail in each of their stories. Because the young women are only nineteen years of age, it may seem unique to some that they have such a close bond. Many teenagers go through stages of rebellion during the college years. However, none of the females under study demonstrated any degree of disrespect, and all three attributed their accomplishments thus far in their lives to their parents. They all still live at home with their
families and express no desire to move. Each girl asserted that she loves spending time, even on the weekends, with her mother and father. They described their parents as encouraging and supportive. From their descriptions it seems that their parents push them to try new things, and that it is the girls who resist change and maintain a desire to remain in the community. They all stated a thankfulness for the values and morals that their parents instilled in them in the shaping of their identity. This was especially evidenced as they spoke of religion in their lives.

Each female discussed in great depth how religion has shaped her identity. All three attend a Church of Christ in the community, and they have all embraced the teachings of their church. This religion is the most dominant religion in the community, and in fact there are seven Churches of Christ within five miles of each other. Two of the girls attend church at the same church while one attends a neighboring church. All of the research participants expressed a degree of gratitude that their parents brought them up in church and taught them how to act. They cited that they would stand up for their beliefs in even the most uncomfortable situations. This could be why all of them repeatedly discussed the fact that they never got in trouble at home or school. Perhaps the religious foundation laid by their parents is what drives them to maintain the “good girl” role in school while striving to please others. It is almost as if the females are afraid to hear any view that challenges their own beliefs, and they cannot participate in any debate of issues that go against their religious upbringing. Therefore, while it is important to them to maintain the role of the obedient student, they all seem willing to give up that role if their religious views are questioned. Thus, religion could be considered crucial in the identity formation of each of these women. From the other side of the alter, religion could also be considered a cloak of defense, a mechanism these females have relied upon to withstand the brunt of peer pressure.
All of the research participants were very insistent that peer pressure is not an issue for them as they conduct their daily lives. They each maintained a group of friends whom they described as “their group.” By maintaining the same group of close friends and refusing to let others into their close knit network, peer pressure was possibly kept at bay. However, they demonstrated an awareness of all of the groups in existence at their school. In reading their descriptions, it becomes apparent that Julie is very quick to align herself with the popular group of jocks. This could be because she was one of the school’s most successful female athletes, and that she was considered a leader in the group. This could mean that she was more resistant to peer pressure because she set the standards of acceptability that her fellow group members followed. Janie and Sophie were not as confident in labeling the groups. Nevertheless, all three females maintained pride in the fact that they could withstand the pressures levied by peers to go against their moral being.

Critical Feminism provides a third means for analysis of this phenomenon to bring to light issues related to the marginalization of young women in science. Those who profess to be feminists believe that females are subject to discrimination from acquaintances, while not being treated in the same manner as males. Feminism is steeped in the idea that the world at large is built so that males are advantaged over females. The goal of feminism is to seek to change the ways society views the place of women in the world, thus making it less discriminatory (Mills, 1995).

Feminists have striven to create curriculum that decreases the traditional power roles in existence in most classrooms and focuses on shared idea formulation between students and teacher. Feminists suggest that knowledge, including knowledge of science, is affected not only by the place where the knowledge is acquired, but also by the perceptions of the person seeking
the knowledge in that particular place and time (Brickhouse, 2001). Some suggest that feminist
theory clashes with the very nature of science because of the technical aspects of science and the
lack of emotions involved in science (Barton, 1997). A tenet of feminist pedagogy suggests that
one must attend to the events, views, wisdom, and methods of learning that people who have
usually been left out of the world of science hold. It is a requirement of feminism that all ideas
of all students be respected (Howes, 2002). Barton (2003) asserts that critical feminism
challenges the power structures at work in society and in the science classroom. She suggests
that there are political and cultural forces at work that allow for the marginalization of certain
genders and races, and that it is up to the critical feminist to take the forces to task in order to
bring about change. As the biographies of these young women were created, it was the hope that
the existence or nonexistence of such forces would come into view for those reading their stories.

Upon reading the biographies of these young women, each one stated that females can do
anything that males can do, and that stereotypes of males and females no longer exist. However,
as descriptions of their science classrooms are forged, a definite picture of differentiation in
treatment between males and females is portrayed. All of the girls described with dismay how
the females did all of the work in science class while the boys goofed off. Also, Julie was very
frustrated by the differing treatment her science teachers made between male sports and female
sports when they hosted football Fridays. Likewise, Janie was angered that the boys were
always called on to conduct experiments in the classroom while the girls watched. Sophie was
taken aback by the fact that the boys waited for her to do the work and then they copied it. Such
behaviors were allowed by the classroom teachers, according to the girls. While each one was
unhappy with the situation, each one allowed their marginalization because they took no action
to change it. This may be due to the fact that to speak up and challenge the power structures in
the classroom would go against that subservient “good school girl” image. Nevertheless, the portraits created by the biographies in this study suggest that such marginalization does have a role in the shaping of female identity, at least the science identity, for these three young women.

Question Two Discussion

How do the females narrate their experiences in a rural community and high school in relation to their science identity?

The opportunities one encounters throughout life stem largely from the identity created by the culture in which one is reared (Lee, 2002). The culture that sets the stage for this study is a small, rural community that time seems to have almost forgotten. The traditions and values represented inside the confines of the community are somewhat old-fashioned and unchanging. It is a close-knit community where according to the females, “everyone knows you.” All three females under study suggest an awareness that their opportunities have been limited by life in a small town. Each young lady described the small town with fondness while recognizing its insular image. They seem unfazed by the fact that there are more things to do and better opportunities for careers in a large city. They rely heavily on television as they explain their notions of city life, college life, and even science. Each female stated that their ideas about life beyond the limits of their experiences were largely based upon what they had seen on TV. Television appeared to be a driving force behind their fears and concerns about city living.

While television has played a role in shaping the views of the research subjects, it seems that another influence upon their science identity may be the classroom teacher and their instructional methodology. When speaking of their school experiences with science, all three women stated that their elementary science programs were far more exciting and engaging than those in high school. All of the girls cited that the hands-on methodology utilized by their
elementary teachers enabled them to better understand science content. The participants attempted to analyze the cause for a lack of hands-on instruction in high school with the direction of their discussions pointing to the dual roles of the science teachers as coaches.

While the research participants did not voice a perception that teachers had lower expectations of them in their science classrooms, it does prompt the question of whether a hidden curriculum existed. The unspoken words of teachers and their actions can be part of a “hidden curriculum” that may overpower the regular curriculum (Owens, et al., 2003). A silencing of students can occur when educators fail to allow for freedom of expression and fail to openly listen to student opinions (Maher, 1999; Smyth & Hattam, 2004). As suggested earlier, the females did experience a degree of silencing as they were not allowed to voice their frustrations, possibly out of intimidation or a desire to maintain respect. Whatever the reason for the silencing, their stories suggest that the classroom events impacted the science identity of each young lady.

Science identity can be defined as a student’s awareness of self as related to peers and how science affords one opportunities to improve personally (Kozoll & Osborne, 2004). Science identity encompasses not only knowledge of science, but how the students interact with science whether inside or outside formal science relative to their personality and the person they want to become. Thus, one’s science identity can be impacted by sex, ethnicity and cultural identities and it changes within context over time (Carlone & Johnson, 2007). Therefore, if students are to have opportunities to establish their science identities, learning episodes must allow them to decipher meaning from previous knowledge and to acquire this meaning as a part of a community instead of expecting them to merely take the knowledge dispensed at face value with no regard to their own ideas (Reveles, et al., 2004; Tan & Barton, 2007). However, students
often do not relate science content to the larger world, thus limiting the development of their science identity. This seems to be the case for at least two of the three females. Julie and Janie experienced difficulty in expressing any degree of science identity beyond the confines of the science classroom. However, Sophie was more attuned to the role science has played in her everyday life. Her early life experiences with her aunt who was a biology teacher may have played a role in this realization.

All three females expressed concerns over the lack of advanced placement (AP) courses offered by their high school. Each one was frustrated by the limitations they feel as a result of this lacking, but each was also quick to point out that she is just as smart as students who had such luxuries. Unfortunately, this lack in advanced courses does seem to have impacted their self-confidence. Each one seemed to have feelings of regret about their course offerings. They also suggested that they lack the confidence to speak up in their college courses. Julie even stated that she was afraid of sounding dumb. Thus, feelings of inadequacy exist.

The females had great difficulty in narrating their science identity. This could be because a science identity beyond school science has not emerged. The ages of the females and lack of life experiences could be part of the underlying factors impacting this phenomenon. The girls have a very limited real life exposure to science inquiry or science careers. They also have lived within the confines of a community that is largely geared toward traditional roles where science careers are not emphasized. Only Sophie seems to have a grasp of science beyond classroom science. However, her indecision about a career seems to impede her description of her science identity as well. She knows that she is geared toward pursuits in the life sciences because of her early endeavors and interests, but her desires to remain in Oakville limit her vision and her actions to have her science identity evolve in other directions.
Question Three Discussion

What do the participants describe as influencing their academic and career choices as they transition into the life of a college student?

The desirability to remain in a small town often limits educational and career choices for rural high school students (Broomhall & Johnson, 1994). Thus, a conflict in goals may be in existence among rural youth because seeking a high-paying, powerful position can often mean leaving home, family, and peers due to the relatively low number of career opportunities in existence in most towns (Hektner, 1994). Each of the research participants voiced an awareness that there are more career opportunities in existence in larger cities than in their small town of Oakville. Thus, these research findings seem to be the driving factor for the women participants in deciding which college to attend and what career to pursue. All three girls stated a desire to stay in or near Oakville. Their attachment to the community was so strong that their college and career choices were limited to choices that would allow them to remain home. Only Janie indicated that her college choices were driven by her financial situation as well as her desire to remain in the community.

All three females are “settling” into and deciding upon their career choices constrained by “staying in the area.” They all possess commonalities in their goals for the future. All of them have a desire to marry, have children, and live in Oakville. Even though all three cited many flaws with the educational system at Meadow View, each one agrees that they would still send their children there. Also, two of the three young women expressed hopes of having little debt when their family is formed. Likewise, Janie and Sophie concur that if they marry a rich man, they would be content to be a housewife, or merely work part time. All three girls seem
tied to their small town traditions and associated values, stereotypes, and their hopes of rearing a family within its confines.

Summary

These interpretive biographies begin to uncover the lives of three young women and shed light on how living in a rural community and attending a K-12 school influences their choices, views of science and their relationship to it, career paths, education, and identity. The biographies give insight into how the female participants narrate their science identity and how that identity intersects other decisions and influences their selection of college, career, and future goals. For all three participants, the major influences perceived to shape their identities were complex and overlapping. Though discussed as separate entities the influences of family, friends, community, religious convictions, and teachers and classroom experiences in science leave a lasting impact on the women and their science identity. However, the common influence that seemed to have a powerful directive on their current and future choices was their desire to remain in their small rural town with its family traditions, insular community membership, values, expectations and ways of viewing the world. While all three young women expressed knowledge that greater opportunities exist outside the boundaries of their close-knit community, those opportunities did not seem worth the trade off of leaving their home, their haven of Oakville. All three seemed content to turn their back on the rest of the world and return “home” and remain in their traditional, familiar locale for the remainder of their lives. I am reminded of Dorothy from the Wizard of Oz who for these participants may have expressed their views best in the phrase “There’s no place like home.”
Implications of the Study

This study provides a unique look into female identity and female science identity from the perspective of academically successful females living in a rural community. There is a void in research centering on rural females in the areas of science career choices and college transitions. This research contributes toward a body of literature that may begin to fill that void. By using interpretive biographies, the females’ thoughts, emotions, and aspirations are captured un tarnished by the words of outsiders. Interpretations of biographies are largely left up to the readers and as such the voices of the females allow readers to see what reality exists for the research participants as they attempt to convey the true essence of their identity, their science identity, and their career choices. By studying populations of females who are not from mainstream America, information can be gathered that allows researchers, educators, and even scientists to reach out to those females and meet their needs in order for them to successfully pursue science careers.

Classroom teachers can begin the process of merging female populations with the science world by taking the suggestions offered by the research participants about approaches to science instruction. All of the young women expressed an explicit desire to engage in more hands-on science instruction. This is crucial information because it supports research which suggests that due to the social nature of science, instructors should not only maintain deep understanding of content, but should harvest teaching methodologies that reaches the multiple interests and learning styles of those students housed in the classroom (Barton, 1997). For these three females, a lack of opportunity to interact with science in meaningful ways other than lecture and memorization, and a lack of AP courses in their high school played key roles in the shaping of their science identities. Therefore, it seems that rural community schools such as the one serving
as the site for this study should seek out funding in order to create greater opportunities for advanced studies in science. Classroom teachers in rural communities are also encouraged to seek out ways to expose students to science beyond the classroom context and to engage students in an exploration of science as an integral part of society.

This exploration should not end upon graduation from high school. As the females described their early college experiences with science, it becomes clear that some college level instructors also fail to meet the needs of all students in their classes. The desire for more interesting, relevant instruction was echoed time and again by the participants. All of them conveyed a frustration with the “boring” lectures in science courses. One of the young ladies even suggested that college professors create more opportunities to participate in field experiences related to science content. While lab experiences at the college level do seem to better satisfy the desire for hands-on instruction, it seems that differing learning styles are not always considered. It would be worthwhile for college professors to consider creating opportunities in science class for interactions with science content by means other than lecture. It is often the case that students, both male and female, avoid content that they consider boring and irrelevant to their lives. If colleges and universities provide more meaningful science instruction designed to address the differing needs of students, a larger number of males and females might consider majors in science fields.

By making changes in the science classrooms at all levels, female interest in science might be nurtured. However, for females from small rural towns, the desire to remain in their community may continue to impede the desire to pursue careers requiring relocation. However, exposure to more relevant science instruction may intrigue the females to give up that security of their small town homes to take on an uncertain path in a field dominated by males. Also, with
advances in technology, science careers may begin to become more available in even the remotest locations on the planet. Attempts should be made to provide all students from rural communities with opportunities to visualize science and life from differing perspectives than those narrowed by their geographic location. Exposure to successful female scientists and realistic depictions of science careers may be part of the answer to garnering the interest of females. Encouraging girls in STEM fields may begin with parents in the home but it must also be encouraged and nurtured by schools and science faculty. It is clear in the interpretive biographies of the participants that science experiences in school are salient influences in the shaping of their science identities. In addition, the interpretive biographies of the young rural women provided insights that growing up in their community may shelter them from the outside forces of the real world. Whether intentional or not, parents in such a community may contribute to this and actually be limiting the potential of their children to forge realistic ideals of what the world has to offer. Perhaps, because of the entrenched, unchanging traditions voiced by the participants, generations of community members may wear self imposed blinders with respect to opportunities in STEM fields beyond the confines of the rural community. Whether it is the case or not, educational policy makers at the local levels should seek ways to assure that all children are afforded a chance to see past the borders of their lived experiences in their science classrooms. One way to begin such reform is to address women in STEM careers by developing high quality, highly interactive educational materials that present realistic views of the wide range of scientists and their experiences within STEM fields.

Suggestions for Future Research

All three females under study alluded to the fact that religion is one of the main components that defines their identity. Little research has been done on how religion in a rural
community impacts female identity formation, especially in science with the exception of the conceptual theory of evolution. It is suggested that this area be explored. It seems that the religious beliefs of the young females may have led to misconceptions regarding their ideas about science. Thus, by engaging in an in-depth study of the religious views in a rural community and how religion impacts the opportunities and choices of females, a greater understanding of the discrepancies between their religious views and world of science may be uncovered and a gap may be bridged inviting more rural females to pursue science careers.

The body of research in existence may also be enhanced by engaging parents, other family members, and peers of the research subjects in a similar study such as this one in order to gain insight into their perceptions of the young women. Because identities are social constructs that evolve within communities in which the person is interacting at a said time (Tan & Barton, 2007), a different picture of the young females as related to their identities, science identities, and career choices may be developed by gathering the perceptions of others. This would allow new dimensions of the females to emerge.

Last, it would be beneficial to conduct a study centering on successful young women from the same rural community who chose to move away and pursue careers outside the parameters of the town. This study focused on three successful females in high school science and their transition to college examining their career path choices. Out of their biographies, it became clear the participants desired to stay in the community, but valuable information could be gathered by studying those who chose to leave the community to pursue STEM careers. The research presented could contributes to questions surrounding why so many women academically successful in science from rural communities who have aptitudes and interest in the sciences still opt out of careers in science. By examining various populations of females, and
identifying what draws them into STEM fields, there may eventually be a representative number of females from all walks of life who pursue science careers. Therefore, this study serves to provide insights into young rural women’s science identities and the influences that lead them to make decisions regarding STEM career pathways during their transition to college. This is a beginning but there is a vast amount of work remaining to be done to identify what interests and draws women to pursue much needed STEM careers.
REFERENCES


Interview Protocol One

1. How would you describe your high school experiences?
2. How would you describe your high school peer group?
3. Describe your best high school memory.
4. What is your worst high school memory?
5. Did anything bad ever happen to you like people being mean to you or mistreating you?
6. Describe your science experiences in elementary school.
7. Describe your science experiences in high school.
8. How do you feel about taking your first science course in college?
9. What did you choose as your major?
10. What was your least favorite thing about school science?
11. How did you decide which classes to take in college?
12. Did anyone in school talk to you about careers?
13. If I asked you to name the important people in your life that have helped you become the person you are, who would you name?
Interview Protocol Two

1. Are there any family stories that your family tells about when you were a baby?
2. What is your favorite childhood memory?
3. What are your favorite memories of your grandparents?
4. How would you describe your parents?
5. Where did your parents go to school?
6. Which parent is the disciplinarian?
7. Do you have a favorite memory of your parents?
8. Did your parents push you in high school?
9. Would you describe either one of your parents as being very scientific? Explain why?
10. Tell me about your parents’ careers.
11. What if you meet a guy, and you know he’s the one, but he doesn’t live in your town?
12. Did your parents encourage you to try new things growing up?
13. If you could change anything about your childhood or your life up until now, what would you change?
14. What was your favorite year of high school? Why?
15. Describe the different peer groups in high school.
Interview Protocol Three

1. Did you ever feel that you were treated differently or at a disadvantage because you were a girl in high school? Explain.
2. How do you think your education might be different if you went to a larger school that was not a country school?
3. How would your college preparation be different if you went to a city school?
4. What role did religion play at school?
5. Did you study evolution in science?
6. How do your religious views affect the choices you make in college?
7. Have you noticed many people in college with alternative lifestyles?
8. If you had to describe Oakville or convince someone why they needed to live there, how would you describe it?
9. What do you think you might have missed out on by living in a small town?
10. Were there certain groups in school, or certain cliques?
11. Were different groups mean to each other?
12. How have the groups changed since college?
13. Did your parents go to college? Tell me about that.
14. Which parent are you closer to? Why?
15. What was your biggest disappointment in high school?
16. Do you think the mean girls have changed since high school?
17. What are some of your best memories of high school?
19. Why do you think there are not as many females going into careers in science and engineering?
20. How did your high school science experiences affect the way you feel about science?
21. If you could go back and rework the science classes in high school, how would you change them?
22. What was your hardest high school class?
23. How would you describe your childhood?
24. Did your parents tell you any funny stories about growing up?
25. What are some of the holiday traditions your family has?
26. What is your favorite holiday memory?
27. What do you remember about starting school for the first time?
Interview Protocol Four

1. How would you describe yourself as a person and as a scientist?
2. What do you think the schools could do differently to help promote science?
3. Have you changed your views on leaving this area?
4. How have you changed since high school?
5. Do you have classes with your friends? How does that affect your feelings about your classes?
6. Do you answer questions in class?
7. What were your biggest shocks or disappointments about college now that you have finished your first semester?
8. Was the college atmosphere what you expected?
9. Where did you get your images of what college was like?
10. Tell me some of your favorite memories of growing up in Oakville.
11. Did you ever feel unsafe in Oakville? Why?
12. What about the party scene? Has it changed any now?
13. What is the worst part about growing up in a small town?
14. How have your friends that have moved away to go to college changed?
15. Do you think their college experiences are different than yours?
16. Do you have regrets about not going away?
17. What would you change about your life?
18. Who are your heroes?
19. What role does religion play right now as you are thinking about your future?
20. How important is it to you that the guy you marry is a Christian?
21. If you could go back in time to any point in your life, where would you choose to go?
22. What in your life would you redo?
23. Was there ever a time you should have defended someone and you didn’t?
24. What do you think keeps people from sticking up for other people?
25. How have your goals for the future changed?
26. If your husband was rich, would you still work? Why?
27. Ideally, describe your life ten years from now.
28. Whose job is it to clean the house?
29. Who works harder, your mom or your dad? Why?
30. Has money ever been an issue for your family?
31. Did finances play a role in the college you chose?
32. What do you think defines a person?
33. How do events that happen in your life determine who you are?
34. How do you think the culture has changed us?
35. What do you think shapes a person’s science identity?
36. Why do you think we seem to be losing more girls than boys in science?
September 24, 2009

Melisa Fowler  
Department of Curriculum & Instruction  
College of Education  
The University of Alabama

Re: IRB # 09-OR-274 “Schooling Girls: An Examination of Female Science Identity”

Dear Ms. Fowler:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on September 24, 2010. If your research will continue beyond this date, complete the relevant portions of Continuing Review and Closure Form. If you wish to modify the application, complete the Modification of an Approved Protocol Form. When the study closes, complete the appropriate portions of FORM: Continuing Review and Closure.

Please use reproductions of the IRB approved informed consent form to obtain consent from your participants.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

[Signature]

Carriatto T. Myles, MSM, CRM  
Director & Research Compliance Officer  
Office for Research Compliance  
The University of Alabama
UNIVERSITY OF ALABAMA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS
REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

I. Identifying information

Principal Investigator: Melissa Diane Creasy Fowler
Name: Melissa Diane Creasy Fowler
Department: Curriculum and Instruction
College: Education
University: The University of Alabama
Address: 1921 County Road 394 Killen, AL 35645
Telephone: (256) 757-8117
FAX: 
E-mail: Lisa.fowler@kcschools.org

Second Investigator: Dr. M. Jenice Goldston, PhD
Department: Curriculum and Instruction
College: Education
University: The University of Alabama
Address: 1921 County Road 394 Killen, AL 35645
Telephone: (205) 348-0923
FAX: 
E-mail: Dgoldston@bamaed.ua.edu

Third Investigator

Title of Research Project: Schooling girls: An Examination of Female Science Identity

Date Printed: 
Funding Source: 

Type of Proposal: 

Revision 
Renewal 
Completed 
Exempt

Attach a renewal application

Attach a continuing review of studies form

Please enter the original IRB # at the top of the page

UA faculty or staff member signature: 

II. NOTIFICATION OF IRB ACTION (to be completed by IRB):

Type of Review: Full board Expedited

IRB Action:

Rejected Date:

Tabled Pending Revisions Date:

Approved Pending Revisions Date:

Approved—this proposal complies with University and federal regulations for the protection of human subjects.

Approval is effective until the following date:

Items approved: 

Research protocol: dated

Informed consent: dated

Recruitment materials: dated

Other: dated

Approval signature: 

Date 9/24/09
THE UNIVERSITY OF ALABAMA
HUMAN RESEARCH PROTECTION PROGRAM

UNIVERSITY OF ALABAMA INSTITUTIONAL REVIEW BOARD

Title of Research: Schooling Girls: An Exploration of Female Science Identity

Investigator(s): Melisa Fowler

IRB Approval #: OSP #:

Sponsor:

You (Name) are being asked to be in a research study.

The name of this study is "Schooling Girls: An Exploration of Female Science Identity

This study is being done by Melisa Fowler, a graduate student at The University of Alabama and M. Jenice Goldston, Ph.D

What is the purpose of this study—what is it trying to learn?
This study is trying to gain an understanding of how female science identity is perceived by three female high school graduate participants and how it influences their transition and choices in college.

Why this is the study important—what good will the results do?
The results may reveal how school and other experiences in rural areas influence females' academic choices with respect to science courses.

Why have I been asked be in this study?
You have been asked to be in this study because you graduated in the top ten of your class and made good grades in your science classes.

Page 1 of 4

Prospect Initials

University of Alabama IRB
CONSENT FORM APPROVED: 9-24-09
EXPIRATION DATE: 9-24-10
How many other people will be in this study?
This is a small study. Only 2 girls will be involved in the study.

What will I be asked to do in this study?
If you decide to be a part of the study you will be asked to participate in four interviews with the researcher lasting approximately 45 minutes. The interviews will be set up over a span of the first semester of your college career and will be conducted when you are home for visits at your convenience. The interviews may take place in the researcher’s home, in a restaurant, at your college, in your home, or anywhere else that can be arranged as a meeting place where you feel comfortable. These interviews will be recorded for later transcription. Additional follow-up interviews will occur as needed.

Between visits you will be asked to keep a journal in which you record your thoughts and feelings. You will also be asked to engage in email and facebook dialogue weekly with the researcher.

The researcher also requests permission to visit you two times during the course of the study to observe during your college science courses.

The researcher will also ask permission to interview people whom you feel have helped shape your identity. These people may be interviewed, as well.

How much time will I spend being in this study?
You will spend about 45 minutes per interview with no less than four interviews taking place. The amount of time you spend journaling and in email and facebook correspondence will be up to you. However, it is asked that you do email at least once per week. It is estimated that you will spend a total of approximately 20 hours engaged in this study process.

Will being in this study cost us anything?
The main cost to you is the time that you devote to participating in this study.

What are the benefits of being in this study?
There are no direct benefits to you for being in this study, but your participation may add information to the research on how females become who they are.

What are the risks (dangers or harms) to me if I am in this study?
There are no foreseeable risks for being a part of this study.

How will my privacy be protected?
Pseudonym for participants and the community as well as the University will be assigned. You do not have to answer any questions or give us any information that you are uncomfortable in answering. You will be able to read the researcher’s narratives and interpretations and may suggest revisions and deletions which the researcher will honor.
How will my confidentiality be protected?
You will be given a fake name so that no one will know your identity. All data including interview tapes, transcriptions, electronic correspondences, and observation notes will be kept in a locked filing cabinet in the researcher’s home until the study is completed and published. All materials will then be shredded and disposed of in an appropriate manner. This destruction will occur approximately a month after publication of the final study.

Do we have to be in this study?
No. If you decide to be in this study it should be because you really want to volunteer. You can refuse to be in the study. You can also start the study and decide to stop at any time. If you refuse or if you start the study and then stop it, you will not lose any benefits or rights you would normally have.

If we don’t want to be in the study, are there other choices?
If you do not want to be in this study, the other choice is to refuse. I will thank you for your time and leave.

What if we have questions, suggestions, concerns, or complaints?
If you have questions about the study now, please ask them. If you have questions or concerns later, you can reach Mrs. Fowler at (256)710-5016. If you have questions about your rights as a person taking part in a research study, call Ms. Tanta Myles, The Research Compliance Officer of the University of Alabama at 205-348-5152.

What else do we need to know?
You do not give up any of your legal rights by signing this consent form.

You will be given a copy of this consent form to keep. Save it in case you want to review it later or you decide to contact the investigator or the university about the study.

The University of Alabama Institutional Review Board (IRB) is the committee that protects the rights of people in research studies. The IRB may review study records from time to time to be sure that people in research studies are being treated fairly and the study is being carried out as planned.
I have read this consent form. I and my child have had a chance to ask questions. Our questions have been answered. We understand what we will be asked to do. I freely agree that my child and I will take part in it.

________________________________________ Date __________
Signature of Research Participant

________________________________________ Date __________
Signature of Investigator
Page 4 of 4
Prospect Initials __________