EFFECTIVE SCIENCE TEACHING IN A HIGH POVERTY MIDDLE SCHOOL:
A CASE STUDY

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Liberty University

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ABSTRACT

This qualitative case study described the characteristics of science teachers in a high poverty urban middle school whose 2010 scores on South Carolina’s Palmetto Assessment of State Standards (PASS) ranked second in the state. Data was obtained through classroom observations, open-ended interviews, school documents, and photographs taken inside the school from ten participants, who were seven science teachers, a science coach, and two administrators. Findings revealed a school culture that pursued warm and caring relationships with students while communicating high expectations for achievement, strong central leadership who communicated their vision and continuously checked for its implementation through informal conversations, frequent classroom observations, and test score analysis. A link between participants’ current actions and their perception of prior personal and professional experiences was found. Participants related their classroom actions to the lives of the students outside of school, and evidenced affection for their students.

Descriptors: science education, poverty education, high-poverty high-performing schools, effective teachers, turnaround schools, cognitive-perceptual theory
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List of Abbreviations

Achievement via Individual Determination (AVID)
Adequate Yearly Progress (AYP)
Free or Reduced Lunch (FRL)
Palmetto Achievement Challenge Tests (PACT)
Palmetto Assessment of State Standards (PASS)
CHAPTER ONE: INTRODUCTION

The primary purpose of this qualitative case study was to explain the success of science teachers in a low performing, high poverty urban middle school in South Carolina. Using data from interviews, observations, school documents, and photographs, the researcher inspected the data for descriptive themes related to the philosophies, prior experiences, and classroom practices of science teachers. This chapter presented the problem statement, the purpose, and the significance of the study, listed its guiding questions, and summarized the limitations. It discussed the background and the context for the study, including the state’s poverty levels, the academic achievement for students living in poverty, and state and federal initiatives towards reducing the achievement gap. Definitions for terms used in this study closed the chapter.

BACKGROUND

The background for the study included poverty levels in South Carolina (National Center for Education Statistics, 2008), the achievement gap (Auguste, Hancock, & Laboissiere, 2009; Madigan, 2009; South Carolina Statistical Abstracts, 2010; Wong, 2010), state and federal efforts to overcome the impact of low levels of family income on student achievement (Sanders, Askins, Kaur, & Pawloski, 2009; U.S. Department of Education, 2002), and annual testing in all grades to measure academic achievement for all students (South Carolina Department of Education, 2010).

Poverty Levels

In 2009 17.2% or 129,000 children 5 – 17 years old in South Carolina lived in families whose incomes were less than the federally defined poverty level (National Center for Education Statistics, 2009). The Census Bureau used income thresholds that
varied by family size and composition to classify individuals at poverty status, based on
the United States Office of Management and Budget Directive 14; in 2008 the poverty
level for a family of four was $21,500 (2008 HHS Poverty Guidelines, 2008). When
family incomes were less than 130% of the federally-defined poverty level (US
Department of Agriculture, 2009), their children were eligible for free or reduced-price
lunches (FRLs); as a result, the number of students eligible for federally subsidized
school meals (FRLs) approximated the school’s poverty level (Caldas & Bankston, 1995;
Kerachsky, 2010). The eligibility of over 82% of the students at the site school for FRLs
was one and a half times the average in South Carolina (NCES, 2008; State and County
Quick Facts, 2010).

The Achievement Gap

When family income levels were used as criteria for analysis, significant
differences in student achievement were found (McKinsey & Company, 2009; Sanders et
al, 2009). Although the economic achievement gap has been reported since the late
1960s (Marzano, 2003; Marzano, Pickering, & Pollock, 2001), little progress has been
made in reducing its size (Auguste et al, 2009; Bainbridge & Lastley, 2002; Haycock,
2009; Madigan, 2009; Nations’ Report Card, 2001; South Carolina Statistical Abstracts,
2010; Wong, 2010). Doug Harris, in an analysis of more than 60,000 schools prepared
for the Harvard Achievement Gap Initiative, concluded that students in low poverty
schools were 22 times more likely to have consistently high achievement than students in
high poverty schools (Harris, 2007).

The scores on the National Assessment of Educational Progress, a criterion-
referenced test considered to be the nation’s report card, confirmed the gap for 2005,
when the most recent data were collected. National Assessment of Educational Progress
scores indicated that in South Carolina, where slightly more than half of the students are eligible for FRL, only 14% of eligible fourth-grade students were proficient in reading compared to 39% of students from low-poverty families. National Assessment of Educational Progress science test score results indicated that only 37% of eligible eighth-grade students in South Carolina scored basic or higher in science, while almost twice that number of non-eligible students scored (71%) in the same range, according to Elena Rocha and Amanda Sharkey of the Center for American Progress (2005). South Carolina scores on the National Assessment of Educational Progress science test were similar to national averages for eighth graders, which were 36% and 70% respectively, indicating a national achievement gap as well as a state achievement gap (Rocha & Sharkey, 2005).

State Efforts to Reduce the Achievement Gap. University and business alliances, the State Department of Education standards, and federal government mandates were among the efforts to reduce the size of the achievement gap. In South Carolina, efforts to overcome the negative impact of poverty on student achievement included university-level teacher preparation programs, such as the Center of Excellence at Francis Marion University preparing teachers for high-poverty schools, and the Midlands Education and Business Alliance, which organized a seminar to increase teachers’ understandings of poverty and its affect on achievement (Midlands Education & Business Alliance, 2007; Sanders et al, 2009). The State Department of Education has assisted school districts in developing subject-specific and grade-specific standards for classroom instruction, standards-based assessment, and agendas for professional development on pedagogies that promote student achievement. Although the State Department’s efforts were not specific to children in poverty, efforts to improve the achievement helped all students, including those whose achievement is impacted by poverty (Hochschild, 2003;
Federal Efforts to Reduce the Achievement Gap. The federal government provided Title I funding to help increase student achievement in schools with 55% or more of their students eligible for FRL (U.S. Department of Education, 2002). Initially authorized by the Elementary and Secondary Education Act of 1965, reauthorized in 2001 by No Child Left Behind (NCLB) to provide material and personnel resources for inner-city schools and rural poverty schools. The site school, which qualified for Title I funding (Southwood Middle School, 2011), has used Title I funds to purchase computers and SMARTBoards for almost every classroom, to establish tutoring services, and to provide high quality professional development, according to Kathy Dobbins, the study site’s assistant principal (May 2010).

Although initially in the late 1960s the impact of Title I funds on the achievement gap was inconsistent, significant reductions in the gap were realized in the 1970s and 1980s as Title I’s complex regulations became better understood (Grissmer et al, 1998; Smith & O’Day, 1991). Although an apparent stagnation of the achievement gap during the 1990s forced some to question the benefits of Title I, it was re-funded as part of the No Child Left Behind (NCLB) Act of 2001, which included additional mandates on school systems that directly impacted this study.

Using the purse strings of the federal government in an effort to improve educational quality and reduce the achievement gap, NCLB required all schools to demonstrate AYP of all students towards grade-level proficiency in reading and math by 2014 (U.S. Department of Education, 2002). The inclusion of all subsets of students in the calculation for AYP, including those affected by poverty, limited proficiency in
English, learning disabilities, and other mental or physical difficulties created tough challenges for certain schools to demonstrate AYP, especially those with large numbers of one or more of those subsets of students. The percentage of students required to demonstrate AYP increased as 2014 approached; thus increasing the difficulty of obtaining AYP. The likelihood of continuing to be labeled as a failing school, such as the site school, increased with each passing year (Healy, 2008; U.S. Department of Education, 2002).

According to Title II of NCLB, all schools that did not demonstrate AYP faced increasingly stronger consequences, including loss of students and restructuring of the school by the judicial system (Failure to meet AYP goals, 2010; Barnett, 2006; Barnett, 2010; Johnson & Fargo, 2010; Mapping South Carolina’s Educational Progress, 2008; No Child Left Behind Act of 2001, 2002). When a Title I school failed to meet AYP for two years, the government mandated the development of an improvement plan that focused on the needs of students from low income families, including free tutoring and other forms of academic assistance (Failure to meet AYP goals, 2010).

Title II required local school districts to assist the failing school in plan’s implementation by providing transportation for students who chose to attend other more successful schools. After failing to meet AYP for three years, Title II required school districts to hire a state-approved agency to supplement the school’s educational services with tutoring and other remedial services (Failure to meet AYP goals, 2010). After four years, Title II required staff replacements and curriculum changes (U.S. Department of Education, 2002).

After five years, the local district under Title II had to choose among several actions regarding the failing school; those were school closure and conversion to a
charter or magnet school, replacement of the entire faculty and staff, or the hiring of a state-approved entity to assume control of the school (Failure to meet AYP goals, 2010). The study site was closed in June 2011; it reopened in August 2011 as a magnet school for the arts for grades 6–8 (Bagley, 2010). In a personal conversation in May 2010, district superintendent Bagley explained that the magnet school included students from more affluent areas, thus decreasing the poverty level of the students, as defined by their eligibility for FRL.

State Achievement Testing

The study site was one of nine failing schools in a school district that included fifteen schools, no successful middle schools, and among 63% of South Carolina schools that failed to meet AYP in 2010 (Mapping South Carolina’s educational progress, 2008; State Report Card, 2008; South Carolina State Department of Education, 2010). Because NCLB allowed each state to define proficiency levels; comparisons among states had less meaning than within-state comparisons (Hull, 2008; Wong, 2010). Among the reasons offered to explain South Carolina’s on-going difficulty in making AYP was the state’s decision to set its standards higher than 47 other states (Barnett, 2006; Barnett, 2010; Hull, 2008; Peterson & Hess, 2008). The 2008-2009 national average was 48% schools meeting AYP and 50.2% in South Carolina (AYP, 2007; AYP Results for 2010-2011, 2011; Duncan, 2011). The implementation of a new test of student achievement, the Palmetto Assessment of State Standards (PASS), in 2009 with slightly lower requirements for proficiency than previous state tests, was expected to increase the number of schools meeting AYP. Until 2009, no middle school in South Carolina was able to demonstrate AYP (South Carolina State Department of Education, 2010). Although not included in AYP calculations, science testing was a part of the PASS.
Background Summary

In summary, the background for this study was the existence of poverty in South Carolina schools and its impact on achievement. Indicators such as the NAEP provided evidence for an achievement gap between students eligible for FRL and those who were not eligible for assistance. The NAEP data revealed significant differences in the scores of students whose families had low incomes and other students. State initiatives for reducing the gap included university-based institutes and business alliances that provided information on teaching in high poverty environments. Federal initiatives included Title I funding and graded consequences for failing to meet AYP. NCLB mandates to demonstrate academic progress resulted in the lowering of standards for proficiency.

PROBLEM STATEMENT

This case study investigated high achievement among middle school science students, whose scores on the 2010 Palmetto Assessment of State Standards (PASS) science test ranked higher than the scores of all other reporting middle schools except for one in South Carolina. The success occurred despite the fact that over 85% of the site school’s students lived in families whose incomes were less than 130% of the federal poverty level. Bainbridge and Lasley (2002), Biddle (2001), Heck (2007), Ingersoll (2001), Salas (2011), Vanderhaar, Muñoz, and Rodosky (2003), observed that students living in poverty were more likely to receive failing grades, lower test scores, and to lag behind students from more affluent homes. Ellinwood (2011), Jensen (2005), and Ingersoll (2001) reported that they were twice as likely to have teachers with little or no experience. Contrary to those reports, the students at the site school exhibited high science achievement (Headlines, 2010). Incomplete understandings of the classroom actions and descriptive information of their teachers motivated this study.
The need to understand the success of the science teachers was more compelling in view of the overall struggle of the school. Although Title I funds supported the purchase of equipment and supplies, and financed on-going professional development, the site school never met AYP requirements since the inception of the NCLB Act of 2001 (South Carolina State Department of Education, 2010). It was classified as a failing school under federal guidelines, closed in June 2010, and then reopened in August 2011 as a Magnet School for the Arts (Bagley, 2010). The number of students from families living in poverty was expected to decrease due to an influx of students from more affluent neighborhoods, according to the district superintendent (2010).

Although most of the school’s teachers demonstrated only mediocre success in overcoming the challenges of educating large numbers of students living in poverty, the science department evidenced remarkable success. Its success was more notable in view of the general lack of related background knowledge that is important for learning science concepts; according to Conger (2005) and Marzano (2010), students living in poverty generally do not have opportunities to acquire that prerequisite information. In summary, this study extended research understandings of effective science teachers in a high poverty middle school in South Carolina. While much research has linked poverty to low achievement, not enough has described high achievement among those living in poverty, particularly in an urban middle school in South Carolina.

**PURPOSE STATEMENT**

The purpose of this case study was to provide a rich description of the philosophies, classroom actions, and instructional strategies of effective science teachers in a high poverty middle school; a secondary purpose was to describe the site school’s leadership and environment. The researcher collected data through classroom
observations, interviews, school observations, and photographs until data saturation was
realized (Bogdan & Biklen, 2007), with the intent of extending current research
understandings of effective teachers to the environment of a high poverty middle school
facing restructuring under NCLB.

The researcher purposed to compare descriptive data to commonalities of other
effective teachers in high poverty schools. McDermott and Rothenberg (2000), O’Day
(2002), Reeves (2009), and Tableman (2004) noted their flexibility, ambitious outlook
toward achievement, a goal orientation, professionalism, communications of high
expectations, an emphasis on literacy, and assessment-based instruction, while Gorski
reported teachers’ efforts to build personal relationships with students, their explicit
teaching methods, efforts to connect student experiences to instruction, awareness of
student needs, provisions for classroom experiences to extend basic general knowledge,
confidence in their teaching ability, and certainty of students’ learning ability. In
addition to noting those characteristics in the data, the researcher also described
connections between professional development opportunities and classroom success,
because of reported on-going, high-quality professional development among successful
high poverty schools (Blue Ribbon schools, 2006; Darling-Hammond & Haselkorn,

The data for common classroom strategies or pedagogies was inspected (Koehler
& Mishra, 2009). Although researchers have noted a variety of effective instructional
approaches (Carter, 2000; Johnson, 2007; Knapp, Shields, and Turnbull, 1995; Reeves,
2003), constructivist teaching methods preceded by explicit teaching were found to be
effective in allowing students that lack background information to develop deep
understandings. Carter (2000), Reeves (2003), and Smith, Brooks-Gunn, Klebanov and McLanahan (as cited in Marzano, 2003) concluded that constructivist methods were relevant for teaching students living in poverty, who generally do not possess prerequisite knowledge critical for science learning. The data related to classroom instructional strategies in this study included descriptions of teachers’ efforts to remediate student deficiencies in background knowledge.

The researcher also purposed to describe teachers’ philosophies toward their students at the site school and their understandings of the influence of prior experiences on their thinking, due to Schmidt’s (1990) conclusions that teachers’ ideologies and philosophies seemed to drive their classroom practices. In summary, the purpose of this case study was to describe the philosophies, background relevant experiences, classroom actions, and instructional strategies of science teachers and then to compare them to current research understandings.

**SIGNIFICANCE OF THE STUDY**

The significance of the study was both practical and theoretical. Its practical significance was the extension of current understandings of effective teaching to the successful teaching of middle school students living in poverty (Haberman, 1995; Halvorsen et al, 2009; McGee, 2004; Reeves, 2005, and Spivey, 2006). It is the teachers and principals working with individual children and their families who ultimately make the difference (McGee, 2004). Research conclusions related to effective teaching were needed for all types of learning communities; no single teaching model can possibly apply to all schools in every type of community, due to content variations and student differences (Willms, 1992). The researcher provided data-based conclusions for a single type of learning community with this study. Among the expectations were the possibility
of assisting less effective teachers through some form of professional development and enhancing the understandings of all teachers regarding the academic needs of students who are living in poverty. Because students living in poverty was one of the sub-groups of students included in calculations of adequate yearly progress (AYP), the researcher view understanding their academic needs as a practical way to help the school (U.S. Department of Education, 2002).

The identification of commonalities and specific characteristics of effective science teachers could assist school districts in making hiring decisions and improve the quality of teacher training programs at the state’s universities. Indirectly, the study’s data supported the science achievement of students whose backgrounds rarely included enriching experiences to support their learning, such as scouting, trips to museums, summer camp, or community recreational activities (Conger, 2005).

The theoretical significance of the study was the application of cognitive-perceptual theory, which posits that one’s actions and thought patterns are heavily influenced by understanding of events in the past (Bruhn, 1990), to a modern phenomenon. Cognitive-perceptual theory posited a link between a sense of responsibility for others’ well-being and one’s innate personal characteristics and prior experiences (Bruhn, 1990; Ferguson, 1998; Ferguson, 2003; Monroe & Epperson, 1994; Schacter & Thum, 2004). This study’s data was analyzed for links between teachers’ philosophies and classroom actions to their perceptions of their personal experiences.

**GUIDING QUESTIONS**

The underlying question of this case study was, “Who are these teachers?” That is, the researcher intended to describe their characteristics, their philosophies, their thought processes guiding their actions, and the environment of their school. The
research questions loosely focused the case study, due to the emergent and evolving nature of qualitative research (Marshall, & Rossman, 2010; Yin, 2009). According to Bogdan and Biklen (2007), case studies are uniquely capable of deep discovery; thus, the researcher listed guiding questions, rather than narrow and closed research questions. Chapter 2 discussed the guiding questions and related them to specific research observations.

1. *How, if at all, did the teachers’ background experiences and professional training prepare them to teach in a high poverty science classroom?*
2. *What ideologies and philosophies did the teachers have towards their students?*
3. *What, if any, classroom actions depicted teachers’ philosophies towards the students?*
4. *How, if at all, did the school environment and culture affect science achievement?*

**DELIMITATIONS**

While the study’s limitations were the subjectivity of the data and geographical and social factors, the delimitations were its fallible single human researcher (Bogdan & Biklen, 2007) and one group of teachers at one school. The study focused on science teachers at only one public middle school, because of the seventh grade students’ ranked in second place on the state’s annual test of state standards, the Palmetto Assessment of State Standards (PASS). The state’s top ranked middle school was not selected because it was a small magnet school (South Carolina Department of Education, 2010); its selected group of students was unrepresentative of the state’s typical students, according to Greg MacDougall, the past regional president of the National Science Teachers’ Association. The top ranked school had only 21 seventh graders, while the site school had 155; the third and fourth ranked schools had 61 and 97 seventh graders, respectively.
(South Carolina Department of Education, 2010). Although the third and fourth ranked schools were public, non-magnet schools, their sizes, and rural locations limited the transferability of this study’s results. Low scoring schools were not selected, because the focus of this study was the characteristics of successful teachers, rather than a comparison of successful and mediocre teachers. The primary reason for choosing the school was the opportunity to study its science teachers who are effective in spite of high-poverty levels; the math and reading scores were not remarkable (South Carolina Department of Education, 2010). It was not the only high poverty middle school, for all of the top five ranked schools had significant poverty levels over 70% (South Carolina State Department of Education, 2010). This selection of a mid-size non-magnet school allowed the possibility of greater generalization from its conclusions; most schools do not have a carefully selected student body. Please see Table 4 for details on the top-ranking schools.

The focus was middle school science primarily because the researcher, who taught science in the same school district, understood science and had access to the school. The study focus was science, rather than all subjects, because science scores on the PASS distinguished this school above all schools (South Carolina State Department of Education, 2010).

**OVERVIEW OF THE STUDY**

This study was a descriptive case study of the characteristics and philosophies of effective science teachers in a high poverty middle school in South Carolina. The urban school had failed to demonstrate AYP under No Child Left Behind (NCLB) for any single year since the 2002 implementation of the NCLB law; it was destined for re-structuring at the end of the 2010-2011 school year (NCLB, 2001). In conjunction with continuing failure to meet AYP, however, the school’s science scores on the PASS
ranked second in the state (South Carolina Department of Education, 2010), a possibly intriguing event in view of the traditionally lower performance of students from families living in poverty, compared to other students (Achievement Gap, 2010; Grissmer, Flanagan, & Williamson, 1998; Jensen, 2005).

Methodology

The study’s methodology included interviews with teachers and school administrators, inspection of school documents, observations of science classrooms and their teachers, and inspection of photographs made by the researcher at the site school. Test score data was used to describe the site school and the participants; see Chapter 3 for discussion of test scores.

The selection criteria for the participants resembled the criteria used by L. J. Santamaria (2009) in a qualitative case study of the pedagogical practices of teachers in high-poverty elementary schools. The present study, like Santamaria’s 2009 study, involved science teachers whose students had high levels of science achievement and lived in families with incomes near the poverty level (Santamaria, 2009; Headlines, 2010; State and County Quick Facts, 2010). The effectiveness of teachers in both Santamaria’s study and the present study was contrary to expectations of low achievement among students living in high levels of poverty (Reeves, 2005). Data analysis revealed common characteristics, practices, and philosophies of the science teachers and suggested an explanation for their effectiveness. The goal of the study was to extend research understandings related to effective teaching to the middle school science teachers in a high poverty school.
**Research Plan**

Following the receipt of the university’s Institutional Review Board (IRB)’s approval for the study (Appendix A) and the school district’s permission (Appendix B), the researcher began data collection. The site school’s assistant principal mapped out an observation schedule and introduced the researcher to the teachers; subsequently, the researcher met with the teachers, invited them to participate, gave them a copy of the study’s purpose and goals, and requested their signature on the consent form (Bennett, 2008; Freedman & Appleman, 2009; Udesky, 2010). Their responsibilities during the study were delineated on the consent form, including allowing the researcher to enter their classrooms, commitment to interviews with the researcher, review the data’s accuracy, and respond to e-mail communication. Information regarding their compensation was provided; specifically, each teacher was offered $25.00 per hour for up to four hours of participation (Appendix C).

During the first week, in a meeting room at the school, some exploratory interviewing of the teachers occurred, using the first interview protocol as a guide (Appendix D). Classroom observations occurred during the next three weeks, using the observation protocol as a guide (Appendix E). During the following weeks, the researcher interviewed individual science teachers and school administrators, using the interview protocols as guides. The interview transcriptions were compared to written notes recorded during and immediately following each interview. All data were stored on the researcher’s personal laptop, backed up on a dedicated Sony memory stick, stored in binders, and housed in a private cabinet. During the data collection, the researcher photographed relevant parts of the school, maintained an audit trail, wrote reflections, accumulated memos of the site, and communicated via e-mail with participants. Finally,
participants reviewed and approved all transcriptions and had an opportunity to inspect the set of codes.

The initial phases of data analysis began during data collection, with an inspection of the data for major themes that appeared in it. In subsequent analysis, a two-tiered coding system sorted related data around several preliminary themes. Continued coding found connections among the initial themes, resulting in a reduction in the overall number. A descriptive data chart further organized the components of all the themes and connected them to the guiding questions of this study. Quasi-statistics revealed the relative strengths of each theme. As conclusions were formed, colleagues were consulted regarding the logic of the data analysis, with a complete discussion in Chapter 4.

**DEFINITIONS OF KEY TERMS**

The following terms were used in this case study.

- **Adequate yearly progress (AYP):** a state-determined criterion of proficiency, based on math and reading scores on annual standardized tests. The NCLB allows individual states to define performance levels that define proficiency and assist in the determination of AYP (Barnett, 2006; Barnett, 2010; No Child Left Behind Act of 2001, 2002; Peterson & Hess, 2006).

- **Free or reduced lunch: (FRL):** this term refers to school meals that are provided to students in the school’s cafeteria during school hours at a government-determined cost. The researcher used eligibility for FRL to define students living in poverty. Eligibility was based on household income being less than 130% of the poverty level, which was defined in 2010 at $22,050 for a family of four (Income eligibility guidelines, 2009).
- High-poverty high-performing schools (HP/HP): Schools in which over 70% of the students live below the poverty level, which was $22,050 for a family of four (Income eligibility guidelines, 2009) and over 70% of the students score in the top third on annual state standardized tests (Reeves, 2005). The site school was a high poverty school.

- High-poverty low-performing schools (HP/LP): these schools resembled HP/HP schools with respect to the percentages of students living below the poverty level; however, less than 70% of the students score in the top third on annual state standardized tests (Reeves, 2005).

- No Child Left Behind Act of 2001 (NCLB): The federal law intended to close the achievement gap based on students’ family income levels. NCLB reauthorized Title I, which originally was enacted in the ESEA of 1965 to improve the academic achievement of disadvantaged students. The site school was a Title I middle school.

- Successful: this term refers to a score of Proficient or higher on the PASS, the annual South Carolina standardized test administered to middle school students. A successful science teacher had a majority of students scoring at the level of Proficient on the science sub-test of the PASS.

**CHAPTER SUMMARY**

This chapter presented the problem and the purpose of this study, discussed its significance, and described the background and context for the study. Although the site school was undergoing restructuring under NCLB, science students defied expectations for low achievement in a Title I school. The seventh grade students scored second highest in the state on the 2010 test of state science standards, the PASS.
The problem that this case study addressed was an incomplete description of the teachers who enabled student achievement, including their philosophies, their ideologies, their related personal experiences that shaped their thinking, and their classroom actions that evidenced their philosophies towards their students. Thus, the purpose of this case study was to describe the characteristics of those science teachers and the school environment that were apparently related to student achievement.

The study’s significance was the extension of research understandings concerning effective middle school teaching in an urban Title I middle school. The methodology consisted of acquiring data through interviews, classroom observations, test scores, school documents, and photographs in a search for commonalities among the teachers (Trochim, 2006; Yin, 2009). Limitations of the study included the human qualities of the researcher and participants, while the delimitations were the inspection of only one content area at one school in one state, with no analysis of peer interactions among the participants.

High unemployment, high levels of poverty, under-achievement by students living in poverty, and an on-going achievement gap formed the background for this study. Federal and state mandates recognized the achievement gap, requiring increasingly higher annual levels of student achievement and structuring graded levels of consequences for failing to demonstrate improved student achievement. The review of the literature in Chapter 2 found gaps among research conclusions regarding full understanding and complete descriptions of effective teachers’ classroom actions and their philosophies towards students living in poverty (Rothman, 2009).
CHAPTER 2: LITERATURE REVIEW

The purpose of this case study was to describe the philosophies and actions of science teachers in a high poverty middle school in South Carolina and to examine the characteristics of its environment and leadership. The school’s high scores on the 2010 PASS science test compelled the investigation, due to the site’s high level of poverty. Contrary to research conclusions linking low achievement directly to economic levels of students’ families, the scores of seventh grade students at the site school ranked second in the state.

INTRODUCTION

The literature review began by investigating Cognitive-Perceptual Theory, which formed the study’s theoretical basis. Subsequent sections in this chapter focused on poverty’s effect on student achievement and the qualities of teachers and leaders in high poverty schools. Because the site school was a national demonstration site for Achievement via Individual Determination (AVID), the review of the literature explored links between that curriculum and achievement among students living in poverty. A review of South Carolina’s assessments of middle school student learning concluded the chapter.

COGNITIVE-PERCEPTUAL THEORY

Cognitive-perceptual theory suggests a relationship between autobiographical memory, personality, and present events. According to Bruhn (1990), autobiographical memories generally have the form, “I remember one time...” Personality heavily influences the perception of past events. An individual’s memories reveal the kinds of events that are important and can explain interaction with other people. Additionally, memories reveal expectations that influence perceptions of similar events that occur in
the present. Although an objective reality exists, personal perception of reality is impacted by one’s past experiences of the objective reality. A teacher’s perception of both the past and the present influences the expectations, which in turn influence behavior during the event (Ferguson, 1998; Ferguson, 2003; Fromberg, 1977; Sweet, Guthrie, & Ng, 1998).

**Links Perception to Behavior**

Cognitive-perceptual theory explains behavior as the interaction of an understanding of the context, a system of values, a priority structure, and the intellectual capacity to understand the needs in the situation (Post, Greenwood, Schloss, & Hurlbut, 2002). Cognitive-perceptual theory is a part of contemporary emotion theory, which relates the intentions of one’s feelings to one’s perceived beliefs and judgments (Campbell, 1997).

An empirical test of cognitive-perceptual theory accurately predicted behaviors in prisoners’ dilemma games, in which participants demonstrated greater concern for others’ needs than their self-interests (Moore, 1996). A second empirical test of the theory explained the cooperative behavior between French and German soldiers in foxholes during World War I, in which they purposefully fired over each others’ heads (Moore, 1996). Post et al (2002) applied cognitive-perceptual theory to discussions of altruistic behavior in general; while Monroe and Epperson (1994) and Moore (1996) used it in discussions of altruistic political behaviors in dangerous situations, such as the behaviors of the Dutch towards European Jews in Nazi Europe.

The range of applications for cognitive-perceptual theory has included attempts to explain hostility among people groups, humor, and artificial intelligence, in addition to connecting the theory to altruistic behaviors. Cognitive-perceptual theory was used in
explanations of perceived hostility between groups, an ‘us vs. them’ mentality, and its promotion by national leaders (Derouen, 2001). Cognitive-perceptual theory related the perception of funniness to mental perceptions of incongruities (Lowis, 2003); additionally, it was important in the development of machine learning and artificial intelligence, in which perception was part of a cycle between memory and action (Cutsuridis & Hussain, 2011).

**Links Perception to Classroom Practices**

Cognitive-perceptual theory has been linked to teacher behaviors, as well. Cox and Hopkins (2006) included the theory in their discussion of early reading instruction and McWhinnie (1970) used it in promoting art education. Both Ferguson (1998; 2003) and Sweet et al (1998) used the theory to relate teachers’ perceptions of student ability to student achievement. Ferguson (2003) concluded that that perceptions and expectations interact to perpetuate the Black-White test score gap, while Stipek (2002) observed that teachers’ optimistic expectations for students’ futures motivated them to demonstrate care, concern, and interest in their students. Implying the same link between perception and behavior, Ladson-Billings (2001) noted that the value systems of effective teachers motivates them to become personally involved with their work and their students

Chapter 4 discusses a connection between this study’s data and cognitive-perceptual theory.

**POVERTY AND STUDENT ACHIEVEMENT**

The effect of living in poverty, according to Ruby Payne (1996) significantly impacts school learning. Large expenditures of energy involved in meeting basic needs have depleted the reserves needed for fulfilling intellectual needs of the child living in poverty. Although school systems used eligibility for FRL to define poverty, Payne
(1996) noted that poverty described one’s location in a complex continuum of financial independence, emotional resources, support systems, relationships/role models, and knowledge of the hidden rules of society. Teachers successful in increasing the level of the child’s emotional resources can energize the learning process and assist the child in working towards self-actualization, according to Payne (1996).

**Test Score Data**

Hochschild (2003) linked poverty to low achievement, as well, noting that students’ income levels directly impacted test scores. Increases poverty levels resulted in lower test scores. State and national assessments consistently reported lower scores for students living in poverty than for other students (South Carolina PASS scores, 2010). In 2008 only 15% of South Carolina’s eighth grade students from low-income families scored proficient in math and only 20% had reading proficiency. In contrast, over half of the state’s eighth graders were proficient in math, and 35% were proficient in reading (Mapping South Carolina’s Educational Progress, 2008).

Coinciding with South Carolina’s reports of low test scores for students living in poverty, a middle school in Texas received national recognition for its students’ achievement. In awarding the 2009 Broad Prize for Urban Education to the Aldine Texas school district for significantly narrowing the achievement gap, spokesperson Erica Lepping stated, “there is no statistical correlation between family income level and student achievement in Aldine, Texas” (Pascopella, 2009). The same apparent absence of a correlation between family income and science achievement prompted this case study of achievement at a high poverty middle school in South Carolina.

**Test Taking Behaviors**
Although Lynch et al (1996) called poverty status the most powerful factor affecting school performance and learning motivation, the conclusions of Lee, Fradd, and Sutman (1995) revealed that factors associated with poverty, not poverty itself, were responsible for low test scores. Following observations of significantly higher levels of distraction during testing (Howse, Lange, Farran, & Boyles, 2003; Lee, Fradd, & Sutman, 1995) and reduced abilities to focus attention on an assigned task (Howse et al, 2003), Jongyeun (1999) suggested a link between low levels of awareness of educational options and lack of achievement motivation. Jongyeun (1999) concluded that distractibility during test-taking and poor attitudes towards school could be improved with targeted information. Howse et al (2003) noted that teachers must continually search for better instructional strategies that focus children on learning, while providing extensive ongoing remediation.

**Impact on Science Learning**

Noble, Norman, and Farah (2005) extended the discussion linking poverty factors to school achievement, by observing the limited background experiences and lower language skills of children living in poverty. Those factors impacted science learning, with its associated vocabulary requirements and demands for abstract understandings. The students’ lack of experiences related to science and delayed language skills apparently limited their science achievement, according to Noble et al (2005), and helped to inspire this case study to pursue its exploration of high science achievement by students living in poverty.
The conclusions of Howse et al (2003), Jongyeun (1999), and Lee et al (1995) suggested the need for specific instructional skills that improve the achievement of students living in poverty, who tend to have higher rates of distractibility, lower achievement motivation, and decreased ability to focus. Haberman (1991) recommended that teachers discontinue their strategies that consist of forcing students to complete worksheets and follow school rules, which he called the ‘pedagogy of poverty’ and challenge students to higher levels of critical thinking and achievement with rigorous instruction.

John Steinbrink and Robert Jones (1993) found a relationship between the effectiveness of instructional strategies and students’ economic backgrounds. In a quantitative study on students living in poverty, the researchers concluded that student achievement was significantly higher using cooperative test reviews and study guides, rather than teacher-facilitated whole class reviews. Secondly, teacher modeling of study groups improved students’ performance, whose deficient study skills were suggested to be due to lack of parental support, students after-school jobs, requirements to care for young siblings, and crowded housing conditions (Steinbrink & Jones, 1993).

**AVID**

A curriculum providing both rigorous and challenging instruction as well as important information for children living in poverty, according to Sapp (2006), was named *Achieving via Individual Determination* (AVID). Research conclusions related to AVID informed this study, because the site school was named a national demonstration site for AVID in 2009, according to the school district’s web site (http://anderson5.net). AVID’s requirements for critical thinking, provisions of career information, and investigation of college options have addressed the knowledge deficiencies that
characterize students who live in poverty (Black, Little, McCoach, Purcell, & Siegle, 2008).

Begun in 1980, AVID’s primary mission was to serve the typically and historically under-served students in the academic middle range, especially children from low-income families, rural, or minority families, according to the organization’s web site (www.avidonline.org). This school-based academic elective class for grades 5 through 12 uses the formula rigor plus support equals success, terms not generally linked to students living in poverty, to promote academic achievement (Achievement Gap, 2010; Sapp, 2006).

AVID’s rigorous strategies and construction of student-teacher relationships have guided students to become more accountable for their achievement. An integral part of the AVID program was twice-weekly tutoring in all core subjects, by both the AVID instructor and independently-funded college students, for all students in AVID classes. AVID’s writing, inquiry, collaboration, and reading strategies have improved students’ language skills, developed critical thinking skills, and sharpened inquiry skills according to the school district web site (http://andersonson5.net, 2010) and the National Committee on Science Education Standards and Assessment (1996). The implementation of AVID strategies, and other instructional strategies that involved students in critical thinking activities, was noted in Chapter Four’s discussion of this study’s findings.

**INSTRUCTIONAL STRATEGIES IN SCIENCE**

Apart from the reports of classroom implementations of AVID, the literature regarding the effectiveness of science instructional strategies that advanced the achievement of students living in poverty was inconclusive. Although research has not identified instructional strategies that work with every student in every class, the
strategies that have high probabilities of success are known. The following discussion elaborates on those strategies.

“We’re not doing all that well in science. We’re short-changing our children [with ineffective science teaching],” says Alan Friedman, a member of the National Assessment Governing Board that oversees the NAEP. One of the critical elements of the NAEP test is problem-solving, inquiry, and applied science, emphasizing what “you can actually do with your knowledge, and not just how many equations you have stored in your brain” (Robelen, 2011). A review of the literature found opposing views on what could be called effective science instruction (Banilower, Cohen, Pasley, & Weiss, 2008). The traditional view consists of lectures, practice problems, and laboratory activities, while the reform view is characterized by students working in groups, completing hands-on activities, and structuring information with degrees of assistance from the teacher (Alic, 2011; Banilower et al, 2008; Dunkhase, 2003).

In 2010, the National Science Teachers’ Association recommended the implementation of inquiry-based learning, which essentially allowed students to directly participate in their own learning, with various levels of teacher guidance and facilitation (Izumi, 2003; National Science Education Standards, 1996). In apparent support for the National Science Teachers’ Association recommendations, Gorski (2007), Haberman (1991), Klussman (2004), and Spivey (2006) concluded that student-centered inquiry, combined with constructivist strategies and peer tutoring, promoted high achievement among students at risk for failure due to poverty. Although multiple means of delivering effective science instruction exist, the goal of science instruction is to advance conceptual knowledge and impart conceptual learning to young people (Banilower et al, 2008).
Learning science is ultimately about the learning of concepts. While one specific pedagogy is not necessarily better than another, science lessons that actively engage students in inquiry can be structured by the teacher, instructional materials, or unstructured student pursuits of information. Any instructional strategy that encourages students to think about standards-based learning goals and relate them to the real world can be effective (Banilower et al, 2008).

**Conceptual Change**

Conceptual learning is a cycle of identifying prior knowledge, discovering misconceptions, and acquiring new understandings. Authentic science understandings should replace misconceptions and facts can be built onto prior knowledge. Learning science involves understanding the relationship among facts and concepts, as well as the implications and applications of those facts and concepts. For conceptual change to occur, according to Posner (1982), students must become aware of discrepancies between their observations and their concept; they must understand the new idea; they must be able to reconcile the new idea with their own ideas, and they must find the new idea useful and amenable to further testing.

**Identifying Prior Knowledge.** Learning theory (Bransford, Brown, Cocking, 1999; Donovan & Bransford, 2005) views students as active processors of information. The concepts and skills that students bring into the science classroom, acquired from books, television, movies, and experiences, can either facilitate or impede new learning (National Research Council, 2003). Instruction can be more effective when students are allowed to view their prior knowledge, develop new ideas based on evidence, and reflect on their learning. The last step provides opportunities to grasp the significance of the
new content and decreases the likelihood that students will revert to their previous misconceptions (National Research Council, 2003).

By first assessing prior knowledge, the teacher can build on it, addressing misconceptions and misunderstandings along the way. Connections between new knowledge and pre-existing knowledge increase students’ understandings. Instruction that bridges new ideas to existing ideas makes long-term learning more likely to happen. One common method is charting strategies (Banilower et al, 2008; Hershberger, Zembal-Saul, and Starr, 2006). Two charting strategies have been effective in not only identifying prior knowledge but also preparing students for conceptual learning. The Know-Want-Learn (K-W-L) chart helps students visualize what they already know and what they want to learn, while the Know-Learning-Evidence-Wonder (KLEW) chart emphasizes observation, evidence, and further investigations (Hershberger, Zembal-Saul, and Starr, 2006). When students are asked to explain and to raise questions of their own, teachers can further access students’ existing ideas (Banilower et al, 2008).

**Identifying Misconceptions.** As the teacher informally assesses students’ prior knowledge, the teacher identifies misconceptions and designs learning activities that allow students to create accurate scientific concepts. Having students work through problems with different explanations and compare the results leads students to recognize the shortcomings of their explanations and strengthen the scientific concept (Edvantia, 2005). Reasoning skills can be developed through the teacher’s skilled questioning (Scruggs, Mastropieri, & Okolo, 2008) and thus assist the conceptual learning.

**Intellectual Engagement**

Effective science teaching involves students in meaningful experiences with important intellectual content. The actual mode of learning may be whole-class
discussions, debates, small group learning, or dynamic teacher-directed lecture (Alic, 2011); as long as the student actively thoughtfully considers new information against the background of prior knowledge. Activities whose goal is to extend intellectual understanding of an idea motivate student learning; without an explicit connection to a learning goal, science activities only temporarily arouse student interest. Children learn science by doing science, but they are motivated when the doing has meaning (Alic, 2011; White & Gunstone, 1992).

**Inquiry-based Instruction**

Science teachers should provide students with the view of science as a process of constructing knowledge; science is an enterprise, not the mere acquisition of content (Dunkhase, 2003; National Research Council, 2003). Science classrooms provide many platforms for students to collect, interpret, and test data to determine whether it supports claims. Platforms may be formal debates, written essays, class discussions, or journal entries (Edvantia, 2005). The evidence sources can be students’ own work or information obtained from research.

Inquiry-based instruction, a constructivist approach, is an appropriate strategy that allows students to see science as a process in which knowledge is constructed. It begins with students observing, describing, and reflecting on information, orally or in writing (Barrera, Shyyan, Liu, & Thurlow, 2008). After students formulate questions and identify their assumptions about data, they use books and other sources to acquire more knowledge and construct tentative explanations. After testing their explanations with scientific investigations, students complete their explanations, make predictions based on them, and communicate their ideas, results, and conclusions to others (Alic, 2011).
**Cooperative Learning**

Cooperative learning involves students working with one partner or several students on a specific task. Through discussion with the teacher and peers as well as reflecting on experiments and other activities, students learn to reason about specific science content (Alic, 2011). Learning science is a process in which knowledge is constructed within communities of like-minded people, thus it is a process that requires critical thinking, the evaluation of information, the synthesis of ideas, the testing of those ideas and data by comparing them with existing models, and then developing new models as needed (Pelaez & Gonzalez, 2002). It provides opportunities for all students to be actively involved in learning new content and communicating their learning (Vaughn, Gersten, & Chard, 2000). During cooperative learning, teachers group students heterogeneously to eliminate competition among groups (Edvantia, 2005).

**Discovery Argumentation**

Discovery argumentation, another way to promote conceptual change, uses cycles of model-based reasoning called bridging analogies. The strategy introduces a target situation in which students’ initial intuition conflicts with a scientific principle. The target situation is followed by an anchoring situation in which students’ intuition agrees with scientific principle. Then a series of bridging analogies or intermediate analogies are presented with cycles of reasoning to allow students to develop a new testable model (Nuthall, 1999). Effectively talking science can include practice using scientific terms in sentences, discussing intuitive theories, reading different types of scientific writing, and translating between scientific and colloquial questions and statements is an effective tool for teaching science (Alic, 2011).
**Hands-on or Exploratory Learning**

According to the recommendations of NSTA, teachers should nurture the curiosity about the natural world and include “hands-on, minds-on” inquiry-based science instruction. They should incorporate independent and cooperative group learning experiences and encourage informal learning experiences to support the curriculum (National Science Teachers Association, 2003). Hands-on or exploratory instruction stresses the importance of scientific experiences for developing skills. The middle level skills build on the understandings gained in elementary grades related to observing, measuring, and classifying. Middle level students focus on inferring relationships, formulating hypotheses, and predicting outcomes. They learn to identify and control variables, to gather, organize, and record data, and to draw conclusions (Alic, 2011). In a survey of science teaching strategies in successful middle schools, the most highly recommended strategies involved forms of hands-on exploratory learning (Barrera, Shyyan, Liu, & Thurlow, 2008). The recommended exploratory learning strategies included graphic organizers, student-made models, designing science experiments, use of science laboratory activities, and demonstrating science knowledge in practice. Designing and conducting experiments and investigations help students understand concepts (Hershberger, Zembal-Saul, and Starr, 2006).

**Learning Cycle Approaches**

The learning cycle approach engages students in collaborative inquiry. The Launch, Explore, Summarize (LES) model alternates hands-on exploration and applications and “minds-on activities through interactions with teacher, other students, and texts. It is especially effective when exploration precedes the introduction of

**Direct and Explicit Instructional Strategies**

The Pacific Research Institute reported the predominance of direct instruction, rather than inquiry-based strategies, in successful elementary schools that served students from poverty homes (Izumi, 2003). One of the largest benefits of direct instruction was its provision for extended instructional time (Minnett, 2003), assisting in the remediation of students’ lack of experiences (Noble, Norman, & Farah, 2005) and increasing students’ content knowledge (Repetto, Webb, Neubert, & Curran, 2006). Because Payne (1996) linked lack of information regarding the hidden curriculum to poverty conditions, such remediation by explicit instructional strategies especially helped those students.

In addition to providing experiences and background knowledge, Barnes (2002), Engelmann (2001), and Izumi (2003) noted that direct instruction allowed adequate time for presenting the scope, sequence, and content standards, collectively known as the explicit curriculum. South Carolina accessed the state’s explicit curriculum via the state’s Science Support Document on the State Department of Education’s website (www.myscteacher.com, 2011).

**Differentiated Instruction for Science**

Differentiated instruction is the process through which science teachers enhance learning by matching student characteristics to instruction and assessment (Hauser, 2008). Rather than a single strategy, differentiation incorporates a variety of strategies that are implemented differently for each student and assignment. Prior to instruction, teachers should determine student readiness and student interests. Pre-tests, questions concerning their background knowledge, KWL charts, and surveys provide information
on student readiness, while interest inventories reveal student interests. Learning style
inventories are also relevant in the teacher’s preparations for differentiation.

Science instruction can be differentiated to allow students to explore topics of
interest, expand their research skills, and to obtain instruction on inquiry skills. The
strategies that can be used to differentiate instruction are tiered assignments, with varying
levels of complexity, compacting, which adjusts instruction based on students’ prior
knowledge, interest groups that allow students to choose a research topic, flexible
grouping that assigns individual students specific responsibilities as part of a team (such
as a lab group), learning contracts which provide students the freedom to learn
independently, and choice boards, from which students choose activities to enhance
specific skills (Hauser, 2008).

Making Sense of Content

Effective science strategies allow students to make sense of the content with
which they have been engaged (National Research Council, 2003). The teacher’s skilful
questioning, facilitation of class discussion, detailed explanations ensure that students
draw appropriate conclusions. Effective teachers must ensure that students understand
the purpose of the science activities, connect new content with previous learning, and
gain a perspective on changes in their conceptual thinking.

Summary of Science Strategies

Teaching science effectively is a complex undertaking for several reasons.
Students enter the classroom with large amounts of prior knowledge, experiences,
reasoning, and interests of students. Teachers must integrate the core science content and
inquiry processes while involving students actively in conceptual learning (Staver, 2011).
Effective teaching requires the teacher to be aware of students’ struggles to learn, the
obstacles caused by students’ misconceptions about science, and continual adjustment of teaching strategies to help students learn. Teachers must understand how students actively construct new knowledge, the importance of students’ interests, and students’ possible anxieties and conflicts with science concepts (Staver, 2011).

CHARACTERISTICS OF EFFECTIVE SCIENCE TEACHERS

According to the National Science Teachers’ Association (2003), if educators don’t capture students’ interest and enthusiasm by grade 7, students may never find their way back to science. The NSTA has recommended that teachers be fully qualified, have a strong knowledge of science content, and be able to implement best practices, and effective instructional strategies in the classroom. The most prominent best practices, found in a review of the literature, were the use of pedagogical content knowledge (PCK), the establishment of a positive and safe learning environment, use test data to guide instruction, and display understanding and compassion towards students.

Pedagogical Content Knowledge

Pedagogical content knowledge (PCK) is a non-linear approach to teaching science content. Required to meet the challenges of science teaching, PCK is an understanding of how to teach the content. It allows for deep conceptual understanding (Enfield, 2011). It bridges the gap between content knowledge and pedagogy. The NSTA standards define pedagogy in terms of teaching strategies, classroom organization, provisions for diverse learners, evaluation of students’ prior knowledge, and transformation of ideas into understanding (National Science Teachers Association, 2003). Pedagogical tasks include addressing all students’ needs, planning activities that encourage learning, reasoning, and a desire to learn more science.
The Classroom Environment

Teachers create a safe environment in which students can engage in inquiry-based science instruction in the classroom, in the laboratory, and in field settings (National Science Teachers Association, 2003). The curriculum should offer links to the real world by applying content and skills learned in class to students’ own experiences, connect the classroom to the community through field trips and speakers, and provide real-life experiences, such as mentoring and apprenticeships, to increase awareness of science-based careers and the relevance of science to their lives (National Science Teachers Association, 2003).

Data-based Instruction

Assessments should be frequent, to allow for remediation, and used to guide instructional decisions and practices. Administrators should allow time for teachers to plan and strategize with colleagues in their own school. A dedicated team of teachers should be trained and placed in middle schools to develop the teachers (National Science Teachers Association, 2003).

Understanding and Sense-making Skills

Teacher should connect the science content with student background experiences as well as make connections among disciplines, with the community, society, and current events for the middle school student (Banilower, Cohen, Pasley, & Weiss, 2008). Students have ideas and beliefs obtained from books, television, movies, and real-life experiences that can facilitate or impede their learning (National Research Council, 2003). Through understanding those factors, teachers can connect science content to them and advance students’ learning.
An effective science lesson requires students to make sense of the ideas presented by the teacher (National Research Council, 2003). Thorough understanding of students’ backgrounds and interests assists the teacher in clarifying scientific concepts, using questioning procedures and facilitating class discussions. The teacher may also help students connect ideas to previous learning, thus situating the information into a larger scientific framework and organizing their knowledge (Staver, 2005).

**SUMMARY OF SCIENCE STRATEGIES AND TEACHER CHARACTERISTICS**

The NSTA recommends a strong emphasis on middle level science education. Highly qualified teachers who are dedicated to working with these students can present concepts in age-appropriate and engaging ways. The students can build on prior knowledge and attain the necessary background to participate successfully and responsibly in our highly scientific and technological society (National Science Teachers Association, 2003).

Conceptual change is at the heart of science learning. It is promoted through opportunities for students to become actively involved in learning. Hands-on, minds-on activities, constructivist methodologies, and learning cycles enhance student learning. The teacher’s ability to implement these strategies appropriately for maximum student learning depends on pedagogical content knowledge (National Science Teachers Association, 2011), the use of test score data to guide instruction, understanding, and skills in helping students make sense of science ideas.

**POVERTY AND HIGHLY-QUALIFIED TEACHERS**

In a study of the factors driving school achievement, the New Leaders for New Schools organization (2009) reported teacher effectiveness was responsible for 33% of student achievement, while a principal’s impact was responsible for 25% of student
achievement. Thus the New Leaders for New Schools study concluded that teachers were the single most influential component of an effective school (Balfanz, 2009; Balfanz & Byrnes, 2002; Nye, Konstantopoulos, & Hedges, 2004; Sanders & Rivers, 1996). The academic growth of students taught by effective teachers can surpass those of other students by over a year, and four consecutive years of effective teachers could practically close the achievement gap between children from low income families and others (Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009).

While the literature consistently reported lower test scores and poorer test-taking behaviors among children living in poverty, many school districts seemed oblivious to the high poverty schools’ need for high quality teachers in their tendency to assign less competent teachers to those schools (Darling-Hammond, 2004; Haycock, 2009). Haycock (2009) questioned such assignments, due to the research citing the existence of a direct relationship between significant achievement gains and teacher pedagogical competence and content knowledge. Although the National Center for Education Statistics reported a similar pattern in South Carolina, where over 12% of high-poverty high school classes did not have a highly qualified teacher, all of the study’s participants were highly-qualified to teach their respective classes (Mapping South Carolina’s Educational Progress, 2008).

**Characteristics of Effective Teachers in High Poverty Schools**

A review of the literature noted consistency among the conclusions related to the characteristics of effective teachers, especially the quality of the teacher (Chenoweth, 2007; Leader & Stern, 2008; Reeves, 2005). Ladson-Billings (2001), Marzano (2003), and Spivey (2006) observed that effective teachers connected academic content with students’ backgrounds, formed relationships with them, created stable classroom
atmospheres, and apparently had a sense of mission. In South Carolina, the poorer schools tend to have better teachers, according to Dr. Harry Gates, Lexington District 5’s Science Coordinator. “Because the teachers feel like they have to be everything for the students, they try harder,” he told the researcher (personal conversation, July, 2011).

**Connections to Students’ Experiences.** A commonality among successful teachers of culturally-diverse classrooms was found to be an understanding of students’ backgrounds (Ladson-Billings, 2001). According to Marzano (2003), effective teachers’ understanding of their students supported the formation of connections between academic content and student background knowledge; additionally, that understanding informs their selection of instructional strategies that promoted student achievement. Spivey (2006) noted that teachers’ personal philosophies and experiences seem to drive their decisionmaking in implementing strategies that make connections with students.

Understanding of middle school students’ developmental needs, coupled with a commitment to provide equitable educational opportunities, were important components in the effective teaching of middle school students, such as those at the site school (Erb, 2001; Jackson & Davis, 2000). Effective teachers have applied their understanding of students’ backgrounds and physiological development to their selection of strategies and classroom actions. Because of the rapid changes in growth and a developing capacity for complex thinking, their instruction was carefully tailored to student needs (Lipsitz, Mizell, Jackson, & Austin, 1997; Repetto et al, 2006).

**Relationships with Students.** Effective teachers in high poverty schools have made efforts to build personal relationships with students, to use culturally-sensitive teaching methods, to connect student experiences to classroom instruction, and to construct a general base of knowledge among students. Concurrent with those efforts,
teachers reported a sense of confidence both in their personal teaching ability and the academic potential of the students’ abilities (Gorski, 2007; Haberman, 1991; Halverson et al, 2009; Spivey, 2006). Effective teachers were able to establish rapport and form caring relationships with students (Gorski, 2007; Haberman, 1991; Klussman, 2004).

**Classroom Atmosphere.** The creation of a positive classroom environment depended heavily on the teacher’s personal characteristics (Bennett, 2008; Erb, 2001; McGee, 2004; Sanders & Rivers, 1996; Tobin, 2006). The components of a positive classroom atmosphere included the communication of sensitivity towards individual differences (Bennett, 2008; Erb, 2001; Haberman, 2005), the demonstration of respect and dignity towards all students, and the enforcement of order in the classroom (Minnett, 2003; Spivey, 2006). This case study’s data included descriptions of classroom environments and observed actions of the teachers that contributed to the classroom atmosphere.

**A Sense of Mission.** Carmon (2009) noted that high-achieving schools with students living in poverty have succeeded in recruiting good teachers and maintaining low turnover rates. Experienced and highly qualified teachers who continued to teach in high poverty schools for many years have described a sense of mission in their place (Freedman & Appleman, 2009), which they attributed to a combination of previous personal experiences and pre-service teacher training programs (Bennett, 2008).

*Crossing over to Canaan,* a case study by Ladson-Billings (2001), related the impact of “eye-opening” experiences on teachers’ philosophies towards students and classroom effectiveness. The review of the literature did not reveal consistent sources of a sense of mission nor the philosophy that it implied concerning students living in poverty. The guiding questions of this case study intended to answer this perceived gap in research
understandings. The present study’s data described its participants’ philosophies towards their students and summarized the extent of their sense of mission in Chapter 4.

**Qualities of Formal Pre-service Training.** The literature review found inconsistent conclusions linking pre-service training to effective teaching in high-poverty schools. Pre-service training could support the development of empathy, caring and commitment to culturally-diverse classrooms (Bennett, 2008); additionally, they can instill a sense of mission that undergirds effective teaching and increases a commitment to continue teaching in difficult environments (Freedman & Appleman, 2009). However, a transforming moment that deeply affected the teacher’s outlook, increased their sensitivity towards students, and caused them to re-evaluate the way they taught has occurred among all levels of teaching experience (Ladson-Billings, 2001). Thus, although pre-service training can increase the prospective teacher’s caring for students living in poverty, which is a characteristic of effective teachers in those schools (Chenoweth, 2007), other experiences can occur at any time with similar outcomes.

**HIGHLY QUALIFIED TEACHERS**

The passage of the NCLB Act of 2001 was a joint effort of the United States Department of Education, the U.S. Congress, and national teacher associations to improve the effectiveness of teachers through the implementation of research conclusions (Rothman, 2009). Although the 1965 Elementary and Secondary Education Act had provided federal Title I funding to high poverty schools, the NCLB Title II marked the government’s first attempt to apply research conclusions related to effective teaching to the improvement of teacher quality.

According to Rothman (2009) and Hull (2008), in the 1980s researchers measured actual changes in individual student achievement within a teacher’s classroom, and
concluded the most effective teachers had subject-area certification, a major or minor in the subject, higher scores on licensure exams than less effective teachers, and higher SAT scores. The writers of the Title II legislation applied the conclusions of the 1980s research in its definition of highly-qualified-teacher status, required for all public school teachers. According to NCLB Title II, a highly qualified teacher must hold at least a bachelor’s degree, state certification in the content area, and demonstrate subject-matter proficiency in every subject they teach (U.S. Department of Education, 2002). The results were inconsistent in the decade following the implementation of highly qualified teacher status (Rothman, 2009).

The intent of the highly qualified teacher standard was to provide children of low-income families with the same access to good teachers as other students, thus promoting equitable achievement opportunities. States were held accountable under the law for making sure all teachers met the highly qualified teacher standards. Although the correlations between each of the highly qualified teacher criteria and student achievement were weak, teachers were ineffective without them (Kannapel & Clements, 2005). The law addressed the tendency of schools with high enrollments of low-income students to have fewer highly qualified teachers (Mapping South Carolina’s Educational Progress, 2008) and fewer effective teachers (National Center for Education Statistics, 2008; Peske & Haycock, 2006). Specifically, NCLB required states to ensure that low-income students and minority students were not taught by inexperienced, out-of-field, or teachers not highly qualified at higher rates than other student groups (U. S. Department of Education, 2002).
HIGH-PERFORMING, HIGH-POVERTY SCHOOLS

Expectations for low levels of student achievement in South Carolina would seem justified, following the 2009 Census report that one-fourth of South Carolina’s students were below the poverty level (U. S. Census Report, 2010). The reports of a persistent achievement gap nationwide among students with different levels of family incomes (National Center for Education Statistics, 2010), together with the reportedly high levels of poverty in South Carolina, could logically support expectations for low achievement among students living in poverty. The literature review, however, located several reports of high achievement among students living in poverty and thus contradicted the logic of other expectations.

The states that reported high achievement included California, Texas, Illinois, Massachusetts, and Wisconsin. In the years since the 1966 release of the Coleman report, studies such as the September 2002 Pacific Research Institute report (Izumi, 2003), the 2002 investigation of Texas middle schools (Picucci, Brownson, Kahlert, & Sobel, 2002), and the 2004 report on Illinois’ Golden Spike schools documented high achievement among the students in high poverty schools (McGee, 2004). Among these schools bridging the academic achievement gap between children from low-income families and others were the Boston public schools (Haycock, 2009), various elementary schools in Texas (Picucci et al, 2002), the Milwaukee Public School system (Reeves, 2005), and elementary schools in Kentucky (Kannapel & Clements, 2005). The literature review determined that South Carolina was not among the states reporting high achievement among students living in poverty and this study intended to address that gap.
Commonalities among High-Performing, High-Poverty Schools

Schools labeled as Blue Ribbon schools by the United States Department of Education (Blue Ribbon schools program, 2006), High Flying schools by the Education Trust (Harris, 2007), Highly Effective schools (Kirk & Jones, 2004; Levine & Lezotte, 1995), and 90/90/90 schools by D. B. Reeves (2005), all had the commonalities of high percentages of students in poverty who also consistently scored in the top third on their state tests of academic achievement. Although the site school was classified as a failing school under NCLB guidelines, its science department was high performing because of its 2010 Palmetto Assessment of State Standards (PASS) science scores. The factors that enabled that science department, as well as entire schools, to demonstrate high achievement needed to be understood in order for education to be more equitable for all children (Harris, 2007; Haycock, 1998, 2009; Reeves, 2005; Izumi, 2003).

The characteristics that distinguished high-achieving from low-achieving schools with comparable student populations were qualities of their leadership, clear communication of high expectations for students and staff, safety, orderliness, a primary focus on learning, and regular monitoring of student learning (Blue Ribbon schools, 2006; Brookover, Beamer, Hathaway, & Miller, 1982; Cotton, 2003; Darling-Hammond & Haselkorn, 2009; Edmonds, 1979; Goldenberg & Gallimore, 1991; Harris, 2007; Henderson, 1987; Kirk & Jones, 2004; Lezotte, 2010; McGee, 2004).

Primary Focus on Achievement

The literature review determined that the most prominent educational practice of a successful, high poverty school was its focus on academic achievement (Gaziel, 1997; Peck, 2010; Reeves, 2005). Following the NMSA’s guidelines in Turning Points 2000, middle schools that have implemented a strong academic curriculum and clearly
communicated high academic standards have realized significant improvements in student achievement (Jackson & Davis, 2000; Noguera, 2003; Trimble, 2002). Intervention strategies were one of the supports for the achievement of struggling students (Haycock, 2001; Peck, 2010; Stevens, 1993; Viadero & Johnston, 2000). This study’s data collection purposed to link characteristics of the participants and the site school’s environment to conclusions and observations found in the literature review, to provide a foundation to explain student achievement at the site.

MIDDLE SCHOOL EDUCATION

The site school was a middle school, thus the review of the literature focused on middle school educators and the middle school environment, in addition to studying the characteristics of effective teachers of poverty students. Typically, middle school science teachers have represented a mix of certification levels, including secondary science, middle grades, and elementary, according to Eugene Chiappetta and Thomas Koballa, editors of the sixth edition of Science Instruction in the Middle Schools (2006). Because of their broad educational backgrounds, they are more knowledgeable in mixed content instruction rather than specific content. Chapter 3 describes the education levels of the teachers in this case study.

Middle level education must provide a developmentally appropriate curriculum in an environment that promotes critical thinking, industrious work, and progress towards becoming a productive member of society (Jackson & Davis, 2000). The National Middle School Association (NMSA) characterized effective middle schools as those having flexible structures, positive affective environments, challenging curricula, and support for all students. Equity of educational opportunity, according to the NMSA, should be available to all students, without regard to their family income levels.
Characteristics of the Middle School Intellect

Because science contains high levels of conceptual knowledge and middle school students typically have only the beginnings of abstract thinking abilities, science instruction may need special attention, with its (Erb, 2001).

During middle school, changes in intellectual capacity are taking place that impact instruction (Powell, 2010, pages 9-10). Those changes include:

(a) Attention spans are shorter than either late elementary school or high school, which requires the teacher to divide the instruction into small time segments for greater effectiveness.

(b) Vivid imaginations can be linked to concepts as abstract thinking develops. The teacher should encourage children to use their imaginations and creativity, rather than simply supplying information to them.

(c) Intellectual development is variable among middle school students; the effective teacher must continuously monitor learning, scaffolding the instruction as needed.

(d) Physical and intellectual development are concurrent; as a result, middle school students need to experience learning, through manipulations, touching, and other movements.

(e) The shift in intellectual development allows students to experience metacognition; teachers should encourage them to reflect on their learning processes as a means of increasing their comprehension.

(f) Middle school students are beginning to understand what is meaningful and applicable to their lives; lessons should be set in real world contexts.
LEADERSHIP IN SUCCESSFUL, HIGH-POVERTY SCHOOLS

The literature review identified characteristics of leadership in successful high-poverty schools, in which the achievement gap based on students’ family incomes has been practically eliminated. “Good teachers, effective principals, and great schools have a far greater impact on the achievement gap than any out-of-school antipoverty initiative,” according to New York City’s Department of Education chancellor Joel Klein (2009). The principal’s involvement with the school’s instructional program was identified as distinguishing feature of effective schools (Carmon, 2009; Cotton, 2003; Leithwood & Montgomery, 1982; Waters, Marzano, & McNulty, 2003). School leaders clearly communicated high expectations for all students, implemented assessment-based instruction, and provided on-going professional development for its teachers (O’Day, 2002; Reeves, 2005). Strong leadership was integral in the turnaround of Cincinnati’s Taft High School, with its 25% graduation rate in 2000 increasing to 95% in 2010; student proficiency ratings on standardized tests rose from 33% to 96%, the highest rating among Ohio public schools, within the same ten-year period (Pappano, 2010).

Investigations into the nature of the relationship between school principals and student achievement found a significant, positive correlation between effective school leadership and student achievement (Seashore, Leithwood, Wahlstrom, & Anderson, 2010; Waters et al, 2003). Carmon (200) stated that “principals can have a profound effect on student achievement” through collective leadership, instructional leadership, and their consideration of student factors (p. 38)

Collective Leadership

A feature of leaders in high-achieving schools was their collective leadership, which involved school and community stakeholders in making school-related decisions.
The inclusion of parent groups, community advisory groups, teachers, and student groups provided a basis of collective knowledge for decision-making without decreasing the authority of the principal. Ultimately, the process of collective leadership was found to support student achievement (Newmann, King, & Youngs, 2001; Leithwood & Montgomery, 1982; Seashore et al, 2010).

Principals that successfully used collective leadership have tended towards a ‘promoter’ style, according to Bulach, Boothe, and Michael (1999). The principal was described as extroverted, friendly, imaginative, energetic, and successful in involving parents and community groups with the work of the school. Through their ability to lead through others and their personality, principals were able to improve student achievement (Leithwood & Montgomery, 1982).

Professional learning communities represented one form of collective leadership; within those groups, teachers had autonomy that allowed them to make classroom decisions. Within those collaborative groups, content area teachers invested time during the school day to share best practices, to mentor, coach, and advise one another (Minnett, 2003; Roberts & Pruitt, 2003). The collaborative learning communities were directly linked to improved classroom instruction and higher student achievement (Smylie & Wenzel, 2003). The necessary conditions for the success of learning communities were the principal’s providing professional times to meet and exchange ideas, placing teachers within close proximity to allow them to observe and interact with peers, and allowing teachers to have decision-making authorities in their classrooms (Roberts & Pruitt, 2003).

**Instructional Leadership**

In addition to collective leadership, principals in high-performing, high-poverty schools participated in their school’s instructional programs on many different levels.
Principals interacted with teachers through observation and consultation, provided constructive feedback, and communicated high expectations for student achievement (Bartell, 1990). In those actions, Cotton (2003) found an indirect but significant correlation between the principal’s instructional leadership and student achievement.

The leadership beliefs of outstanding principals included a sense of responsibility to evaluate teachers’ classroom performance, with the understanding that such interactions distributed the principal’s instructional leadership (Hallinger, Bickman, & Davis, 1996; Leitner, 1994; Waters et al, 2003). As an instructional leader of the school, the principal must understand the components of quality instruction (Heck, Larsen, & Marcoulides, 1990; Seashore et al, 2010); principals who succeeded in turning around low-performing schools have described the necessity of setting ambitions and specific goals and consistently focusing on achievement, investing time in instruction-related activities, and providing constructive feedback that improved teaching (Bamberg & Andrews, 1991; Butler, 1997; Seashore et al, 2010).

Exhibiting instructional and collective leadership, principals have navigated state and federal channels in order to obtain instructional content coaches for their sites (S. McCall, high school administrator, personal conversation, March 2011). Because teaching practices and teacher quality increased student achievement (Sanders & Rivers, 1996; Wenglinsky, 2000), school principals have applied for grant monies to support the addition of instructional coaches to their school staffs. Adapting the athletic concept, instructional coaches have provided context-specific professional development through classroom observation, reflective discussions, and instructional revisions (Cornett & Knight, 2008). In South Carolina the Math-Science Unit (MSU), an outreach of the
Department of Education, used both federal and state money to train and place instructional coaches in schools, with preferences for high poverty schools, according to Tom Peters, the MSU Executive Director (personal conversation, June 2011). Although coaching has not been directly linked to student achievement, growth in math and writing scores have been recorded by coached teachers (Hull, Edwards, Rogers, & Swords, 1998) and positive qualitative data has been collected (Slinger, 2004). The demonstrated ability of instructional coaches to improve classroom instruction directly linked them to higher student achievement (Neufield & Roper, 2003).

**Leadership and Student Factors**

A high correlation between student achievement in all school sizes and parent participation in school advisory groups was noted \((r = .53)\); therefore, school principals that formed support systems advanced student achievement (Gaziel, 2007; Seashore et al, 2010). Principals in high poverty schools with less than 800 students have reported higher achievement gains; in larger schools the correlation between poverty and achievement was 10 times stronger (Bloom, Thompson, & Unterman, 2010; Eberts, Swartz, & Stone, 1990; Gaziel, 2007; Howley & Bickel, 2000; Seashore et al, 2010).

**Summary of the Principal’s Relationship to Student Achievement**

Through the indirect means of collective leadership and instructional leadership, school principals in high poverty schools have realized significant student achievement gains (Gullatt & Lofton, 1996). In contrast to principals in low-performing schools who were absorbed in ‘administrative trivia’ (Cotton, 2003), effective principals lead through collective leadership and instructional leadership. Principals obtained knowledge for decision-making from the community’s collective wisdom, provided an orderly and supportive school environment, continuously evaluated teacher and student performance,
and communicated a vision of excellence (Bartell, 1990, Cotton, 2003). Data collection purposed to collect data concerning the principal’s leadership and qualities of the site’s environment in an effort to confirm research conclusions.

**SOUTH CAROLINA TESTING**

Statewide testing in South Carolina was mandated by the South Carolina Education Accountability Act of 1998 and the federal government’s No Child Left Behind Act of 2001 (NCLB) as a means of determining its progress toward AYP status (Palmetto Achievement Challenge Tests, 2009); however, science scores have not been included in AYP calculations. During the administration of the tests mandated by the federal government, South Carolina also assessed science achievement. The motivation for the present study was the high rank of the site school on the PASS science test, South Carolina’s test of science standards.

**Purpose and Goals**

The state’s definition of AYP was based on expectations for substantial annual progress towards the goal of having all students proficient in reading/language arts and mathematics by spring, 2014 (South Carolina State Accountability Workbook, 2003). A joint purpose of the testing program was to assess student mastery of state standards, to help determine student promotion to the next grade level, and to help identify strengths and areas in need of improvement (Testing in South Carolina, 2011).

Although the NCLB intended to raise teaching effectiveness through its testing mandates and the resulting accountability, its use of reading and mathematics scores to determine AYP inadvertently decreased important emphases on other content areas, including science (Johnson, 2007; Ruby, 2006); nevertheless, South Carolina continued
to include a science test in its test battery as a means of assessing student science learning and to address the reported national deficiencies in science knowledge.

In the *Trends in International Mathematics and Science Study* (TIMSS) 2007 study, the average U.S. science scores were lower than 12 other countries, including nine in Asia and Europe that are central to the economy of this country. The TIMSS also reported the absence of any measurable improvement in the scores of U.S. students over 1995 scores (National Center Education Statistics, 2008a). The implementation of the science sub-test was an important first step by South Carolina in addressing the reported deficits in science knowledge, with its ability to identify the level of knowledge of specific science standards. Such a diagnosis of weaknesses and strengths could support data-driven instruction (Great Schools, 2011). The data of this study included measures undertaken by teachers to use test data in planning and pacing their instruction.

**PACT Testing**

The Palmetto Achievement Challenge Test (PACT) was South Carolina’s testing program for grades 3 - 8; however, its proficiency levels were among the highest in the nation and no middle schools were able to meet AYP under the PACT (Dahlin & Cronin, 2007). In an analysis for the Northwest Regional Laboratory that compared South Carolina’s requirements for proficiency to 27 other states, Dahlin and Cronin (2007) found that the difficulty level of South Carolina proficiency standards was exceeded by only three other states.

**PASS Testing**

In spring 2009 the PACT was replaced with the Palmetto Assessment of State Standards (PASS) test, with proficiency levels that are much lower (Dahlin & Cronin, 2007; Palmetto Achievement Challenge Tests, 2009). Aligned to state academic
standards, the PASS was a standards-based accountability measurement of student achievement in the core areas of English language arts, mathematics, science, and social studies (Palmetto Assessment of State Standards, 2010). The PASS science tests all students in grades 4 and 7, while students in grades 3, 5, 6, and 8 randomly take either the science test or the social studies test (Palmetto Assessment of State Standards, 2010).

**Testing Supports**

Test items for the science test were based on the 2005 South Carolina Science Academic Standards, which were written by the science standards support group in the Department of Education. The Science Standards writing team also has developed the Science Standards Support Guide in cooperation with South Carolina educators, which included means of observing student learning, guidelines for assessment, and resources that support classroom instruction in the science standards in (Palmetto Assessment of State Standards, 2010).

All of South Carolina’s public school teachers are able to access the standards for each content area on the state’s website. Indicators of each content standard provide additional content information and assessment guidelines to determine mastery (South Carolina Academic Standards Support Guide, 2010). The testing programs have been the Palmetto Achievement Challenge Test (PACT) and the Palmetto Assessment of State Standards (PASS).

In this study, the interview protocols discussed teachers’ previous experiences, professional training, experiences in other schools, and experiences with other types of students. The data may reveal a correspondence between teacher background experiences and their effectiveness in the classroom.
SUMMARY AND IDENTIFICATION OF GAPS IN RESEARCH

In a review of extensive literature on achievement of children from families with low incomes, Hochschild (2003) concluded the factors that promoted achievement were the same for all children, regardless of family income levels. However, a review of the research on poverty indicated special considerations were required to effectively teach children with low levels of family income. A need was indicated for the elimination of high rates of distractibility and the increase of student ability to focus on tests (Howse, 2003; Jongyeun, 1999; Lee, Fradd, Sutman, 1995; Marzano, 2007).

The literature review revealed that characteristics of teachers in high poverty schools included skills in forming relationships with students, creating stable classroom environments, a sense of mission, and the ability to connect content to students’ background (Chenoweth, 2007; Rothman, 2009). Although effective teachers’ outstanding characteristics were revealed in the literature, their philosophies or ideologies that undergirded their outlook towards students were not found, with one exception. Ladson-Billings’ (2001) reported “eye-opening experiences” that changed the way teachers viewed their students and inspired them to higher levels of caring; otherwise, the literature did not describe effective teachers’ thoughts concerning their students living in poverty nor possible influences on their classroom actions; thus this researcher sought to locate that information among the participants.

Additionally, South Carolina was not found listed among the schools reporting high achievement among students living in poverty. No studies reported high achievement among middle schools (grades 6–8) with students living in poverty, although the literature did report characteristics of high achieving high schools (grades 9–12) and elementary schools (1–5). The researcher found no conclusions related to high
achievement in specific content areas, such as science, except for the NSTA recommendations.

The next chapter discussed the study’s methodology, identified its participants, the multiple data sources, strategies for data analysis, and the manner in which the study’s trustworthiness was ensured.
CHAPTER THREE: METHODOLOGY

The preceding chapter’s literature review indicated a gap in understanding all of the characteristics associated with teacher effectiveness, especially in teaching science to children living in poverty (Rothman, 2009). In an attempt to better understand those characteristics, an open-ended descriptive case study was designed. The participants were seven science teachers, a science coach, and two administrators at an urban middle school with 350 students in South Carolina. The researcher collected data during classroom observations ($N = 19$) and interviews ($N = 12$) with participants and from the inspection of archived test scores, school documents, and school photographs. Content analysis procedures allowed the discovery of themes and related components in the acquired data. The credibility, dependability, and trustworthiness of the study were supported through memoing techniques, an audit trail, feedback from participants, and quasi-statistics; thus, triangulation of data sources and analysis techniques enhanced this study’s credibility.

INTRODUCTION

A case study must have focus and parameters. Although guiding questions can effectively focus a case study, they may define the study too narrowly and lead the researcher to little more than shallow findings (Bogdan & Biklen, 2007). For that reason, the questions guided data collection without limiting it; unexpected and interesting information was accepted into the study as it progressed. The following sections in this chapter connected individual guiding questions to specific data collection activities. The guiding questions for this study were:

1. *How, if at all, did the teachers’ background experiences and professional training prepare them to teach in a high poverty science classroom?* This question
determined to find a link, if any, between participants’ experiences and research
that linked experiences and training to deep understandings, sympathy, and
optimism for those living in poverty (Bennett, 2008).

2. What ideologies and philosophies do the teachers have towards their students?
This question intended to address a gap in the literature review, regarding the
thoughts of teachers towards their students living in poverty.

3. What, if any, classroom actions depict teachers’ philosophies towards the
students? This question intended to add to the limited information in the
literature review regarding a philosophical basis for teachers’ classroom actions;
Bainbridge and Lasley (2002) concluded that the way in which teachers view their
students, particularly the explicit communication of a strong belief in student
potential, is related to higher achievement.

4. How, if at all, does the school environment and culture affect science
achievement? This question purposed to link characteristics of the site school and
its leadership to research conclusions noting the sense of security, orderliness, and
a focus on achievement among high-performing, high-poverty schools (Blue
Ribbon Schools, 2006; Rumberger, 2007; Rumberger & Palardy, 2005).

RESEARCH DESIGN

The research design was a case study that included non-participant classroom
observations, semi-structured interviews, document inspection, and photographs. The
case study was ideally suited for conducting an intense study of a contemporary
phenomenon, which was the success of science teachers in a mid-size urban Title I
middle school in South Carolina. The guiding questions represented that phenomenon
(Ary, Jacobs, Razavieh, & Sorensen, 2006; Trochim, 2006; Yin, 2009). The guiding
questions focused on more than what happens in science classrooms; otherwise, survey research may have been adequate. The case study design was the only design able to adequately handle a range of evidence from multiple sources, while also allowing the flexibility of on-going revisions as the data is compiled (Yin, 2009).

A case study is comparable to a single quantitative experiment, according to Yin (2009). Although providing few opportunities for wide generalizations, both case studies and quantitative experiments typically generate testable hypotheses for future investigations (Yin, 2009). The results of this study extended research understandings of effective teaching to the specific context of middle school science and allowed the application of cognitive perceptual theory. Generalizations to contexts other than the site school were possible through an inspection of detailed descriptions of the site and the study’s participants. Chapter 5 discusses implications of the findings in the data and suggests multiple avenues for further research.

Multiple data sources were used, because the acquisition of a depth of knowledge is the primary aim of descriptive case studies, including open-ended interviews, field notes of classroom observations, notes on school documents, the researcher’s photographs of the school, and memos recorded during the data collection. The interview method was the most appropriate way to explore participants’ philosophies, ideologies, and their background experiences (Bennett, 2008; Freedman & Appleman, 2009; Ladson-Billings, 2001). The researcher used the semi-structured open-ended interview format, following the example of Crabtree (2006), beginning with general questions phrased prior to the interview, as recommended by Bogdan and Biklen (2007). Those general questions were placed in protocols in Appendix E: Interview Protocols for Teacher Interviews, and in Appendix F: Interview Protocols for School Administrators. The
flexibility of the semi-structured interview provided the researcher with the freedom to address topics arising during the interview, to probe for additional details, and to ask additional questions. According to Udesky (2010), its structure helped avoid interviewers’ tendency to ask leading questions. Please see Appendix E for the interview protocols that the researcher used with teachers at the site school.

Following Yin’s (2009) recommendations, the researcher compiled written memos throughout the study to increase the validity of the data analysis and related conclusions. Analysis and interpretation began during data collection and continued following the researcher’s departure from the site. Analytic strategies included open-coding, additional memoing, constant comparison, two-tiered coding, and the construction of a descriptive framework for the data (Bogdan & Biklen, 2007; Trochim, 2006). Open coding identified themes apparent in the data immediately following the data collection; subsequently, constant comparison noted connections among those initial themes and supported the formation of a two-tiered coding system. Tentative themes appeared in the two-tiered coding system. Finally, the descriptive framework organized the data along the lines of the two-tiered coding system; the themes found in the data were the major components of the descriptive framework, while second-tier data was organized around the individual themes. Quasi-statistics were applied to define the relative strengths of the major themes found in the data through a tally process.

Memoing, in the form of a reflective log and the researcher’s speculations, (Trochim, 2006) assisted in data collection and analysis. Observations aroused the researcher’s curiosity, peers commented in general ways on the study, and school personnel informally provided their personal descriptions of the site school. Those kinds of data were collected throughout the study as researcher’s memos. The memoing notes
gained focus as themes in the data were explored and various directions for the study were considered as it progressed (Bogdan & Biklen, 2007; Trochim, 2006). Throughout the research, information and tentative conclusions were shared with the committee, colleagues, and peers in education for confirmation and additional perspective on the direction of the study (Bogdan & Biklen, 2007). Following one committee member’s recommendation, for example, to pursue the topic of caring among the teachers at the site school, the researcher found a large amount of previously unrecognized data.

STUDY SITE AND LOCALITY

The following sections describe the county and the school district in which the site was located and then enumerated characteristics of the school and the surrounding area. Thus the discussion moved from a macroscopic towards the microscopic level to focus the reader on the participants which were the heart of this study.

The County

The site was located in South Carolina where the weather was mild, the seasons were varied, and the geography varied from flat to low hills. Recent economic downturns had raised unemployment levels to 12 – 18%; employed persons largely worked for small service industries (City Data, 2010). The 2009 median household income was slightly more than $46,000, although 12% of the county’s population existed below the poverty level (City Data, 2010). Approximately one-fourth of the county’s population was school-age children or 35,685 residents, and less than one-fifth of the county’s population had a four-year college degree (Anderson County, 2010), implying almost a dearth of the important cultural capital for understanding and preparing for post-secondary education. Table 1 compares demographic factors and achievement levels of the county and the
state, indicating that the county was a fair representation of the state, with poverty levels approximately equal.

Table 1

*Demographic and Achievement Levels: County vs. State*

<table>
<thead>
<tr>
<th>Demographic characteristics by percent</th>
<th>County</th>
<th>South Carolina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population, 2009 estimate</td>
<td>184,901</td>
<td>4,561,242</td>
</tr>
<tr>
<td>Persons under 18 years old</td>
<td>24.2%</td>
<td>23.7%</td>
</tr>
<tr>
<td>Black persons, 2009</td>
<td>16.7%</td>
<td>28.2%</td>
</tr>
<tr>
<td>Persons of Hispanic origin, 2009</td>
<td>2.3%</td>
<td>4.5%</td>
</tr>
<tr>
<td>White persons not Hispanic, 2009</td>
<td>79.2%</td>
<td>64.9%</td>
</tr>
<tr>
<td>Living in same house 1995–2000, ages 5+</td>
<td>58.8%</td>
<td>55.9%</td>
</tr>
<tr>
<td>Language other than English spoken at home, 2000</td>
<td>3.3%</td>
<td>5.2%</td>
</tr>
<tr>
<td>High school graduates, age 25+, 2000</td>
<td>73.4%</td>
<td>76.3%</td>
</tr>
<tr>
<td>Bachelor’s degree or higher, age 25+, 2000</td>
<td>15.9%</td>
<td>20.4%</td>
</tr>
<tr>
<td>Mean travel time to work (mins.), ages 16+</td>
<td>23.7%</td>
<td>24.3%</td>
</tr>
<tr>
<td>Homeownership rate, 2000</td>
<td>76.3%</td>
<td>72.2%</td>
</tr>
<tr>
<td>Housing units in multi-unit structures, 2000</td>
<td>9.9%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Median value owner-occupied homes, 2000</td>
<td>$88,200</td>
<td>$94,900</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (2010)

Table 2 displays the county’s employment sectors, providing evidence that the majority of the residents were involved in manufacturing, retail, and health service occupations.

Table 2
**Largest employment sectors county vs. state**

<table>
<thead>
<tr>
<th>Employment Sector</th>
<th>30 minute drive (includes the county)</th>
<th>South Carolina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>4,518</td>
<td>111,730</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>16,072</td>
<td>275,573</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>11,422</td>
<td>224,031</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>1,720</td>
<td>46,941</td>
</tr>
<tr>
<td>Education and Health Services</td>
<td>19,042</td>
<td>156,232</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>8,593</td>
<td>192,748</td>
</tr>
<tr>
<td>Professional and Business Services</td>
<td>7,985</td>
<td>186,481</td>
</tr>
</tbody>
</table>

Source: 2003 Covered Wages, SC Employment Securities Commission

**The School District**

The school district in which the site school was situated contained eight elementary schools, two middle schools, two high schools, and a career school that pulled students from the two high schools for portions of each school day according to the district’s web page (http://anderson5.net). The school district was one of five school districts in the county and included approximately 50,000 city residents. An elected 10-member school board governed the school district, charging district office personnel and school leaders with the responsibility to implement its policies. Due to the economic difficulties which the state was experiencing for the third consecutive year, the district office staff had recently been down-sized through early retirement, reassignment of qualified staff to the classroom, and the elimination of many positions. The 24-member staff at the time of this study included a district superintendent, an assistant
superintendent/data bank administrator, two other assistant administrators, and four curriculum coordinators. The post-graduate degrees of district-level personnel sharply contrasted with the general population of South Carolina; according to census data, less than 16% of the county and slightly more than 20% of the state population has a Bachelor’s degree, according to the district’s web page (http://anderson5.net). Table 3, *South Carolina School District Population Characteristics*, depicted a 44% poverty level in the county and almost 25% of eighth graders below grade level.

Table 3

*South Carolina School District Population Characteristics: 2003 (unless noted otherwise)*

<table>
<thead>
<tr>
<th>Population characteristic</th>
<th>County</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children eligible for free/reduced lunch 2005</td>
<td>44%</td>
<td>58%</td>
</tr>
<tr>
<td>Mean family income</td>
<td>$50,941</td>
<td>$52,011</td>
</tr>
<tr>
<td>Children in eighth grade performing below state standards in Reading 2009</td>
<td>22.6%</td>
<td>32.3%</td>
</tr>
<tr>
<td>Children in eighth grade performing below state standards in Math 2009</td>
<td>24.5%</td>
<td>37%</td>
</tr>
<tr>
<td>Persons 18-24 who have not completed high school (2000)</td>
<td>18.1%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Source: First Steps (2006); SC Kids Count (2010)

**The Middle School**

The study site was a Title I urban middle school for grades 6–8 in South Carolina, purposefully selected for the case study because of the second-place ranking of its 2010 PASS science scores in the state, an accomplishment contrary to the observations of
generally low academic achievement among high poverty schools in this state. Prior to the study, the assistant principal agreed to provide access to the school for this study and the school district superintendent wrote a letter to the school principal indicating district-level support. In a personal conversation, the school district superintendent emphasized the decreasing window of opportunity for data collection at the school, due to NCLB restructuring of the middle school in May 2011 (B. G. Bagley, personal communication, May 15, 2010). The school’s conversion into a magnet school for the arts will “dilute the poverty factor,” Bagley said, with the influx of students from more affluent areas of the city. In the restructured school, the interaction between poverty and the characteristics of effective teachers was not expected to be a dominant theme; thus, the opportunities for data collections would have ceased.

**Physical and Economic Descriptors.** The site school was built in 1967 and renovated in 1991. Situated in a modest residential area of a medium-sized city, the surrounding residential area included frame homes, mobile homes, empty lots, littered streets, cracked sidewalks, and abandoned buildings. In contrast to its needy surroundings, the 43-year old school was clean, free of litter and peeling paint, and demonstrated no obvious repair needs. The school was one of seven middle schools in the county, according to the district’s web page. Designated as a Title I school since its inception in 1967, approximately 95% of the 543 students in grades 6-8 were eligible under federal guidelines for free or reduced price meals at the time of this study.

**Test Scores and Rankings.** The purposeful selection of the site school, a non-charter public middle school, for this study was based on both its accessibility and the representative nature of its student body. According to school district documents, the site school’s second place ranking on the 2010 Palmetto Assessment of State Standards
(PASS) science test was a pattern of achievement rather than a one-time anomaly. School district documents verifying this information, contained in Appendix G: *Archived Test Score Data*, were:

- 2008 PACT score state ranks
- 2008 PACT Percentage of Proficient and Advanced Scores
- 2009 PASS score state ranks
- 2009 PASS score ranks with similar schools
- 2010 PASS scores

The seventh grade z-scores on the 2010 science test of the PASS for the top six reporting schools in South Carolina with each school’s associated poverty level were organized in Table 4: *The Top-Ranked schools on the Seventh Grade 2010 PASS*. Based on South Carolina Department of Education files, the information indicated the 2010 science scores of students at the site school ranked second among 43 reporting schools on the state’s Palmetto Assessment of State Standards (PASS). Although the six top ranking schools on the 2010 PASS had significant levels of poverty, as indicated in Table 4, the site school’s rank was noteworthy due both to its size and the representative nature of its urban population (South Carolina Department of Education PASS scores, 2010).

The site school was the largest school of the top four highest ranked schools on the seventh grade PASS in the year 2010. Its student body was representative of the area due to the lack of selection criteria for school enrollment. In contrast to the small school whose students received the highest PASS scores, the site school was a regular public school like 92% of the other schools in America (Aud et al, 2010); it was neither a magnet school nor charter school (South Carolina State Department of Education PASS scores, 2010; www.schooltree.org).
Table 4

The Top-Ranked Schools on the Seventh Grade 2010 PASS Science Test (pseudonyms used) (N = number students taking the test)

<table>
<thead>
<tr>
<th>Rank</th>
<th>School</th>
<th>Z Score</th>
<th>Percent meeting standards</th>
<th>Percent of student body FRL eligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MST rural magnet school, grades 6–8 (N = 21)</td>
<td>3.2</td>
<td>95.2%</td>
<td>71</td>
</tr>
<tr>
<td>2</td>
<td>Site school: urban middle school, grades 6–8, (N = 155)</td>
<td>2.4</td>
<td>83.3%</td>
<td>82</td>
</tr>
<tr>
<td>3</td>
<td>SB rural school, grades 4–7 (N = 61)</td>
<td>2.2</td>
<td>73.8%</td>
<td>97</td>
</tr>
<tr>
<td>4</td>
<td>GSF rural school, grades 7–12 (N = 97)</td>
<td>2.2</td>
<td>82.5%</td>
<td>78</td>
</tr>
<tr>
<td>5</td>
<td>CO rural school, grades 6–8 (N = 152)</td>
<td>2.1</td>
<td>75.0%</td>
<td>92</td>
</tr>
<tr>
<td>6</td>
<td>SS rural school, grades 6–8 (N = 72)</td>
<td>2.0</td>
<td>76.4%</td>
<td>89</td>
</tr>
</tbody>
</table>

Source: South Carolina Department of Education (2010); www.schooltree.org

Table 5: Test score ranks for the site school, compared the site school’s test score ranks to schools with similar poverty levels (within five percentage points of the site school 83% poverty level, defined by students eligible for free/reduced lunch), and across all schools in the state. Inspection of the test score data revealed the site school’s seventh grade 2008 PASS science scores ranked 11th in the state, out of 284 reporting school. The 2009 PASS science scores ranked second among 52 similar schools (+/- 5% poverty level), and 28th in the state, among 293 reporting schools. The 2010 PASS scores ranked second in the state, among 293 reporting schools. Only the seventh grade scores were inspected because all seventh graders take the science test; sixth and eighth graders were
randomly assigned to take either the PASS science test or the social studies test, according to information posted on the school district’s website, www.anderson5.net.

Table 5

*Test Score Ranks for the Site School*

<table>
<thead>
<tr>
<th>Testing year (spring test administration)</th>
<th>Test</th>
<th>Rank among similar schools</th>
<th>Rank across all schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>PACT</td>
<td>n/a</td>
<td>11\textsuperscript{th} (N = 284)</td>
</tr>
<tr>
<td>2009</td>
<td>PASS</td>
<td>2\textsuperscript{nd} (N = 52)</td>
<td>28\textsuperscript{th} (N = 293)</td>
</tr>
<tr>
<td>2010</td>
<td>PASS</td>
<td>1\textsuperscript{st} (N = 52)</td>
<td>2\textsuperscript{nd} (N = 293)</td>
</tr>
</tbody>
</table>

**PARTICIPANTS**

The participants in the case were seven general education science teachers at the site school, including two sixth grade teachers, two seventh grade teachers, a gifted/talented teacher for all grades, and two eighth grade teachers. Other participants were the school principal, the assistant principal for instruction, and the instructional coach. All of the people were designated as participants, rather than subjects, because they actually participated in the study’s data validation. Although the researcher offered $25 per hour for interviews, all of the participants declined the offer. They received no other compensation for their voluntary participation. Following a discussion among themselves, they suggested a set of pseudonyms that revealed only their position and grade level. Table 6: *Participants’ Pseudonyms*, listed their selections.
Table 6

Participants’ Pseudonyms

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pseudonym</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sixth grade science teacher</td>
<td>Teacher 61</td>
</tr>
<tr>
<td>Sixth grade science teacher</td>
<td>Teacher 62</td>
</tr>
<tr>
<td>Seventh grade science teacher</td>
<td>Teacher 71</td>
</tr>
<tr>
<td>Seventh grade science teacher</td>
<td>Teacher 72</td>
</tr>
<tr>
<td>Eighth grade science teacher</td>
<td>Teacher 81</td>
</tr>
<tr>
<td>Eighth grade science teacher</td>
<td>Teacher 82</td>
</tr>
<tr>
<td>Eighth grade science teacher</td>
<td>Teacher 83</td>
</tr>
<tr>
<td>School principal</td>
<td>P1</td>
</tr>
<tr>
<td>School assistant principal</td>
<td>P2</td>
</tr>
<tr>
<td>Science coach</td>
<td>Coach</td>
</tr>
</tbody>
</table>

Information regarding teachers’ backgrounds was displayed by Table 7: *Background of Participants*, including their educational training, components of professional development related to teaching in a high poverty school, and the types of students they had taught.
Table 7

*Backgrounds of Participants*

<table>
<thead>
<tr>
<th>Name</th>
<th>Education</th>
<th>Professional Development</th>
<th>Years of experience</th>
<th>Types of students taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher 61</td>
<td>BS, M.Ed. elementary education, secondary science</td>
<td>Questioning strategies, AVID, rigor and relevance</td>
<td>29</td>
<td>High poverty</td>
</tr>
<tr>
<td>Teacher 62</td>
<td>M. Ed., Ph.D., elementary education, administration</td>
<td>Questioning strategies, AVID, rigor and relevance</td>
<td>10</td>
<td>High poverty</td>
</tr>
<tr>
<td>Teacher 71</td>
<td>B.S., M. Ed., science education, divergent learning</td>
<td>AVID, rigor and relevance</td>
<td>24</td>
<td>High poverty, and mid-level</td>
</tr>
<tr>
<td>Teacher 72</td>
<td>B.S., M.Ed. science education, administration</td>
<td>AVID, rigor and relevance</td>
<td>10</td>
<td>High poverty and mid-level</td>
</tr>
<tr>
<td>Teacher 81</td>
<td>BS, M.Ed., genetics, zoology, divergent learning, special education, Gifted &amp; talented</td>
<td>AVID, rigor &amp; relevance</td>
<td>27</td>
<td>High poverty</td>
</tr>
<tr>
<td>Teacher 82</td>
<td>BA, M.Ed., science education, administration</td>
<td>AVID, rigor &amp; relevance</td>
<td>6</td>
<td>High poverty</td>
</tr>
<tr>
<td>Teacher 83</td>
<td>B.S. secondary science</td>
<td>AVID, rigor and relevance</td>
<td>12</td>
<td>2 years low poverty, 10 years high poverty</td>
</tr>
</tbody>
</table>

The Table 7: *Backgrounds of Participants* did not include ethnicities, genders, and other personal characteristics. The identifying information was intentionally omitted in order to protect the anonymity of this study’s small sample size. The following sections elaborate on these components of the participants’ background experiences.
School Science Faculty

The researcher initially considered focusing on the two seventh grade science teachers, because only the seventh grade scores were remarkable. The scores of sixth and eighth grade students were not representative of the student population because those students took either the social studies or the science test, but not both tests; however, all of the seventh graders took the science test. After further reflection on the contributions of other science teachers to student success, the researcher expanded the study’s focus to include all science teachers at the site school. Thus, the two sixth grade, three eighth grade teachers, and the two seventh grade teachers participated in this study. In the researcher’s view, the sixth grade teachers helped to prepare the students for success in seventh grade and the eighth grade teachers extended the work of the seventh grade teachers.

Administrators

In addition to seven science teachers, the participants in this study included the principal of the middle school and one of its assistant principals; the latter worked closely with the researcher in the initial stages of this study in designing an observation schedule. The assistant principal prepared a grid that displayed all teachers’ instructional times and planning times, reviewed it in a private office with the researcher, and then ordered the science department head to arrange a meeting between all of the teachers and this researcher. The assistant principal led professional development for teachers at the site school, with a focus on AVID strategies, and presented monthly training in AVID at a local college that was open to all teachers in the school district. Because of numerous administrative responsibilities, the assistant principal created time for a lengthy interview with the researcher an hour before the start of school at 6:30 am.
Both the principal and the assistant principal had been middle school and public school teachers for over 20 years, prior to assuming school administrative positions. Both of these people had graduate degrees in education, displayed high amounts of energy, and described the needs of their students for caring teachers with high expectations in great detail to the researcher. In 2010 the assistant principal was integral in obtaining national recognition for the site school’s AVID program. The school principal was an elementary teacher for 25 years prior to assuming the current position in 2000.

**Science Coach**

At the principal’s insistence, the researcher pursued an interview with the science coach at the site school. A former elementary reading teacher for over a decade, the science coach’s full-time position was funded through a mix of government and grant funds, according to the site school’s instructional coach. The South Carolina State Center for Science and Math (MSU), located at the Clemson Technical Park, provided initial training for the position as well as regular seminars. The researcher interviewed the coach in a small windowless office at the site school for almost 90 minutes; subsequently the coach reviewed the audio transcripts, approved them, and listed additional information that described the coach’s responsibilities and philosophy towards students living in poverty.

**District Assistant Superintendent**

The researcher had several conversations with the school district’s assistant superintendent in order to more fully understand the school’s state ranking and its leadership. In May 2010, the assistant superintendent agreed to provide access to students’ test scores on the PASS and the names of the science teachers associated with
each student at the appropriate time, with the qualification that this author would sign a form promising to maintain the confidentiality of the data. As manager of the district data banks, the assistant superintendent analyzes data from multiple viewpoints, including relating student achievement to specific teachers and student achievement to demographic characteristics of FRL eligibility, age, race, and gender.

**DATA COLLECTION**

The collection of data began after the researcher successfully defended the proposal for this study and received Institutional Review Board approval in April 2011 (Appendix A). The school district formally approved the study in March 2011 (Appendix B). Data collection began with a series of meetings between the researcher and school and district personnel, as explained in the Research Plan in Chapter One. The researcher met with the assistant principal to discuss a preliminary schedule for the classroom observations, the logistics of interviewing the participants, and the means of acquiring data from documents and photographs. Data sources consisted of classroom observations (Spivey, 2006), semi-structured interviews (Bogdan & Biklen, 2007; Crabtree, 2006; Trochim, 2006), school documents (Trochim, 2006), the researcher’s memos, and photographs of the school environment that related to the guiding questions. The resulting triangulation of data sources, according to Yin (2009), strengthened the case study through its provision for data corroboration. The quantity of data approached saturation and thus provided further support for the study’s conclusions.

**Classroom Observations**

Using the master list of teacher instructional times and planning periods provided by the assistant principal, the researcher e-mailed teachers a list of potential times for the observations of their classrooms. After their response, the researcher obtained
professional leave and invested entire days at the site school in order to complete unhurried and detailed observations. The researcher talked with each teacher individually prior to beginning the series of observations in order to help establish a rapport; subsequent interviews provided a time to discuss classroom events that occurred during the observation. The researcher completed 19 classroom observations during April and May 2011; each observation extended for the entire 45-minute instructional time.

**Logistics.** Prior to each observation, which lasted for an entire 50-minute class period, the researcher arrived at the classroom door and requested the teacher’s permission to enter the room. The researcher sat in a student desk or other chair in the back of the classroom for the purpose of a non-participatory observation. Using the observation protocol as a guide (see Appendix E), the researcher used memoing techniques to write extensive field notes of classroom actions, words, and impressions of those events (Trochim, 2006). Observations were not videotaped, due to the logistics of obtaining parental permission for every individual student that appeared in a video.

**Link between observations and guiding questions.** Observation data helped to answer the third guiding question of this study: *What, if any, classroom actions depict teacher philosophies towards the students?* The researcher’s development of the observation protocol was a response to Haberman’s (1991) description of a ‘pedagogy of poverty’ in which the predominance of worksheet drills among teachers in low-performing, high-poverty schools reflects low expectations for academic achievement. The researcher looked specifically for instructional techniques and activities that illustrated high expectations for achievement and confidence in student abilities. Those techniques included inquiry learning, activities that required higher-level critical thinking, expressions of confidence in student ability, and encouraging words. The
researcher was also aware of the National Science Teachers’ Association’s (2010) recommendations for inquiry-based learning (National Science Teachers’ Association, 2010), and Izumi, (2003), Rivera, and Smith’s (1997) observations on the effectiveness of direct instruction as well as relationship between strategy instruction (Lenz, Ellis, & Scanlon, 1996), study skill instruction (Polloway, Patton, & Serna, 2001) and student achievement. Because of those conclusions noted in the literature review, the researcher carefully observed and recorded notes on teachers’ instructional strategies.

**Focus on Personal Qualities.** In addition to the types of instructional techniques, the researcher also recorded personal characteristics of the teachers and descriptions of their interactions with students. Because Erb (2001) and the National Middle School Association (2003) advocated that teachers intentionally construct a positive emotional environment and, Lounsbury, Arth, McEwin, and Swain (1995) suggested a relationship between student achievement and the quality of rapport with the teacher, the researcher recorded details of teacher-student interactions. The researcher recorded physical signs of teachers’ attitudes toward students, including making eye contact, smiling, standing close to students, gestures, and tone-of-voice; these observations indicated teachers’ rapport with students (Spivey, 2006; Trochim, 2006). The researcher also noted any means that teachers used to connect science concepts with students’ background knowledge or to create background knowledge (Noble, Norman, & Farah, 2005).

**Focus on Philosophy towards Students.** In addition to noting instructional strategies and teacher-student interactions, the researcher purposefully noted any indications of the teacher’s philosophy towards students, including an acceptance of responsibility for student learning rather than blaming low achievement on poverty (Edmonds, 1979; Haberman, 2005; Kannapel & Clements, 2008; Rumberger, 2005;
The researcher also noted communications of a belief in students’ learning potential (Bruhn, 2010, Haberman, 2005; Klussman, 2004; Schacter & Thum, 2004) and the teacher responding to students’ comments in a dignified manner, allowing adequate time for students to express their ideas, showing value for students’ ideas by requesting their input, and providing positive reinforcement for their comments (Erb, 2001). The data analysis viewed notes on those classroom actions as representations of a philosophy toward students.

**Data Protection and Follow-up**

Within 48 hours of completing each observation, the researcher typed the handwritten field notes that contained the facts and impressions of observed events, noting the observation date and teacher’s pseudonym. After printing the notes, the researcher personally gave each teacher a copy with the request to review it for inaccuracies, write corrections, make clarifications, or request deletions. As stated previously, every observation was followed by an interview in which the researcher explored these changes, the teachers’ interpretations of classroom events, and made corrections as needed in the data. During subsequent interviews, the researcher presented the changes to each teacher for their approval and additional feedback. Discussions of those specific changes were summarized in Chapter 4.

**Interviews**

National Middle School Association recommendations and research conclusions related to effective teaching in high-performing, high-poverty schools, the use of AVID, and the impact of poverty on student achievement served as a basis for interview protocols. The semi-structured interviews had a focused conversational format that provided both basic information and opportunities to freely examine interesting topics.
that arose during the interview (Davis-Case, 1988). See Appendix E: *Protocols for Teacher Interviews* and Appendix F: *Protocols for Administrator Interviews* for the specific points of the interviews.

**Logistics.** The researcher recorded twelve of the seventeen total interviews with a Sony ICD-P620 audio recorder; additionally, the researcher made extensive written notes both during and immediately following every interview. Each of the interviews extended from ten minutes to two hours; the average time was 45 minutes. The interviews were always conducted away from students and other adults, taking place in classrooms, private offices, a school lunchroom, and a local bakery.

The researcher recorded seven 45-minute interviews; logistics prevented the recording of five other lengthy interviews. In one of those non-recorded interviews, the participant was bedridden following a serious accident and responded to the interview protocol via e-mail. In a second one, the participant responded to the researcher’s request to record the interview with the statement, “No, a recorder isn’t necessary.” The background noise of a local bakery prevented the recording of a third interview conducted over lunch. Two other participants permitted interviews so suddenly that the researcher did not have time to retrieve the recorder. In every unrecorded interview, the researcher wrote brief notes and then, immediately following the interview, wrote several pages of notes from memory. The later section on credibility of the study discusses the researcher’s handling of interview data that was not audio-recorded.

**Teacher Interviews.** During the first week of data collection, the researcher met with all of the science teachers in a classroom after school. At this time, the researcher described this study to them, formally requested their participation, obtained their signatures on the consent forms, and scheduled the first interview (Appendix C). Teacher
interviews extended from 35–90 minutes and occurred in classrooms while students were not present; the researcher informed the participants that they could stop the interview at any time, with no obligation to provide a reason, and they could refuse to answer any question they wished (Appendix E).

**Link between First Protocol and Guiding Questions.** The researcher wrote three protocols, based on findings in the literature, to use in interviewing the science teachers. The results of the first interview protocol helped to answer the first guiding question: *How did the teachers’ background experiences and professional training prepare them to teach in a high poverty science classroom?* The first interview requested background personal and professional information, including the schools they had attended, their number of years of teaching experience, and types of professional development opportunities they had; additionally, it explored the effects of previous experiences on classroom actions and philosophies towards students living in poverty. The interview also discussed the ways in which the teacher planned instruction for students with the limited background knowledge that is typical for students living in poverty, according to Jackson and Davis (2000).

Multiple research conclusions formed the basis for the questions in the first interview protocol, including inconsistent conclusions regarding the relationship between pre-service training and effective teaching (Bennett, 2008; Freedman & Appleman, 2009) and Ladson-Billings’ (2001) observation that both experienced and novice teachers can be successful. The conclusions of Bennett (2008), Freedman and Appleman (2009) and Ladson-Billings (2001) that teachers’ pre-teaching experiences and training impacted their level of understanding, sympathy, and optimism for achievement by students in poverty also supported the interview protocol, as did the observations that one’s
perceptions of past experiences have an effect on present actions and seem to drive classroom decision-making (Ferguson, 1998; Spivey, 2006).

**Link between Second Protocol and Guiding Questions.** The second interview, which followed the classroom observations, provided an opportunity to ask questions about the observation; the researcher asked the teacher to interpret classroom events and to reflect on the researcher’s notes. The other items in the protocol addressed the second research question: *What ideologies and philosophies do the teachers have towards their students?* The protocol explored teachers’ philosophies toward students and possible background experiences that helped to shape that philosophy. The research basis for the interview was Ladson-Billings’ accounts in *Crossing over to Canaan* of transforming life experiences that shaped the thought processes of beginning teachers in high poverty classrooms (Ladson-Billings, 2001). Motivated by the conclusions of Hanushek, Kain, and Rivkin (2004) that high-poverty urban schools have the lowest teacher retention rates, the researcher also explored teachers’ thoughts on teaching in a difficult environment, whether they had a sense of mission, and their intentions to continue teaching students living in poverty (Bennett, 2008, Freedman & Appleman, 2009).

**Link between Third Protocol and Guiding Questions.** The researcher intended the third interview protocol to answer the fourth research question: *How, if at all, does the school environment and culture affect science achievement?* The basis for the third interview was the conclusions of Kannapel and Clements (2005) and Rumberger (2007) on the relationship between the school environment and student achievement. As part of the effective schools research movement, Kannapel and Clements’ (2005) case study of high performing, high-poverty elementary schools in Kentucky noted that clearly communicated expectations for academic achievement, demonstrations of warm,
nurturing relationships, and a sharp focus on academics characterized those schools. Extending the effective schools research, Rumberger (2007) concluded that, although students’ individual attributes determine achievement levels, those attributes are shaped by institutional and classroom settings. Thus, the researcher determined to use the third interview protocol to gather details of the classroom environment.

**Administrator Interviews.** In a similar manner, the protocols for interviewing administrators focused on the fourth guiding question: *How, if at all, does the school environment and culture affect science achievement?* (Appendix F). Interviews with school administrators and the district assistant superintendent provided their interpretation of the student scores on the 2010 PASS science test, the effect of the school environment on teacher effectiveness, the use of AVID strategies, and the philosophies of school administrators towards the students and their family backgrounds. In addition to the conclusions in the preceding section (Kannapel & Clements, 2005; Rumberger, 2007) that related school environment to student achievement, the researcher also considered the recommendations of Erb (2001), the recommendations of the National Middle School Association (2003) for the establishment of a positive emotional environment, and the observations of Jackson and Davis (2000), Noguera (2003) and Trimble (2002) regarding a connection between school leaders’ communications of high expectations and student achievement. The researcher purposed to discuss the emotional qualities of the school environment as well as administrators’ explanations for the high rankings of the seventh graders’ science scores.

**Data Protection and Follow-up**

Within 72 hours after each interview, the audio recording of the interview was transcribed into a Microsoft Word document using Dragon naturally-speaking.
transcription software, stored in a folder labeled *Interview Transcriptions* on the researcher’s personal laptop, and backed-up onto a dedicated memory stick. The notes on the non-recorded interviews were treated in a similar manner. After carefully comparing the transcription and the written notes to ensure perfect alignment between both data sources, the researcher printed a copy of the transcription and gave it to each participant for their inspection and feedback. The section on credibility and dependability includes a discussion of this technique for achieving data dependability.

**Document Inspection**

Because participants did not provide any school documents to be analyzed for this case study, the researcher applied observation and listening skills during classroom visits and interviews to identify relevant school documents. The researcher inspected documents in multiple locations throughout the site school, including classroom bulletin boards, the principal’s letters to parents, displays in the faculty lounge, posters, signs, and student work attached on the walls. The researcher inspected those documents for philosophies toward the students, attitudes towards AYP failure, admonitions concerning the school environment, lists of students’ needs related to poverty factors, the effects of specific instructional strategies such as AVID, and references to student achievement. (Appendix H). Chapter 4 discusses the findings from the document inspection.

**Photographic Data**

In the process of making general observations of the school and searching for relevant documents, the researcher noted extensive displays of student work and recorded them with a SONY Cyber Shot digital camera, following the example of Spivey’s data collection for a 2006 dissertation. Other photographs recorded classroom seating arrangements that allowed a temporary retreat for over-stressed students, a life-size teddy
bear in another classroom, and a large bulletin board that reminded students of overdue work. The analysis of the photographic data revealed their support for other data in this study (Appendix I).

**Summary of Data Collection**

Throughout the study, the researcher remained flexible in collecting data, making observations of details throughout the school and listening carefully to participants and school personnel. Classroom observations and interviews whose protocols were based on the findings of the literature review formed the bulk of the data; archived test scores, school documents, and photographs of the school provided variety and depth to the data.

The following sections describe the researcher’s system for cataloging and analyzing the data. In analyzing the data, the researcher used selective coding (Ary et al, 2006), constant comparison (Glasser, 1965; Yin, 2009), two-tiered coding, participant feedback, a descriptive framework for the data (Glickman, 1980), and quasi-statistics (Varma, 2003). Memoing with reflexivity, the compilation of an audit trail, member-checking and inter-rater checking promoted the trustworthiness of the analysis (Ary et al, 2006; Trochim, 2006).

**DATA ANALYSIS**

Data collection began in April 2011 and continued through July 2011. During this time, the researcher shared data with committee members and other colleagues in a consultative manner through e-mail. Although classroom observations ended prior to the 2011 administration of the Palmetto Assessment of State Standards (PASS) test on May 14, 2011, interview data collection continued until the first week in June. An audit trail recorded the dates and times of data collection, making sense of the ways in which it was collected. Initial inspection and readings resulted in a list of preliminary themes in the
data, which are listed in Appendix J. In a search for relationships among the data, the researcher used constant comparison techniques that resulted in a tentative two-tiered coding system, which is presented in Appendix K: *Two-tiered codes*. Finally, the researcher constructed a descriptive framework for the data, along the lines of the two-tiered coding system, and applied quasi-statistics to determine their relative strengths (see Appendix L, Appendix M, Appendix N, Appendix O, and Appendix P: *Components of the descriptive framework for the data*).

**Preliminary Coding Procedures**

After transcribing data into Word documents, the researcher printed and stapled units of data together; for example, typed observation notes for Teacher 6A were one unit, notes for Teacher 7B were another unit, as were the transcribed interviews for each participant in the study. Corrections, deletions, and additions to the data were handwritten or typed on those pages, which were sorted by unit into a three-ring binder. The researcher’s memos were attached to the units of data. Then, following the recommendation of Willard-Holt (1994), the researcher read every page of data multiple times, noting ideas, references, actions, impressions, and comments that participants repeated and marking them with an asterisk for re-examination at a later time.

The researcher continued inductively reading and rereading the data, searching for patterns and regularly-appearing topics, with primary attention given to the previously marked data. As tentative categories and relationships became apparent in the data, they were marked with a unique color of highlighter (Bogdan & Biklen, 2007; Yin, 2009). Any data that described relationships were coded yellow, for example, and data describing teachers’ personal experiences were coded pink; in a similar way other themes were color-coded.
Two-Tiered Coding

After coding the initial themes, the researcher sorted the colored phrases and placed them into a Word document; each document displayed the data pieces related to one of the themes, following the recommendations to reduce, compress, and display the data (Miles & Huberman, 1994). Then the researcher organized the data in each theme into sub-groups (2nd tier data) related to the theme; for example, two of the sub-groups connected to the school culture were high academic expectations and refusing to allow students’ home lives to excuse low achievement. A multiple of a hundred identified each theme (100, 200, 300, etc.) and related numbers identified the second tier data; for example, 101, 102, 103 items belonged to the 100 group. The system of organization consisted of writing a three-digit code (101, 102, 103, etc.) on the printed Word documents in the space above each line of text.

When it was apparent that large pieces of data were not colored at all because they did not fit into any of the data sub-groups (2nd tier data), the researcher requested participants and committee members to use the researcher’s three-digit codes to sort a page of data (101, 102, 103, etc). After reviewing their responses, the researcher added a code for teachers caring for students and re-coded the data for caring. Eventually a dominant theme appeared related to that topic.

Constant Comparison

Following the establishment of a two-tiered coding system in which the researcher grouped related sub-groups of data into themes, each unit was inspected for its relationships to all other data and to the four guiding questions of this case study. Glasser (1965) described the method of constant comparison as an inductive inspection of each single unit of data in relation to all other data for similarities and differences. The result
of constant comparison’s analytic induction were advanced definitions for data themes and a perspective on the relationship between 2nd tier data and this study’s research questions. The theme of teachers’ caring for students, for example, addressed the question, *what classroom actions demonstrate teachers’ philosophies toward students?* The researcher completed the process of open coding, two-tiered coding, and constant comparison manually without the assistance of computer software.

**Quasi-Statistics**

According to Varma (2003), Becker coined the term “quasi-statistics” in 1958 in case study reports, suggesting the possibility of enumerating the distribution of events within categories of data that failed to meet requirements for statistical testing. Although not quantifiable, the data could be analyzed with a system of enumeration. The quasi-statistics represented the level of confidence one could have in the findings within the data; confidence was increased when categories of data contained multiple forms of evidence.

Yin’s (2009) description of descriptive frameworks for data indicated a practical way to implement Becker’s quasi-statistics and to “play with the data” (p. 129). Descriptive frameworks referred to data arrays and category matrices, into which data are placed. The number of pieces of data in each category indicated the dominance of that category among the data. Based on an understanding of Yin’s (2009) and Becker’s discussions (Varma, 2003), the researcher constructed a three-column descriptive data framework that organized the preliminary themes revealed in the data. The column headings were ‘Who said it’, ‘What they said’, and ‘Tally’; thus each row on the descriptive framework recorded a person, a quote attributed to them, and a cumulative number of pieces of related data.
This technique revealed the prevalence of sub-groups of data, meaning that sub-groups with a larger tally were stronger themes than those with a small tally, being referenced only a few times by one or two participants. The researcher re-inspected themes with a very large tally to determine whether they actually represented more than one theme, as in the case of a preliminary theme called relationships, which had a large tally and variety of comments. Further inspection caused the researcher to conclude that the preliminary theme actually included two separate types of relationships, those among teachers, as well as those between teachers and students. The researcher sub-divided the theme into relationships among teachers and relationships with students.

Case study data analysis included quasi-statistics regarding the number of years of teachers’ post-secondary education, years of teaching experience, and number of types of professional development by averaging these individual categories. Because of Bennett (2008), Freedman and Appleman (2009), and Ladson-Billings’ case studies (2001) that described the development of a sense of mission and informed perspective as a result of personal and professional experiences, the researcher collected demographic statistics from each participant. The statistics helped to answer the research question, “How, if at all, did teachers’ background and professional training prepare them to teach in a high poverty science classroom?” The demographic information included the continuous variables of age, number of years teaching high poverty students at the site school, number of years teaching high poverty students at other schools, and number of types of professional development courses related to teaching students whose families live in poverty.

In addition to determining the relative strengths of themes revealed in the data, quasi-statistics also reported the comparative rankings of schools regarding scores on the
2010 PASS science test. The display in Table 4: *Top-ranked schools on the 2010 PASS test* presented the South Carolina schools that ranked the highest in the year 2010 on the science sub-test, presenting the average number of students, the percent of students eligible for free or reduced lunches (FRL), and each school’s average $z$-score on the test. The statistics in Table 5: *Comparisons of PACT/PASS scores among schools* compared the site school to similar schools. The quasi-statistics in both Table 4 and Table 5 quantified student achievement and implied the effectiveness of the site school’s teachers, thus supporting the motivation for this case study. Table 5 reveals that the 2010 ranking was not a one-time anomaly; instead the ranking was part of a pattern of academic achievement.

### Summary of Data Analysis Methods

Data analysis began during the data collection with the application of an open-coding system involving sorting, organizing, and colored pens or highlighters. Following further inspection, the researcher developed a two-tiered coding system involving three-digit codes to indentify tentative categories and sub-categories ($2^{nd}$-tied data) within the data. Using constant comparison techniques, the researcher identified relationships and connections among the parts of the data, as well as connections between them and the guiding questions. Finally, the construction of a descriptive framework organized the data, and quasi-statistics determined the relative strengths of the themes found in the data. The researcher also applied quasi-statistics to demographic information and test score data.

### CREDIBILITY AND DEPENDABILITY

Planning for valid and consistent conclusions based on the data was an important component of this study’s methodology. Discussions of those efforts centered on plans
for the study’s credibility and dependability, as suggested by Shenton (2003), who explained that credibility represents to the degree to which findings accurately and completely describe reality. While credibility in a quantitative study depends on the construction of the measuring instrument, in a qualitative study the researcher is the instrument (Golafshani, 2003). As result, the credibility of a case study depends on the researcher’s abilities. A qualitative study is considered credible when its descriptions or interpretations of human experience are so accurate that they are instantly recognizable by others who have shared the same experience (Ary et al., 2006). When the conclusions of a case study are believable from the perspective of the participants, then credibility is obtained (Trochim, 2006).

Because the purpose of this qualitative study was to describe high achieving science teachers in a high poverty school, they were the ultimate judges of this study’s credibility. In order to corroborate the study’s conclusions, the researcher pursued the participants’ interpretation of classroom events. Participants confirmed the accuracy of the data by reviewing transcriptions of the data and made corrections as needed. The face validity of the observation protocol and the interview questions was supported by referencing individual items to the review of the literature.

Data collection and analysis used a system of triangulation for data collection and data analysis. Multiple types of data supported the study’s conclusions and successive strategies were applied to analyze the data, including open coding, two-tiered coding, constant comparison, and quasi-statistics, to obtain a depth of meaning. Triangulation ensured the credibility, dependability, and trustworthiness of the data.

The standard quantitative meaning of validity holds little meaning for qualitative studies. The intricate connections among participants, their environment, and the specific
point in time in which data collection occurred prevent a discussion of validity. A study’s conclusions are relevant only to those participants at their time at that time. Rather than strive for validity, case studies construct the related qualities of credibility, dependability, and trustworthiness (Ary et al, 2006, pp. 509-512). As described below, memoing, an audit trail, member checking, and inter-rater checking were used to ensure those important qualities of a qualitative study.

**Memoing**

The data analysis technique of memoing, a form of reflexivity, increased the credibility of the volume of data through its annotations of the data (Groenewald, 2008). Memoing was the recording of brief impressions during data collection, usually in a separate column beside the observation notes. According to Hsiung (2010), memoing includes reflective notes or memos during data analysis as well as during the data collection and can list aspects of the context that need to be investigated, apparent patterns in the data, comments on qualities of relationships, and questions that arise regarding the data. Thus, memoing provided a written record of the progressive understandings of the data, supported its analysis, and added confidence to its conclusions (Groenewald, 2008).

The researcher wrote memos concerning impressions of the site school environment on every visit to the school. Some memos, for example, recorded calmness and peace that the researcher sensed while moving between classrooms at the site school; subsequently, those memos were confirmed with corroborating observations and clarified with contrasting observations. Other memos noted the friendliness of the participants towards the researcher, the emotional reactions of teachers towards apparent delay in students learning difficult concepts, and the street signs that named every hallway and
stairwell in the site school. A memo that posed a question was whether teachers felt a sense of mission in the site school or was their focus on excellent teaching, regardless of the environment. These samples of memos and many others were continuously made, compared to the other types of data and the coding systems that were developed, increasing the credibility of both by corroborating the data and helping to explain the source of the open codes and two-tiered codes (Groenewald, 2008; Hsiung, 2010). Because of the honesty, informality, and continuous nature of the memoing, researcher bias can be controlled with the full accounting of thoughts, concerns, and problems that occur during the study (Ary et al, 2006). Thus, the researcher’s memoing techniques supported the credibility and dependability of this study.

**Member Checking**

Member checking and inter-rater checking raised the credibility of the data analysis. To further strengthen the credibility of the case study, in addition to memoing techniques, the researcher used member checking techniques, which consisted of delivering the data back to the participants for their verification of its accuracy and the plausibility of the researcher’s conclusions (Conrad & Serlin, 2006). The researcher gave typed copies of observation notes and interview transcriptions personally to each participant, with adequate space provided on the documents for writing corrections, making deletions, and adding supplemental information. The participants were asked to write notations of inaccuracies, insert relevant or clarifying comments, and to make deletions in the data; the researcher reviewed all of the changes during follow-up interviews and entered them into the study’s permanent files stored on the researcher’s personal laptop. The investment of time in reviewing data with participants helped to increase its accuracy and as a result, the study’s credibility. Credibility in qualitative
studies refers to truth of its data; the concept of dependability is also unique in qualitative studies and refers to degree to which a study accurately represented reality (Trochim, 2006).

**Dependability**

Although reliability is important in quantitative studies and refers to the ability to replicate the study, the nature of a qualitative study makes replication impossible. According to Trochim (2006), its detailed investigation of real-world phenomena at a specific time implies that attempts at replication would actually measure a different phenomenon; as a result, qualitative studies have focused on achieving dependability, rather than reliability, with actions that account for the influence of the context on the participants and the direction of the study. The dependability of this case study was supported by the rich details of the data, triangulation of data sources and analytical strategies, member checking, coding strategies, and examination of the data by colleagues.

**Rich Details.** Data collection obtained an extensive, detailed body of information related to the participants and the site school. Events, emotions, the researcher’s impressions during classroom observations, notations during interviews of participants’ tone-of-voice, the look in their eyes, their body language, and other memos describing the evolution of the coding system and decisions about the course of the study provided richness to the data. An audit trail recorded the dates and times of data collection (Ary et al., 2006), and audio recordings of most interviews increased the size of data, thus advancing the dependability of this study.

**Triangulation, Member Checking, and Coding Procedures.** According to Key (1997), triangulation of data sources, member checking, and coding and recoding
procedures support the dependability of a qualitative study. In addition to the depth and richness of the data, the study’s dependability was supported by the correspondence of data, which was obtained through multiple avenues, the confirmation of the data by the participants through member checking, and the degree of similarity between committee members’ coding of the data and the researcher’s coding. Coding and recoding procedures involve the agreement between the researcher and other professionals on the application of specific codes to the data. These procedures also include the researcher’s recoding of the data after the initial coding; this action helps to ensure the consistency of the researcher’s interpretation of the data (Yin, 2011).

**Examination by Colleagues.** The examination of the researcher’s findings in the data by others and the correspondence of their interpretation is another means of increasing dependability (Hughes & Hayhoe, 2009); the researcher regularly discussed findings with participants, other colleagues, and committee members.

**Transferability**

One of the criticisms of qualitative studies, other than those directed toward the apparent lack of validity and replication, is the difficulty in making generalizations from its conclusions (Hammersley, Foster, & Gomm, 2000). The degree to which a qualitative study’s findings are applicable to other contexts is known as transferability, rather than generalizability, according to Davis and Buskit (2008); transferability can support the generation of testable hypotheses for future investigations and the development of theory (Hammersley et al, 2000). Although the depth of information from multiple sources does not equate to breadth, the completeness of the site’s description, a full discussion of the participants, and the revelation of the basic assumptions of the study allows other researchers to make informed decisions on the transferability of the case study results.
(Ary et al, 2006). The responsibility of demonstrating transferability of case study results to other investigations belongs to the investigators in those other studies, rather than the original researcher (Bogdan & Biklen, 2007; Davis & Buskit, 2008).

**Summary of Credibility and Dependability**

Because multiple data sources do not guarantee accurate information, the researcher strove to ensure that the data genuinely reflected reality. Memoing and member checking advanced the credibility of this study by recording the development of its coding system and its conclusions, while member checking corroborated the researcher’s data and its coding. The rich details of real world people and events advanced the dependability of the study, and its transferability to other contexts for investigation, theory building, and testing hypotheses depends on the similarity between contexts. This researcher was responsible for providing deep details of site, participants, and assumptions of the study; it is the responsibility of other researchers to match those details with their contexts prior to transferring this study’s conclusions.

**ETHICAL ISSUES**

A final consideration in all studies involving human beings, such as this case study, was the question of ethics; the researcher considered it more important than the efforts to increase credibility and dependability. In an ethical study, the researcher must protect the interests of everyone involved, including developing strategies for obtaining informed consent, protecting privacy, maintaining anonymity, and being sensitive and respectful towards participants (Bickman & Rog, 2009).

**Informed Consent**

This study’s purpose and the expectations for its participants were explained prior to asking them to sign the consent form (Appendix C). Participants had an opportunity to
ask questions before consenting to participate in the study; additionally, the researcher informed them of their right to discontinue participation at any time. Informed consent involved the consent of the institution, as well, to allow the researcher to enter the building, observe classrooms, and interview personnel (Glatthorn & Joyner, 2005). In March 2010, the school district superintendent and the school principal provided permission for this study (see Appendix B School district approval).

**Maintaining Privacy**

The use of pseudonyms ensured participants’ privacy and anonymity; their self-selected pseudonyms revealed only their grade level. The confinement of the data files to one computer and its backup on an 8 GB memory stick provided additional privacy. Storage of transcribed interviews, typed field notes, researcher’s memos, e-mail correspondence, and the audit trail in a cabinet in the researcher’s study assisted in maintaining privacy, as did the obscuring of identifying information, including personal names and the school’s name, with a black marker.

**Honesty**

The degree of honesty and openness of the study was another ethical concern among qualitative studies, according to Glatthorn and Joyner (2005). The use of memoing procedures and the maintenance of an audit trail in this study minimized any dishonesty in reporting actions and thoughts. Additionally, the researcher, as research instrument, was conscious of personal biases that could influence participants towards desired responses and impact the study’s integrity (Glatthorn & Joyner, 2005). This researcher was cognizant of a strong bias toward anyone who works hard to better the lives of those young ones that society tends to overlook, especially committed teachers who were providing rigorous science education for children who were living in poverty.
Because of that self-awareness, the researcher conscientiously avoided the encouragement of insincere responses during interviews by keeping an even tone-of-voice, a neutral facial expression, avoiding leading kinds of questions, and not making judgmental comments on the quality of participants’ words or actions.

**The Ultimate Ethical Authority**

This researcher was guided by the Holy Scriptures, which reported that a young man asked Jesus, “Who is my neighbor?” The Lord answered the young man with a story of a man mercifully providing assistance to an injured stranger (Luke 10:29–37, NIV). The study’s conclusions were intended to help increase the achievement of students who generally have low achievement. The researcher considered a completely ethical study, with thorough honestly and careful data analysis, to be the means of most effectively reaching the goal of helping students. The following chapter summarized and synthesized the data findings.
CHAPTER FOUR: RESULTS/FINDINGS

The data revealed that the leaders in a high poverty middle school in South Carolina have carefully selected and developed highly-skilled teachers who have understanding and compassion for young people living in poverty conditions. The literature review indicated school qualities and teacher skills were related to student achievement in high poverty schools (Chenoweth, 2007; Cotton, 2003; Edmonds, 1979; Gaziel, 1997; Leader, 2008; Lezotte, 2010; Reeves, 2003, 2004), but did not specifically connect those qualities and skills to science teaching in a middle school nor were conclusions found that related teachers’ specific philosophies towards students living in poverty. In order to address that perceived gap in research understandings, the methodology of this study was structured for collecting descriptive information related to the philosophies and related actions of science teachers whose students’ scores ranked near the top on an annually-administered state exam of science standards. Descriptive information was also gathered on school administrators and qualities of the environment of this high-poverty middle school in South Carolina.

The collected data was intended to answer the following guiding research questions:

1. *How, if at all, did the teachers’ background experiences and professional training prepare them to teach in a high poverty science classroom?*

2. *What ideologies and philosophies do the teachers have towards their students?*

3. *What, if any, classroom actions depict teachers’ philosophies towards the students?*

4. *How, if at all, does the school environment and culture affect science achievement?*
INTRODUCTION

This case study relied on multiple data sources, which were classroom observations, open-ended interviews with individual participants, the researcher’s personal memos, inspections of archived test score data and school documents, and photographs of the school environment. The researcher located documents during classroom observations, visits to the teacher’s lounge, and during walks through the halls of the site school. The researcher photographed school documents and classroom interiors, selecting them based on relationships to the guiding questions of this study.

Because this case study was intended to be descriptive, the general analytic strategy was to code the data and then to construct a descriptive framework to organize it (Yin, 2009). In a manner similar to the sociological study Middletown (Lynd & Lynd, 1929) in which data was sorted into groups describing components of community life, the data in this study was classified into topics describing teachers at the middle school.

The researcher initially read, re-read, rearranged, and sorted the data until tentative themes became apparent. Constant comparison techniques established a two-tiered coding system that depicted relationships among data. The two-tiered coding system was revised several times until parallels appeared between themes in the data and the guiding questions of this study (see Appendix J: Preliminary Codes and Appendix K: Two-tiered coding system). Five themes eventually appeared in the data, all of those except for one, were anticipated by the guiding questions of this case study.

- Participants’ philosophies towards students at the middle school
- Participants’ demonstrations of their philosophies towards students at the middle school
- The leadership and culture of the middle school
- Participants’ personal and professional backgrounds
- Participants’ instructional skills

Table 8 *Descriptive framework for the data* displays a connection between each theme and one of the guiding questions, except for the theme concerning participants’ instructional skills. Continued coding of the data, using participants’ own words, identified related components of each theme (Bogdan & Biklen, 2007; Strauss & Corbin, 1990). The researcher constructed a table for the themes and their related components. The headings of the table’s three columns were: Who said it; what was said; and a tally. Finally, quasi-statistics inspected the tally and determined the relative strengths of each theme; the following sections provided details of the analytical procedures. The result of the analytical strategy was a descriptive framework with four topics that responded to the guiding questions of this case study and an additional theme that was not anticipated by a research question.

An overview of the descriptive data framework depicted in Appendices L, M, N, O, and P was presented in the three columns of Table 8: *Descriptive Framework for Data* on the next several pages; one or two themes were presented on each page. The first column in Table 8 listed a guiding question for this study, if any, the second column presented a theme associated with the guiding question, and the third column grouped the components related to each theme. Those related components consisted of participants’ words, thus they were direct quotes that represented a group of related data. The themes were numbered one through five and the related components were numbered in a similar way; for example, the components related to the first theme had the numbers 1.1, 1.2, 1.3, and 1.4. In this way, Table 8 summarized the organization of the descriptive framework.
for the data and previewed the discussion of the study’s findings in the following sections of this chapter.

Following the construction of the descriptive framework, a second analytical strategy involved coding the data from a theoretical basis similar to the strategy implemented by Yin’s 1978 study *Creeping Federalism: The Federal Impact on the Structure and Function of Local Government* (Glickman, 1980). From theoretical basis of cognitive-perceptual theory (Bruhn, 2010; Ferguson, 1998; Fromberg, 1977), the researcher in the current study used the theoretical supposition that participants’ perceptions of prior experiences influenced their actions towards children living in poverty. This chapter discussed the theoretical analysis following the sections on the descriptive data framework.

**DESCRIPTIVE FRAMEWORK FOR THE DATA**

The descriptive framework presented five themes revealed by the data, which were participants’ philosophies towards students at the site school, demonstrations of their philosophies towards students at the site school, participants’ personal and professional backgrounds, the leadership and culture of the site school, and participants’ instructional skills. The words of participants expressed the components of each theme.
### Table 8

**Descriptive Framework for Data**

<table>
<thead>
<tr>
<th>Research question</th>
<th>Descriptive topics in the data</th>
<th>Second-tier descriptive data for each topic</th>
</tr>
</thead>
</table>
| 1. *What ideologies and philosophies do the teachers have towards their students?* | Participants’ philosophies towards students at the site school                                 | 1.1: Relationships are the key to success in teaching children living in poverty.  
1.2: You have to feel a sense of mission. You are accountable.  
1.3: It is essential to have compassion, understanding, and common sense. |
| 2. *What actions depict teachers’ philosophies towards their students?*            | Demonstrations of participants’ philosophies towards students at the site school                 | 2.1: I’ll get it for you.  
2.2: You have to repeat everything you do.  
2.3: I won’t accept excuses for low achievement.  
2.4: I like you guys.                                                             |
| 3. *How did the teachers’ background experiences and professional training prepare them to teach in a high poverty classroom?* | Participants’ personal and professional backgrounds                                             | 3.1: I had teachers that were especially good.  
3.2: Christian schools modeled kindness for me.  
3.3: I guess I just relate to these kids.  
3.4: I have experience.                                                             |
| 4. *How does the school environment and culture affect science teachers and science achievement?* | The leadership and culture at the site school                                                   | 4.1: The atmosphere that you see here results from relationships.  
4.2: They have data-driven instruction and the state science standards.            |
Participants’ Philosophies towards Students at the Site School

The researcher’s interview protocols were instrumental in exploring participants’ philosophies and ideologies towards their students. Every participant described their philosophies, which were a way of thinking about their students and a description of their feelings towards teaching middle school students living in poverty. The data included their convictions that relationships are the key to success in teaching children living in poverty, the importance of a sense of mission, the need for compassion and understanding, and a sense of accountability for student achievement.

Relationships are the key to success in teaching children living in poverty. All of the participants declared that relationships must be developed prior to initiating instruction. The school principal’s statement summarized the importance of forming relationships.
Relationships are the primary thing for effective instruction with students living in poverty homes. When a child doesn’t do well on a test, parents say, ‘What’s wrong? Doesn’t the teacher like you? But parents of middle-class children are more likely to say, ‘What’s wrong? Didn’t you study (P1)?

A seventh grade teacher, teacher 7A, acknowledged that the relationship is vital, saying, “If a student knows that I care about them as a person, they will be more receptive to my guidance;” teacher 6A confirmed this perspective, saying, “I have to know them. I have to get to know my kids, period. You know their backgrounds are not broad in any way. If I know them, I can pull in things to get their attention.” Echoing these sentiments was teacher 7B’s view, “Relationships are the key to success in teaching children living in poverty. That’s 100% of it. If they like you, they will work for you. And if they respect you, they will work for you.” The data indicated that the view of relationships as a prerequisite for learning was accompanied by sense of teaching in a high poverty school as a kind of mission or fulfillment of one’s civic duty.

**You have a sense of mission. I am accountable.** Comments from interview data referred to ‘doing the right thing (teacher 8B)’ and ‘helping other less fortunate people (teacher 7B). The researcher viewed teacher’s acknowledgements of their accountability for student learning as part of a sense of mission. Teachers discussed their responsibility for student achievement, from the perspective of a mission, a type of civic duty, and a goal for which they were accountable.

One of the sixth grade teachers, teacher 6B, explained a view of teaching as one’s civic duty:
I consider some of this to be my civic duty and obligation, and me giving back. When people come to the door at home asking for donations, I tell them I have given it all this week. You need some moral calling to be a better teacher. If you don’t have it, then I don’t see how you make it (Teacher 6B).

An eighth grade teacher, teacher 8C, explained a sense of mission by describing the Christmas presents that are personally delivered to selected students at the school. “To explain my feeling towards students who are living in poverty, we have the Angel Tree collection every year at Christmas,” related Teacher 8C. Another teacher felt compelled to mentor students, saying “the way you treat students is the same, because everyone is equal, but how you go about it is a little bit different. I feel called to do a lot of mentoring. I can call parents and say, ‘I’m coming to get your child on Saturday. We’re going to the school to study. We’re going to walk around the mall and learn what it means to have manners (Teacher 7B).” Teacher 8A explained that God provides the direction in teaching, while Teacher 8B denied a sense of mission, in contrast to all of the other participants, saying, “I don’t do anything special. I just come in and do my job every day. My philosophy is to do your job well. It’s what you’re getting paid to do. If you’re going to do it, then you need to put everything into it.”

Other comments in the data indicated a commitment without specifically referencing a sense of mission. The seventh and eighth grade teachers were adamant that the social class of a parent should not decide the future of a child. The educational experiences for children should be equivalent for children at all economic levels. Two of the representative comments were, “My philosophy is that every kid counts (Teacher 7B),” and “People are still people, no matter what color their skin is or their economic
background happens to be (Teacher 8B).” In the same manner, an administrator reflected
that “poor doesn’t mean stupid. Poverty is not an excuse for low achievement (P2);” and
Teacher 7A said, “Poverty is not an acceptable excuse in my classroom.”

The participants unanimously expressed a sense of being ultimately accountable
for their students’ achievement. The science coach stated, “Poverty is a cycle of
indifference, lack of resources and experiences, and lack of self-confidence. We as
educators can be that one element in their lives that turns the tide for these children…and
helps them to become successful contributors to society—home, school, community, and
the world (Coach).” Echoing the same sentiment, teacher 7A said, “All students have the
right and responsibility to become successful citizens. I must make the most of the time I
am given.” The other seventh grade teacher described a business-like approach to student
achievement stating, “I tell students ‘You’re my bottom line. By the end of the year,
you’re going to be at the top, or I’m holding myself accountable for it (Teacher 7B).”
The same teacher was heard telling students, “If I have to make you study, I will,” further
revealing the teacher’s sense of responsibility for student achievement. Interview and
observation data included similar comments from four other teachers, including an eighth
grade teacher referring to “this is the only time that some of these kids will ever hear this
stuff. If they are going to learn anything, this might be the only place they get it (Teacher
8B)”, and sixth grade teacher saying, “I have them do book work in the class, because
80% won’t do it at home. If they don’t get it here, then they won’t get it (Teacher 6B),”
and likewise, teacher 7A said, “I tell you that this class gets it here. They don’t get it at
home; at least 85% to 90% of them do not get it at home.”

It is essential to have common sense, understanding, and compassion towards
these students. Every teacher, except one, referred to the need for understanding and
implied the need for compassion in relating to their students. Understanding was needed when parents couldn’t be reached on the phone, “because they are working several jobs (7B),” when a child doesn’t have his homework, because “he had to sleep on the porch while his mother entertained all night (7B),” when a female student can’t hold her head up in class, you tell her “to stand up and do whatever you need to do, but you can’t lay there (7A),” and when a bright child is failing multiple subjects, “you know there are reasons at home (8B).” Understanding that children’s home lives may include “a party going on all night,” Teacher 8A constructed lessons that involved repeated presentations of content, because “if they are going to learn anything, this might be the only place they get it; therefore I have to repeat it several times (8A).”

Understanding for students was seen in the data related to dealing with homework assignments. The two sixth grade teachers provided multiple opportunities for homework completion. “About homework, even though they know I expect it to be turned in on time, I will listen to their excuses to an extent. I know that things happen (6A).” With the same understanding of home conditions, Teacher 6B arranged time for students to do homework during class, “rather than assigning homework. If they don’t get it done here, then they won’t get it (6B);” Teacher 7A made a similar comment, estimating that “85% to 90% do not get it at home,” referring to support for learning. These understandings correlated with homework assignments remaining on the board for over a week, provisions for after-school homework help, and classroom time dedicated to its completion. “When considering effective instruction of these students, I tell you that common sense is the best answer,” summarized Teacher 7B.
“You have to really like kids to work with kids such as these here. It takes a lot of adjusting,” Teacher 7B said. The assistant principal explained the administration’s view towards compassion.

In interviewing prospective teachers, we ask about it. Understanding, common sense, and compassion are essential. Our questions include, ‘What type of person do you dislike? What type do you like? What movie or book has made you cry?’ When a prospective teacher said, ‘Oh, I never cry during a movie’, we knew she was not the one for us (P2).

The data associated with compassion included participants’ awareness of the need for sensitivity for children’s difficulties outside of school. Teacher 8B explained, “You never know what kind of issues and problems are coming through your classroom door. You have to be parent, teacher, and coach.” Teacher 6A also referred to this sensitivity, saying “just being there for them. They may have a mama at home. They may have a daddy, or they may have nothing but an aunt. I know one of our students is being raised by a cousin. You never know how long it’s going to last.” The data revealed that not only did participants philosophies towards children living in poverty involve a sense of mission, a view of the importance of compassion, but also feelings of being ultimately accountable for students’ learning, including a determination to find a means of realizing high achievement.

Thus, participants’ philosophies towards students included views towards relationships with students, their mission or civic duty, and the importance of compassion. Their convictions were that the building of relationships with students must precede instruction and they were ultimately responsible for student achievement, as a kind of mission or civic duty. Teaching in a high poverty school was viewed with a sense
of mission and as an opportunity to fulfill one’s civic duty. Compassion, understanding, and common sense were absolutely necessary for effectively teaching their students. They did not blame poverty for low achievement.

**Participants’ Demonstrations of their Philosophies towards Students**

In addition to the topic *Participants’ philosophies towards children*, the descriptive data analysis found a second major theme: *Participants’ demonstrations of their philosophies towards students*. The related components of the theme, expressed in the participants’ words, were: “I’ll get it for you”, “You have to repeat everything you do”, “I won’t accept excuses for low achievement”, and “I like you guys”. Those five components were viewed as demonstrations of participants’ philosophies towards children living in poverty.

**I’ll get it for you.** The words “I’ll give you some” were spoken or implied in every classroom and were linked to provisions of school materials, textbooks, and more comfortable seating. When one student complained that “my chair isn’t level,” Teacher 8B said, “I’ll get it for you,” and immediately picked up a chair from the back of the room and carried it to the student; when students needed colored pencils for a lab report, the same teacher held out a box, saying, “Here, help yourself.” On another occasion a student reported that his pencil was out of lead and Teacher 8C said, “I’ll give you some pencil lead, as long as you keep making good grades for me.” When a student complained that he couldn’t finish a project because his family didn’t have any scissors, Teacher 6A said, “Here, give it to me and I will cut it for you.”

In addition to providing comfortable seating, scissors, and pencil lead, and colored pencils, school funds were used to purchase items to help students organize their assignments. Observation and interview data noted that a large binder, purchased by the
school administrators biannually, was in every student’s possession, replete with divider
tabs, spiral bound notebooks, and several reams of paper (P2, Teacher 8B, and Teacher
6B). Observation data also noted that textbooks were already placed on students’ tables
prior to class, available for use on every table in every classroom (Teacher 8A, Teacher
6B); none of the data indicated that students lacked school materials.

The sixth grade teachers purchased gifts for students, in addition to school
materials; Teacher 6A distributed candy and peanuts to students after using them for in
lab activities and Teacher 6B said, “I bought my entire class ice cream one day at lunch,
just because ….” The data included a large collection of gifts given to students annually,
referenced by Teacher 8C saying, “To explain my feelings towards students living in
poverty, we have the Angel Tree in the school cafeteria every year at Christmas. I will
promote it all year and run the fund-raising for it. Several teachers manage the gift
purchasing and then I deliver the gifts” on Christmas morning to the homes of the
neediest students. “One year I arrived to find the grandparents cooking over an open fire
in the yard, sharing an unheated concrete shed furnished with a single mattress and a
recliner, with two grandchildren,” Teacher 8C related through tears. Just as teachers
provided school materials and gifts to the neediest students, in a similar way the data
indicated that teachers incorporated content repetition into instructional strategies to meet
the perceived needs of students.

You have to repeat everything you do. “The way I plan for effective instruction
is to use common sense,” said Teacher 7B. One illustration of the ways that teachers’
practical understanding for students was their use of repetition in the classroom; “it’s not
all about test scores here,” Teacher 8B explained, “but definitely all about student
learning.” The school principal acknowledged that “I know the experts say we should let
them discover it, but I think these students need lots of drill-and-practice, with spiraling (P1).” The researcher’s inspection of school documents found the principal’s memo to teachers dated September 2010, advising them to ‘continuously review with drill and practice’. Teacher 8A explained the way “I plan for instruction with children who live in poverty is to plan repetition and repetition and repetition. They don’t get it at home. Maybe I teach it a slightly different way each time, but that’s what it is.” Interview data recorded Teacher 7B’s assertion:

> Repetition is essential when you teach. That goes not only for teaching content; it goes for discipline, morals, values; it’s all of that. You have to repeat everything you do. I will be saying on Day 164 to the kids, “Now what do we do when we get out of our seats?” It’s because rules are not a thing at home, where it’s like ‘I don’t care what you do, just go outside, and go away!’ I heard a kid say, “I didn’t get into bed until 2:30. I was just walking around outside. Mom said to get outside and don’t come home.”

Teacher 7A’s comments in the observation data summarized the focus on repetition, saying to the researcher one day, “We are going to review, review, review. Students are going to look at their scores from yesterday and my intent is to give them another chance to learn it.” In addition to revealing that teachers’ intentionally presented the same content in several different ways, the data also revealed teachers adamantly refused to accept poverty as an excuse for low achievement. The philosophy expressed by the assistant principal (P2) that ‘poor does not mean stupid’ was clear throughout the data from all participants.
I won't accept excuses for low achievement. The principal’s expectation and knowledge that “this type of student can succeed,” was incorporated into the teachers’ classroom practices. “The principal has high expectations of the students and their test scores and depending on who you talk to, it all starts with the teacher,” Teacher 8B explained.

At professional development meetings we are told to have high expectations, even though students are lower socio-economic level; we can still achieve it if we provide the resources and put enough time and energy into planning and presenting the content. It probably takes a lot more energy than for other students who have educated parents at home who will sit down with them, work on homework with them, and do science projects with them.

“The principal holds teachers accountable for student test scores,” Teacher 6A said. “We don’t dumb it own. They know I expect a lot out of them. When I do, I get a lot. You keep your bar high and they will go for the bar.” Teacher 7A said, “Poverty is not an acceptable excuse in my classroom;” Teacher 6B agreed ‘We tell each student that ‘You can do something.’ Here we don’t make excuses for student backgrounds.” Observation data affirmed that teacher’s words when students were admonished, “Your projects are due tomorrow; no excuses! You can do this!”

The principal explained the basis for the energy and teachers’ convictions saying, “This school has a commitment to change what we can and to avoid blaming low achievement on their circumstances.” The science coach affirmed that “we as educators can be that one element in their lives that turns the tide for these children. Their circumstances are no excuse for not becoming a successful member of society (Coach).”
The teachers’ common sense was evident in their use of repetition as well as their conviction that making excuses based on poverty would derail students’ achievement; observation data recorded several communications of that conviction. In a similar way, their philosophy that relationships were a prerequisite for effective instruction was visible in their classroom actions.

**I like you guys.** Caring for students was the dominant quality of teachers’ relationships with students. The data recorded actions that demonstrated not only care and concern but also teachers’ affectionate actions and enjoyment in the company of their students. The researcher viewed the data as a demonstration of participants’ convictions that relationships must precede instruction.

Data included the principal’s mandate that “teachers spend the first week of school convincing students that the teacher likes them, cares for them, and will support their learning,” and a teacher’s acknowledgment that “we are told to build a relationship before we teach them.” With the understanding that “if a student knows that I care about them as a person, they will be more receptive to my guidance (Teacher 7A),” the practical ways of building relationships included the use of interest inventories, mentoring, and advising students having problems. Because of the sensed need to “pull in things to get their attention”, Teacher 6A administered interest inventories and learning style questionnaires at the beginning of the year, in an effort to establish “a get-to-know-you type of classroom. They give me a place to jump off from; and then if I have to relate the material to something not so nice in their background to get them to understand, then I do. You relate it, but you sugar coat it… and turn it around into something positive.”
The quality of concern was also found in teachers’ mentoring actions, including teaching manners and providing counseling. Teacher 7B related the intentional seeking out of students “to go to the mall to walk around and learn what it means to have manners (Teacher 7B).” Similarly, Teacher 8B responded to a student’s loud demand “Teacher, come here!” with the question, ‘Can I get a please?’ Mentoring was also recorded in the questions that teachers asked students concerning temptations to use drugs. Teacher 6B, who asked students, “What are you going to do over the summer, when probably no one will be watching you? What are you going to do when the tough decisions come? Are you going to follow the crowd or not?” In a similar way, Teacher 6A asked students, “If you’re offered mushrooms, are you going to take them? Do you realize all of the things that can hurt you?”

Caring was evidenced in the data by teachers’ concern for students having difficulties. “I can’t figure out what’s wrong with a couple of girls in here. They’re upset and they won’t tell me why (Teacher 7A).” At the end of class, observation data recorded the teacher’s quiet offer to the girls as they left the room, “If you need to talk, OK.” Teacher 8A inquired the reason for a student’s distress, to which he replied, “Yeah, something bad, real bad.” The concern and caring in the teacher’s encouragement to just “put it behind you; it doesn’t matter,” was clearly audible to the researcher, who was sitting in the back of the room. Teacher 8C related:

I have no trouble helping students, talking with them and trying to help.

It’s the personal relationship that I have with individual students. He knows that when it’s not working for him in another class, then he can go talk to me about it. I told one problem student that she had the choice to
make it the best or the worst that it can be. She chose to make it the best and now is graduating with a full ride to Clemson University.

At least two teachers’ caring for their students was so strong that delayed achievement caused them great distress, which the researcher observed twice during the data collection time at the middle school. “They’re a sweet class, just today it was ‘teacher I don’t get it! I don’t get it! And they wouldn’t be quiet,” a teacher who requested anonymity told the researcher with a dazed facial expression. The observation data of four teachers’ classrooms (7A, 7B, 8B, & 8C) indicated that students needing a place apart from the regular classroom activity were given a screened-off area, furnished with a desk from which they could view only the board and record class notes. Some discrepant data regarding those retreats existed; however, Teacher 7A said “it’s a place they can go when they need it,” but the assistant-principal wrote that those retreats were part of student behavior intervention plans (BIPs) formulated by school counselors and teachers (P2’s note on researcher’s coding system). Despite the discrepancy in the reasons for the school’s provision of those retreats, their existence suggested an attitude of caring for students; likewise, the communication of confidence in student abilities and encouragement towards achievement suggested strongly that teachers cared deeply for their students.

Encouragement and communicating confidence was frequently seen in the data as a practical demonstration of teachers’ care for students. Teacher 8A told the students, “Now get ready for a quiz; look over your notes now. You’ll do great, if you listened yesterday. You’re all straight on this material.” When students claimed they didn’t know how to do any of the material, data recorded two teachers pulling up a chair and sitting down beside the students with the words, “Here, I’ll show you (Teacher 7A; Teacher
Teachers’ actions were viewed as representations of their affection for their students as well as caring for their success, achievement, and social skills.

All of the teachers expressed their affection towards students and pride in their learning progress without hesitation, according to the observation data, in addition to meeting physical needs. Teacher 6A commented “Very good! Very good!” to the students after getting good results following a class quiz; Teacher 6B told students, “You’re a good class. I’ve been telling people that you are good. You’ve been doing well with activities.” Observation data noted Teacher 7A chanted “They got it! They got it!” following a difficult lesson, hugged a student’s neck, and told another that he “had a smart moment” during class (Teacher 7A). Celebrating learning gains conveyed teachers’ affection and pride in students; teachers’ happiness to see them communicated similar messages; for example, observation data noted that Teacher 7A patted a young student on the back and smiled at him, after he reminded her he’d been out all week while his mother was drunk; Teacher 6A exclaimed, “Hey I missed you! I’m glad you’re here today,” when one young student arrived late for class (6A). Teacher 8A said, “I play around with students a lot. We laugh and cut up and it works (8A).” Teacher 6B told a class at the end of the day, “I look forward all day to you;” the observation data subsequently recorded students’ giggling several times during the lesson over his manner of representing scientific concepts, such as expansion of solids during heating (6B).

Caring for students included not only enjoying their presence and joking in silly ways with them, but also the information that teachers spent time with students outside of school. The school secretary told the researcher in a personal conversation, “We go to students’ high school games; we go to their graduations; some of us even go to funerals
of their family members. Years later they still remember our presence at some of those events.”

According to interview data, teachers’ compassion, understanding, and common sense motivated them to intentionally build warm relationships with students in order to make their teaching more effective. Observation data indicated that teachers liked and enjoyed being with their students; communications of affection were heard in almost every class that the researcher observed. At the heart of the relationships was a focus on achievement. Data included the principal, assistant principal, science coach, and several teachers stating that poverty was not an excuse for low achievement; the researcher’s inspection of a memo from the principal to teachers communicated the same expectations for achievement. Teachers and administrators did not blame poverty for students’ slowness or low achievement, stating to the researcher that “poverty is not an excuse in my room.”

Thus expressions of participants’ philosophies toward students included provisions of school materials, textbooks, and more comfortable seating, and the inclusion of repetitiveness in teaching and managing the students. Participants intentionally demonstrated care and concern towards their students in order to motivate learning, but also liked and enjoyed their students, according to the data. The observation and the photographic data recorded teachers celebrating students’ accomplishments through words, impromptu chanting, spontaneous hugs, and posting a list not only of the A-B Honor Roll but also a list of ‘Students who passed everything!’ on the hallway wall.

Accompanying those recorded celebrations were teachers’ challenges towards students to continue progressing towards even higher achievement. No excuses for low achievement were included in the data. In the midst of the actions that suggested a
philosophy towards students, the data clearly revealed that teacher-student relationships were woven throughout the instructional process, including material provisions, basing instruction on students’ perceived needs for repetition, and pursuing warm relationships prior to commencing with instruction.

Participants’ Personal and Professional Experiences

Interview data revealed the theme of participants’ personal and professional experiences; the components of this theme, using the participants’ words, were “I had teachers that were especially good”, “Christian schools modeled kindness for me”, “I guess I just relate to these kids”, and “I have experience”.

I had teachers that were especially good. Interview data indicated teachers’ qualities of kindness, compassion, understanding, and a vision for high expectations for the achievement of students living in poverty had developed over time. Teachers at the site school expressed an appreciation for caring adults who had taught them as children, the kindness that had been modeled in Christian schools they had attended, the lessons learned through difficult childhood experiences, and formal education that advanced their understandings and skills related to the needs of the site school. Caring teachers set an example that these teachers remember at least a decade later, according to the interview data.

Six of the seven teachers related memories of middle school and high school teachers who showed unexpected caring. “I remember thinking,” said Teacher 7B, “here is someone who is not in my family and he doesn’t have to like me, but he actually does care. He was there to help you learn and to be a better person.” Teachers who cared to take time to do more than tell children to ‘open the book, read the pages, and take the
tests inspired Teacher 6A, who said “I had teachers who explored and explained with us; that has made me more like what I do now.”

**Christian schools modeled kindness for me.** Two teachers had previously taught in Christian schools, where “the sense of the importance of caring for other people” was impressed on them (Teacher 6A); “students were taught to care,” said Teacher 8C. The latter teacher gained a “sense of caring deeply for other people and making efforts to help those who are less fortunate” from the teachings of a Christian mother (Teacher 8C). Two other eighth grade teachers credited the church and God with their feelings towards the students. Teacher 8B said “going to church makes a difference in teachers who care; Teacher 8A said “if it weren’t for God, I would’ve caved in long time ago. That is the only way that I keep going and makes me what I am now (8A).”

**I guess I just relate to these kids.** The examples of caring attitudes by previous teachers, God, and other Christians influenced five of the science teachers; all of the teachers described understandings they had gained for the less fortunate because of childhood experiences, according to interview data, including attending the site school, being raised by a teenage mother who struggled to support three children, learning difficulties, and teaching in other high poverty schools. Teacher 8A’s family had “no money until I was twelve and went to live with a cousin;” teacher 7A’s mother was 16 when she was born; two siblings were born within 2 years. “I guess I just relate to these kids,” that teacher said. Teacher 8C stated that “I not only attended this school, but in my first teaching assignment, I had kids who got their clothes out of dumpsters, who ate only at school, because there was no food at home; many of them were homeless and lived in an institution.” Other childhood difficulties with academic learning, losing weight, and gaining acceptance to a sports team made Teacher 7B become extremely competitive.
The teacher is currently working towards a doctorate in education, has two masters degrees, and was voted 2010-2011 Teacher of the Year at the site school, and noted for the highest average test scores of any teacher at the school, according to interview data with the assistant principal (P2). Teacher 7B described past events that molded him into a competitive teacher:

My whole life people have said, ‘You can’t do this. You’re overweight and can’t lose weight. You’re short and can’t play basketball. You’re slow in school and can’t learn’. I have done all of that and more. Now people look at this school’s basketball team and say to me, ‘No matter how much talent you have, your school’s team can’t win’. Comments like these just add fuel to my fire and make me fierce.

Although other teachers did not refer to difficulties in childhood, their previous teaching experiences provided an understanding for poverty. The two sixth grade teachers said, “I started out in a rural school literally built on an ant hill in the countries of Alabama, and then when I taught at Myrtle Beach for 17 years, that was what you would call the bottoms of the beach (Teacher 6A); I enjoyed teaching at Criswell, a high poverty school on the shores of Maryland; it was great and I really liked it (Teacher 6B).”

In addition to the caring examples, the experiences with poverty, and personal struggles for one’s achievement, interview data included teachers’ thoughts on teaching mistakes. “It was not only good teachers that I’ve had, but it’s also been years of learning it along the way (6A),” said Teacher 6A; similarly, Teacher 7A said, “My failures in the classroom have been as important as my successes in shaping me into the kind of teacher I am today. Nothing is more important than experiencing both of these
Teacher 8A reflected that “God directs us and gives us the ability to learn from our mistakes (8A).”

**I have experience.** In the data, all of the teachers credited past experiences with shaping their outlook towards students living in poverty; additionally, they benefitted from teacher training programs, the graduate degree programs, and professional development provided through the school district. Both Teacher 7A and 8A had a master’s degree in Divergent Learning, which they said was extremely relevant to their present teaching assignment. “Divergent Learning is especially helpful in teaching children from poverty homes,” said teacher 7A. “Training in rigor and relevance has helped me,” said Teacher 6A; while AVID training has helped all of the teachers, according to the science coach, who said, “All of [the site school] is AVIDized and all teachers have been trained to use AVID strategies in their classes (Coach).”

Thus, teachers’ experiences of making mistakes and other difficulties earlier in life helped them to relate to their students, according to the data. Seeing the struggles of hungry children, living in poverty conditions, overcoming learning difficulties, reflecting on the examples of kindness and expertise among previous teachers, and reflecting on the experiences of professional training formed teachers’ background experiences, according to the data.

**The Leadership and Culture of the Site School**

Observation and interview data revealed the theme of the school’s leadership and culture. According to the data, teachers were tuned into the needs of their students, built warm relationships with them, and communicated expectations for high academic achievement. Previous experiences and formal education had provided participants with
knowledge and training that advanced their teaching skills and increased their understandings of children living in poverty.

The researcher’s memos that were recorded during walk-throughs at the school added another dimension to the interview and observation data with their notation of an over-riding sense of calmness and peace throughout the school; a revelation that was confirmed with classroom observation data. The reasons for the observations of peacefulness, lack of disruption, and calmness were explored during interviews with administrators who participated in this study. Interview and observation data provided the theme of the site school’s leadership and culture. The components in the data, expressed in the words of the participants, were “The atmosphere that you see here results from relationships”, “They have data-driven instruction and the state science standards”, and “the principal gets it done”.

**The atmosphere that you see here results from relationships.** “The calmness that you sense comes from the relationships we have with our students,” said P1. “That is number one. You care for your students and you make them believe it. And then they care. But don’t ever compromise expectations.” The principal also named relationships among staff and faculty as another source of the school atmosphere. The principal compared relationships among teachers to the supporting nature of geese, which are referenced in the school’s vision statement: *Soaring to Greater Heights* (A copy of this document is located in Appendix G School documents). Emphasizing the word *together*, the principal stated that teachers and administrators read books together, study together, and work on relationships together. Data from a conversation with the school secretary confirmed the principal’s words; “there’s no room for arrogance here, no holier-than-thou attitudes exist here. Teachers really care for each other; for example, a teacher had a
financial need, an offering was taken, and the need was met; yet, the needy teacher was never identified (School secretary).” Thus, the calm atmosphere resulted from relationships with students and among the teachers, who liked each other, supported each others’ needs, and worked together in a collaborative and supportive way, according to the interviews.

Observation data included many references to a low-key atmosphere in the classroom that resembled the school’s atmosphere. Some of those references were, “After the teacher shut the door, no further noise or disturbance was heard, even though a discipline situation had occurred moments earlier in the hall (Teacher 6A observation).” Six classroom observations of the two six-grade teachers noted the “complete absence of a raised or hurried tone-of-voice; classroom discussions had a low volume and discussions had a conversational-style, in which comments, questions, and opinions were shared between the teacher and students (Teacher 6A and 6B observations).”

Data from observations of all other teachers except for one noted a similar low-key atmosphere (7A, 8A, 8B, & 8C). Teachers’ voices were calm with slow, distinct speech; no raised voices or strong emotions were noted. Most students were taking notes and questions related to the topic were asked (Teacher 8C); the teacher walked around the room checking individual progress (Teacher 6B, 7A, 7B, 8A, & 8C); students stayed in their seats; discipline was not a major issue in any observed science classroom. For students who need a place even more calm than the science classroom, photographic data and interview data noted that Teacher 7A, 7B, 8B, and 8C have “a time-out place behind a board where kids can sit; they can go there when they just need to be alone (Teacher 7A & 8B)”.

In addition to the pervasive calmness in science classrooms and throughout
most of the school, a second major part of the school’s environment was its use of summative and formative test score data to inform teachers’ instruction.

They have data-driven instruction and the state science standards. “We use data-driven instruction and the state’s science support document,” the principal said. This case study’s data noted the use of a data board and the Senteo system, that included clickers and instructor software loaded on desktop computers; the system provided feedback within minutes of the students’ selections on a formative evaluation. “The Senteo is a strategy that all teachers use,” said Teacher 6B; “using it, I can immediately assess the knowledge of my students. It tells me whether I need to return to a topic and give it extended teaching,” said Teacher 7B.

The data-based instruction was based on both Senteo software used in classroom and also on administrators’ maintenance of a data board on a conference room wall at the school (Coach, & P2, interview data). “We have a data board in our faculty meeting room that houses all students’ MAP scores arranged by RIT ranges for two years. This has been a great visual for teachers to identify the students that need that extra push (Coach).” The principal also said “PACT and now the PASS scores gives a picture of their student body, so teachers know which groups need specific remediation (P1).” More specific information was obtained with the use of an absolute value worksheet maintained by administrators on each teacher’s class, according to the assistant principal and Teacher 7B. “A formula, whose variables included individual student test scores from previous years, was used to determine the academic progress of each group of students for each teacher with a score similar to a GPA (P2, & Teacher 7B).” The data indicated that teachers whose scores begin lagging behind others are given specific
assistance by the assistant principal for instruction (P2) and the science coach, in the form of targeted observations and conferencing.

**The principal gets it done.** Analysis of this study’s data indicated that teacher philosophies, their actions towards students, and the school’s atmosphere were connected to the principal’s mandates or programs at the site school. Teacher 8B said, “The principal really is the heart and soul of this school. P1 is the one who puts teachers in this grade and this classroom and keeps you successful;” Teacher 8C added, “P1 gets behind teachers and makes them better; P1 certainly pulls things together; for every weak teacher, two strong teachers are placed adjacent.” Teacher 8B agreed, stating “[the principal] is amazing with a leadership style that makes us successful, after coming to this school ten years ago, and turning things around.” A high school administrator in a personal conversation with the researcher, said “P1 goes after things and gets them done, having the vision to pursue a science coach at the site school, who trained teachers to do common assessments and item analyses, and AVID training for all of the teachers.”

The principal summarized a style of leadership with the words, “I just talk with my teachers. I know what it’s like to be in their shoes.” Thus, the data indicated that the peacefulness of the school environment testified to the qualities of the relationships between administrators, teachers, and students; furthermore, the focus of the school was on high achievement for students, assisted by test score data that guided the pace and content of their instruction. The source of the school’s peaceful, caring atmosphere, its intense focus on high achievement, and the refusal to blame low achievement on students’ poverty conditions originated with the school’s empathetic and energetic principal, according to the data.
The last topic found during the construction of the descriptive framework was data describing the instructional skills of the teachers. *(Table 20 Descriptive data framework connected the topics to the research questions).* The components of this topic, the second-tier data, were ‘I collaborate with other teachers’, ‘I connect content to students’ everyday experiences’, ‘I’ve got control of the class’, ‘My students use higher level critical thinking’, and ‘I know I’m a good teacher’. These five levels were viewed as representative actions of skilled classroom teachers.

**The Instructional Skills of the Science Teachers**

The observation data revealed the theme of the instructional skills of the participants. Unlike the preceding four themes, instructional skills were not expected to be a major theme. The literature review noted the prevalence of the use of explicit teaching as well as the strong recommendation for inquiry teaching by the National Middle School Association. Because of the inconclusiveness of the review, the researcher chose not to include the topic among the study’s guiding questions. Nevertheless, the data indicated that teachers at the site school were highly skilled instructors. The related components of the theme were “We work closely together”, “In planning lessons, I have to look at what they have experienced”, “I’ve got it under control”, “Teachers teach on a high level”, and “The only way I know to teach is good”.

**We work closely together.** The interview data contained multiple references to collaboration among the science teachers, a skill taught by a science coach, who maintained a full-time office at the site school. The Math-Science Unit (MSU), an auxiliary of the South Carolina Department of Education (SDE) provided funds and training for the coach’s position. When the researcher explored the reasons for the science teachers’ success, the school principal initially expressed uncertainty, saying,
“Except for the coach, I am not sure how to explain the science teachers’ success. They all have varying amounts of content knowledge, patience, compassion, and rigor (P1).” After further reflection, the principal summarized, “The reason the science teachers are successful is that we know we are it. We have a drive to be competitive. And they had a coach (P1).” Interview data detailed the coach’s supportive work, including teaching model lessons, studying the state’s science support document with teachers, planning lessons based on the document, and providing constructive suggestions following classroom observations. The two sixth grade teachers both said, “What helps us is that we work so closely together (Teacher 6A & 6B).” The science coach affirmed that opinion saying, “We work closely together. That makes all the difference. We use common assessments and then do item analyses on their results. That way, teachers know whether they need to go back and reteach or whether they can move on (Coach).” Thus the data indicated collaboration skills that were taught by a trained instructional coach advanced teachers’ instructional skills.

The sense of accountability for student achievement was reflected in data describing the relationships among the teachers. The researcher observed that teachers collaborated on lesson planning, assessment development, and reviewing results. The researcher observed five teachers early one morning meeting in the hall asking, “Do we need to go back three years to review for the PASS?” The sixth grade teachers both said, “What helps us is that we work so closely together. The big push was teamwork. We plan together. We share assessments. We support each other (Teacher 6A and Teacher 6B).” The data included competitiveness among the seventh grade teachers for students’ test scores. “The reason the science teachers are successful is that we know we are it. We have a drive to be competitive and they had a coach who worked with them (P1).”
Observing the emphasis on ‘we’, the researcher heard Teacher 8B stating, “even though they are lower socio-economic level students, we should still have high expectations for them. They can still achieve if we provide the resources and put enough time and energy into planning and presenting the content.” In a similar vein, Teacher 6B emphatically said, “Here we don’t make any excuses for student backgrounds. We tell them ‘You can do something.’

**In planning lessons, I have to look at what they have experienced.** In addition to interview data that described collaboration among teachers and with a science coach, observation data noted that teachers frequently connected content to students’ everyday experiences. Children’s toys that transform from race cars to robots illustrated the science concept of metamorphosis (8A); the puff that follows from stepping on dried mushrooms defined spores (6B); the sounds of snoring were used to explain the position of the xylem (6A); references to pop culture, athletics, and deprivations associated with living in poverty were also noted. Teacher 7A summarized, “I have found that the more real my lessons are, the better the student will remember them; to teach students with limited background experiences, you have to know your content thoroughly and be prepared with a multitude of backup plans for lesson delivery (7A).” A corresponding comment from Teacher 6A addressed the same theme, saying that “in planning for students with limited background experiences related to science, I have to look at what they could possibly have experienced in their limited background. I have to look and see where they come from. I have to know them (6A).” Observation data recorded that teacher telling students, “OK, let’s start with something you know and then move on from there.” Teacher 7B explained “You have to use experiences. They don’t have the background knowledge and background experiences. Experiences are the only real
difference between our kids and others (7B).” Thus the data revealed that teachers used their knowledge of their students and other general knowledge to connect the science content to students’ everyday lives. Teachers collaborated with one another to develop lessons, learning activities, and assessments, based on interview data; subsequently, observation data noted that teachers involved situations and items familiar to students in teaching that content. Because teaching effectiveness can be correlated with the functioning level of the classroom, according to the state’s director of the MSU in a personal conversation with the researcher, observation data carefully noted the classroom management skills of the teachers.

I’ve got it under control. “OK, let’s get it done! This assignment can be completed in the office, ISS, or here (Teacher 8B).” When a student interrupted the teacher 8B’s directions to another student in lab, the response was calm, devoid of irritation, but firm, “I’ve got it under control. You don’t need to say that.” Although observation data recorded a warning from teacher 7A that “this class is a doozy,” the researcher found students working quietly and steadily at laptops on their research assignments.” According to the researcher’s memos made during the data collection, all of the transcripts of classroom observations, except for two, recorded students behaving without explicit directions, providing the impression that teachers’ expectations were both clearly established and accepted by most students.

Teachers teach on a high level. The data revealed that teachers were teaching on a high level, which the researcher viewed as a demonstration of their high expectations for student achievement. A high school administrator told the researcher in a personal conversation, “As a teacher at [the site school], you are expected to use the strategies that you get during professional development.” Those expectations for
rigorous classroom instruction may have been referenced by Teacher 7A’s saying, “Until you hold teachers accountable, change isn’t going to happen. Many teachers just won’t change what they teach at other schools. They say they’ve always taught this material (7A).”

After the annual administration of the PASS, both seventh grade teachers were observed teaching eighth grade science content (7A & 7B). Teacher 6A confessed, “I’m getting less worksheet based as I go. I would rather let them create their own worksheets; there are so many activities that are even higher than the ones you observed in my room (6A).” Teacher 8C explained “an AVID strategy, such as the interactive notebook, raises the expectations for the student. It places the focus on the responsibility of individual students in acquiring their learning (8C).”

Observation data recorded students writing Cornell notes (Teacher 7A, 7B, 8A, 8B, & 8C); in teacher 8B’s class, students were observed reading a passage in the textbook and writing three levels of Costa questions; observation data recorded a poster listing the levels of Costa questions as Level 1: basic input, gathering information; Level 2: processing information; Level 3: creating your own ideas. Those three levels of questioning represented levels of critical thinking, according to the poster of a three-story house on the wall in teacher 6B’s classroom. According to an interview with teacher 8C, “AVID focuses more on the future than the present, as it teaches kids the study skills that they will use in college.” Photographic data supported the data regarding AVID with its depiction of signs that named every hallway and every stairwell of the two-story school: AVID Road, Career Path, Rochester Lane, University Road, and others (Appendix I School photographs contains copies of those photographs). Thus, the data revealed that
teachers were expected to implement higher-level instructional and questioning strategies and that students applied those strategies in the classroom.

Observation data from every teacher recorded their asking groups of short questions that elicited understanding from students and reviewed content. Rather than requiring simple recall of facts, teachers’ questioning techniques required students to makes comparisons among similar data and explore hypothetical situations. Teachers were heard asking “What if…” and “How could this happen?” and “What does this mean to us?” and “OK now that you’re finished, let’s talk.” As noted by the researcher’s inspection of the school poster Costa questions, the questioning strategy forced students to use higher levels of critical thinking.

Data contained comments in which teachers enforced their expectations for high level work. “This lab report looks more like homeroom work rather than homework. You need to revise it (8C).” A second comment regarding quality of work was “You’re not done. Just because it is April, our work ethic is not going down (7B).” Thus, observation data revealed that teachers’ instructional skills included collaboration with other teachers, the ability to connect content with students’ everyday lives, the skills needed to maintain a high-functioning classroom, and the use of higher-level thinking skills with skilled questioning and AVID strategies. The data also noted that teachers’ possessed confidence in their abilities.

**The only way I know to teach is good.** Data from interviews and informal conversations with four teachers included expressions of confidence in teaching abilities. During the development of the schedule for classroom observations, the researcher met with teacher 7A, the head of the science department, for preliminary impressions of skills that related to teaching in a high poverty school. The teacher’s response was, “The only
way I know how to teach is good.” Observation data confirmed the presence of advanced teaching skills, including involvement of most of the students in learning activities, orderly discussions, and inquiry learning among students who behaved in an orderly way. Teacher 6B expressed a similar conviction, stating “I had no trouble getting a job, even though I have a Ph.D. I think they just wanted someone who could teach well.” Teacher 8B affirmed his understanding of the art of teaching, explaining that “in the beginning of my teaching career, I sat down with a time line and planned each lesson activity…but now I can plan lessons without doing that. I can have discussions with kids all day long and it really flows.” Teacher 8C defined teaching skill in terms of student recognition, stating “Kids will come down the hall because they’ve heard of me. I had two kids bring notebooks for me to sign because they’ve heard about me. This means more to me than any of this other stuff going on.” Thus, the data indicated teachers’ confidence was based on having a teaching job, ability to conduct lessons, and acknowledgment by the students.

Summary of the Descriptive Framework Strategy for Data Analysis

The researcher analyzed the data using open coding, constant comparison, and two-tiered coding techniques. The coding systems underwent multiple revisions prior to the organization of the data into a descriptive framework that presented the main themes of the data, the related components of each theme, and a connection with one of the guiding questions of this study (Yin, 1990).

The data revealed five themes: participants’ philosophies, the demonstrations and outward expressions of the philosophies, personal and professional experiences that related to their current teaching positions, the leadership/culture of the site school, and participants’ instructional skills. The guiding questions did not anticipate that participants’ instructional skills would be a theme in the data, following inconsistent
conclusions noted in the literature review regarding the nature of effective instruction of children living in poverty.

**THEORETICAL ANALYSIS**

The memories of teachers’ past experiences and their formal training was a topic in the case study that was re-analyzed from the perspective of cognitive-perceptual theory. The researcher applied the theoretical supposition to the data that teachers at the site school were uniquely effective because their outlook and attitudes towards students had been shaped by prior experiences.

The theoretical proposition was based on cognitive perceptual theory, which postulated that one’s perception of reality can lead to acts of kindness and service to others, even at the expense of one’s own safety and reputation (Monroe & Epperson, 1994; Moore, 1996; Post et al, 2002). This orientation guided the researcher to focus on specific data, including participants’ memories of past events and acts of kindness, protecting others from harm, and compassionate understandings for others. Although the results of the analysis from the theoretical supposition were not corroborated by the participants, rich details were obtained that could provide a basis for further study.

Using this analytical strategy, which Yin (2009) stated is the most preferred strategy for data analysis (p. 130), the researcher found some data to support the theory. Those components of the theoretical analysis were “We were poor and that gives me understanding”; “they just need a place to go”; and “I’m doing just fine at this school”. The pseudonyms are omitted from the following discussion due to its sensitive nature; nevertheless, all its details can be confirmed by inspecting audio recordings of interviews, written transcripts, and the researchers’ memos.
We were poor and that gives me understanding

The researcher recorded that one of the seventh grade teachers had a teenage mother and several siblings “We were poor, and that just gives me understanding for these kids here,” the teacher reported. Observation data recorded that teacher’s encouraging remarks to a sleeping student to “just stand up and do what you need to do” without severe reprimands or other disciplinary actions. The student’s slow response was not criticized.

The data recorded a teacher who had not only lived with “no money at all” as a child, but had also experienced the death of both parents, followed by a move to another state to live with cousins, the death of a husband, and then later the mysterious death of an only son in an unsolved boating accident. Observation data recorded that teacher’s warm responses to student needs, the absence of irritation or impatience in redirecting unfocused students to their lessons, and continuing work towards a third master’s degree “so I can better understand these students.”

In contrast to difficult times, the memories of a happy and stable family life, in which all of the children received encouragement in their abilities, were found in the observation data for one of the teachers; it suggested a basis for that teacher’s gentle forms of encouragement towards her students. In response to students with unfinished homework, the teacher said, “You have to find it, baby,” and to another one, she said, “I expect it on time. That’s all there is to it.” Other students heard the teacher say, “Come on, you know this!” and when it was apparent they had forgotten, the teacher laughed, saying, “Ewww, we’re rusty today! I need to put some WD-40 on you guys!” In summary, both difficult and happy memories were seen as influences on teacher’s relationships with their students.
They just need a place

Data from classroom observations and photographs recorded secluded areas within three of the classrooms at the site school; interview data revealed that those areas were constructed for students who “just needed a place to be alone.” From a seated position, the student was able to see the teacher, notes on the board, and continue to learn content, while retreating somewhat to recover his emotions. Four teachers related their memories of poverty circumstances, social rejection, and learning difficulties early in their lives, providing a picture of ‘being on the bottom’ in several areas. One of those teachers was recorded telling students, “You’re my bottom line. By the end of the year, you will be on top.” From the theoretical perspective, that teacher’s comment suggested a determination that students would be in a place unknown to him as a child, which was ‘on top’ as a high-achieving student. It was concluded from the data that teachers who had possibly needed a place to be alone as children, due to inadequate housing conditions, or a place ‘on top’ now provided such places for their students.

I’m doing just fine at this school

Interview data recorded that teachers were not only highly skilled but also understanding and compassionate. The data also revealed a commitment to a school in a part of town with high unemployment, modest homes, vacant over-grown lots, and rusting automobiles on the edge of the streets. A teacher related the following interaction with a teacher from a much more affluent school:

I go to meetings and others teachers look at me and ask ‘Do you teach in that school? Why?’ they ask me. I say to them, ‘Why not? I’m doing fine. Don’t ask questions like that and complain about your school. We have all the technology in the world’.
A second participant described a form of condescension similar to what was related by the previous teacher:

My daughter goes to [an affluent elementary school across town] and she has a friend whose mother teaches at the Montessori school. The mother says emphatically, ‘My daughter would never go to a school like that.’

And I say to that mother, ‘Why not?’

A third participant stated that acquaintances questioned his decision to teach at a ‘ghetto school,’ to which the answer was “I like it here.” A reason for these affirmations for the site school was suggested by an administrator’s comments regarding the respectful and peaceful atmosphere of children in the school; one of those comments was “It’s takes people like you going out into the community repeating your observations. Until you walk in the door and the culture hits you in the face, you are not going to believe it.” To prospective teachers, the advice from one of this study’s participants was “Be ready to fall in love with your job.”

The school’s failure to make AYP one or more times from 2001 to the time of this case study’s data collection did not appear to concern the teachers. Three different responses to the query regarding the impact of AYP failure on their teaching dismissed the concern, as represented by the comments, “Failing to make AYP has no effect on me. Every day I like to give each child what he needs to the best of my ability.” Thus, the data indicated a commitment to remain in their teaching positions at a high poverty middle school, a resolve to provide students with things unavailable to them as children, and an understanding for the conditions of students’ living conditions.
Summary of the Data Analysis Based on the Theoretical Proposition

The theoretical analysis of the data suggested a connection between participants’ memories of past events and present actions and attitudes towards teaching in a high-poverty school. Four teachers who had grown up with limited material resources patiently pursued relationships with individual students; one of those mentored students on weekends and while they were in high school. Personal and multiple tragic losses did not prevent another teacher from making connections with her students, just as happy childhood memories seemed to be transported into another teacher’s relationships with her young students. Because the participants did not check the results of the theoretical analysis, its results are suggested rather than presented as conclusive. The following sections discuss the strength of the findings by answering the study’s guiding questions and summarizing the themes revealed by the data.

STRENGTH OF THE FINDINGS

The five descriptive themes revealed by data were participants’ philosophies, demonstrations of their philosophies, personal and professional experiences, the culture, and leadership of the site school, and participants’ instructional skills. The application of quasi-statistics revealed that two themes, the demonstrations of participants’ philosophies and participants’ instructional skills, were stronger than the others, based on the number of mentions in the data. Actions that demonstrated participants’ philosophies included generosity in giving things to students, planning for repetition, refusing to accept poverty as an excuse for low achievement, demonstrating caring actions, and expressing affection for students. Participants’ instructional skills included working closely with other teachers, connecting content to student background experiences, maintaining control of their classrooms, teaching on a high level, and possessing confidence in their teaching
abilities. Using codes for these components of the data themes, the researcher coded over a hundred mentions in the data related to each theme.

Participants’ generosity and positive relationships with students indicated the existence of a caring nature among the participants and implied a sense of accountability for student learning. The participants’ instructional skills allowed the classrooms to function on a high level with well-paced instruction in a calm and pleasant environment. The high level of skill exhibited by the teachers was matched by their understanding and compassionate actions towards students, providing both school-related needs and gifts.

The use of quasi-statistics found a lower number of mentions in the data related to participants’ philosophies towards students, thus indicating that the theme was slightly weaker than the others. The data contained approximately fifty-six mentions of the theme of participants’ philosophies, thus the theme is quantitatively weaker than the others. A philosophy or ideology is unlikely to be taught, rather it is an innate quality intimately associated with background experiences and perceptions of the world, from the researcher’s view. The school administration appeared to share this view, according to the data, by selecting potential teachers according to their levels of compassion and then providing training to enhance instructional skills and abilities to demonstrate caring actions towards students.

The quasi-statistics revealed that the theme of the site school’s leadership was the weakest. The data included approximately thirty-four mentions related to the components of the theme, which were the basis of the school atmosphere, the use of data-based instruction, and the accomplishments of the principal. The researcher considered that the apparent weakness of the theme was a result of the study’s focus on classrooms,
instead of administration. Table 9: *Comparative Strengths of the Data Themes* displayed the number of mentions for each component among the themes revealed by the data.

Table 9

*Comparative Strengths of the Data Themes*

<table>
<thead>
<tr>
<th>Data Theme</th>
<th>Component</th>
<th>Number of Mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophies Toward Students</td>
<td>Relationships</td>
<td>20</td>
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<tr>
<td></td>
<td>Mission and accountability</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Compassion and understanding</td>
<td>21</td>
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<td></td>
<td><strong>TOTAL</strong></td>
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<tr>
<td>Demonstrations of Philosophies</td>
<td>I’ll get it for you</td>
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<tr>
<td></td>
<td>Use of repetition</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Won’t accept excuses</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>I like you</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
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<tr>
<td>Personal and Professional</td>
<td>Good teachers’ examples</td>
<td>6</td>
</tr>
<tr>
<td>Backgrounds of Teachers</td>
<td>Christian schools</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>I just relate to these students</td>
<td>15</td>
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<td>-----------------------------------------------------------------------------------------------------</td>
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<td></td>
<td>I have experience</td>
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<td></td>
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<td>Site School Culture/Leadership</td>
<td>Calm atmosphere</td>
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<td></td>
<td>Data-based instruction</td>
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<td>Principal</td>
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<tr>
<td>Instructional Skills of Teachers</td>
<td>Work together</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Look at students’ prior experiences</td>
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</tr>
<tr>
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<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
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<td>14</td>
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<td></td>
<td>High level</td>
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<td></td>
<td>31</td>
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<tr>
<td></td>
<td>I teach well</td>
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<td></td>
<td>8</td>
<td></td>
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<tr>
<td></td>
<td>Explicit or direct teaching</td>
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<td></td>
<td>16</td>
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<td></td>
<td><strong>TOTAL</strong></td>
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<td></td>
<td>106</td>
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</table>

Table 9: *Comparative Strengths of the Data Themes* indicated that the strongest themes were the demonstrations of teachers’ philosophies towards students and teachers’ instructional skills. The second strongest themes were teachers’ philosophies. The weakest themes, as determined by the number of mentions in the data, were school environment and teachers’ backgrounds.
**FINDINGS CONCERNING THE GUIDING QUESTIONS**

The following paragraphs describe the data support for the research questions that guided the data collection.

**Question #1**

The first guiding question in the case study was: *How, if at all, did the teachers’ background experiences and professional training prepare them to teach in a high poverty science classroom?* Interview data yielded four components of the theme of participants’ personal and professional backgrounds. Expressed in the participants’ words, those components were “I had teachers that were especially good”, “Christian schools modeled kindness for me”, “I guess I just relate to these kids”, and “I have experience”. All except one of the seven teachers participating in this study related memories of caring teachers who had taught them as children, and examples of kindness and gentleness modeled for them in Christian schools, in the church, and by godly parents. Childhood experiences with poverty, learning difficulties, losing weight, and gaining acceptance from others increased their sensitivity and understanding towards others in similar circumstances. All of the teachers had benefitted from formal teacher-training programs, post-graduate studies, and professional development provided through the school district. Two teachers had master’s degrees in Divergent Learning and all of them had received training in the use of AVID strategies. Professional training was discussed more often than personal experiences; observation data recorded the use of AVID and classroom technology in every classroom. Teachers described their personal experiences candidly as though they were telling a story; in every one of those stories, teachers indicated that those experiences had shaped their identity. Two representative
comments were “They have made me who I am” and “They allowed me to understand our students.”

Thus, the data revealed that past experiences had helped these teachers to become kind, caring, understanding, and sensitive towards children living in poverty conditions; additionally, professional and formal training had advanced their instructional skills.

**Question #2**

The second guiding question in the case study was: *What ideologies and philosophies do the teachers have towards their students?* In this case study, interview data revealed four components of the theme of participants’ ideologies and philosophies towards students at the site school. Their philosophies included the conviction that working to build relationships with students must precede instruction, a sense of mission or civic duty regarding their work, a view that understanding and compassion are essential for their success, and the acceptable of their personal and professional accountability for student success.

Every participant expressed a conviction that relationships are the key to effective teaching; the building of a relationship was viewed as a prerequisite to teaching. “I have to know them first,” one teacher asserted. The principal promoted relationships between teachers and students, telling teachers to spend the first week of school ‘working on relationships’ (P1).

The sense of mission was viewed in teachers’ work ethic and general happiness in their teaching positions. Participants expressed their sense of mission in teaching at a high poverty school as a means of ‘doing the right thing’ and ‘helping other less fortunate people’. Practical expressions of those feelings included the delivery of Christmas gifts to the neediest students and mentoring students after school hours; one teacher who
denied having a sense of mission stated that he put everything into doing his job well, because that was the way he had been raised (8B). All teachers expressed a value for every child, regardless of their backgrounds.

The data revealed the administration’s view that understanding and compassion were essential for teaching success. The school’s administration valued the qualities of common sense, understanding, and compassion so highly that they closely questioned prospective teachers regarding these character qualities (P2). Observation data recorded teachers’ demonstrations of understanding towards students in the provision for extended time for homework assignments and in their patient ways of relating to students.

The data revealed that teachers considered themselves to be ultimately responsible for their students’ success. Six of the seven participants also communicated their determination to make the most of their time with their students. The researcher viewed the on-going collaboration among grade-level teachers as an expression of their sense of accountability for their students. “If I have to make you make flashcards, I will” revealing a sense of accountability for student achievement.

Teachers’ sense of accountability was closely linked to their determination not to make excuses for students’ low achievement. Although teachers’ knew that poverty was generally linked to academic failure, they refused to allow that knowledge to discourage their teaching efforts. As the assistant principal stated, “Poor doesn’t mean stupid.”

**Question #3**

The third guiding question was: *What, if any, classroom actions depict teachers’ philosophies towards the students?* Observation, interview, and photographic data revealed the theme ‘Demonstrations of participants’ philosophies towards students at the site school’. Expressed in participants’ words, the five descriptive components
comprising the theme of demonstrations of philosophies were “I’ll give you some”, “You have to repeat everything”, “Poverty is not an excuse”, “If a student knows I care”, and “I like you guys”. Teachers were observed giving students needed materials, repeating content information, communicating their expectations for student achievement, using the words “No excuses! You can do this assignment (7B)!”. The data recorded teachers’ demonstrating care and concern towards students, while also expressing words of affection for them and clearly enjoying their time with students.

Teachers were observed giving notebooks and arranging textbooks on students’ desktops for access, celebrating their grades and when they just ‘passed every subject.’ Teachers planned to use a lot of repetition in their instruction, because as one teacher succinctly said, “If they don’t get it here, they don’t get it (6B).” At least one teacher reflected that the repetition was intended to compensate for students’ lack of home support. The philosophy that teachers were ultimately accountable for student achievement was observed in teachers using a lot of repetition.

Teachers expressed their expectations for students in clear, but kind terms, including the exhortation, “I need you to do this work, that’s all there is to it (6A);” and another reminder, “You can do this, no excuses (6B)!”. Teachers’ reactions towards students’ slowness in grasping a new concept was met with both humor, such as “Ewww, you’re rusty today!” and exasperation, with another teacher saying, “Come one, you know this! (7A)”

The researcher suggested possible connections between teachers’ philosophies toward students and teachers’ actions. Those connections were listed in Table 10:

Possible Connections between Philosophies and Actions. The view towards relationships was expressed by their affection towards students and enjoyment in
teaching them. The sense of mission, also expressed as a response to civic duty, including a sense of accountability for student success, was demonstrated by high expectations for achievement. The component of compassion was demonstrated by their generosity towards students and meeting their needs for school materials. The component of understanding was demonstrated in teachers’ plans to repeat instructional content and other expectations.

Table 10


tabular format:

<table>
<thead>
<tr>
<th>Component of philosophy towards students</th>
<th>Demonstration of that component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationships are the key to success with these students.</td>
<td>I like them. I care for students.</td>
</tr>
<tr>
<td>I have a sense of mission or civic duty. I am accountable for their success.</td>
<td>I communicate high expectations for their achievement.</td>
</tr>
<tr>
<td>Compassion is essential.</td>
<td>I give things to students.</td>
</tr>
<tr>
<td>Understanding is important.</td>
<td>I use a lot of repetition in every that I do.</td>
</tr>
</tbody>
</table>

Question #4

The fourth guiding question was: How, if at all, does the school environment and culture affect science achievement? Interview and observation data revealed three components of the theme of ‘the leadership and culture of the site school’ after the researcher’s memos recorded the pervasive calmness and peaceful of the site school. Expressed in the participants’ words, those three components comprising the theme of the leadership and culture of the site school were “The atmosphere you see here results
from relationships”, “They have data-driven instruction and the state standards”, and “The principal gets it done”.

Teachers’ classrooms were stable environments. Once the door was shut, hallway noises were eliminated, and class began. Teachers’ voices remained calm, with a volume neither too loud nor too soft. When questioned concerning the source of the calmness, the school principal explained that “the calmness that you sense here is due to relationships. I tell my teachers to spend the entire first week of school working on relationships.” Thus, the researcher’s presence during the thirtieth week of school provided an opportunity to observe the success of those efforts to build relationships with students.

The instructional coach at the site school explained the success of the science teachers saying, “They have data-driven instruction and the state science standards.” Both the ready access to the extensive science document on the state’s website and the extensive use technology for formative assessment informed the content and pace of instruction, in addition to the results of item analyses completed by teachers following summative assessments. “Technology is a big part of this school and you need to put it in your paper,” Teacher 7B said. Because the use of technology was a common component of every classroom, the researcher viewed it as a factor of the overall school environment.

The specific forms of data that guided instruction were Senteo software, a large data board that recorded multiple years of standardized test score results, an absolute value worksheet, and feedback to teachers by administrators who observed their classroom instruction. Senteo software revealed the percentages of students in one classroom that correctly answered questions; the teacher reacted to low percentages with review and repetition of content and further questioning. A data board in an
administration conference room collated standardized test scores and quarterly student grades to identify groups that required remediation or enrichment. An Absolute Value Worksheet, designed by an assistant administrator, depicted the average PASS scores of each teacher’s students; the worksheet informed administrators of the absolute student progress that could be considered the product of the individual teacher’s instruction (Appendix H). Additionally, frequent ‘walk though’ classroom observations informed administrators of teachers’ needs for strategy and content information. The feedback and assistance given to teachers by administrators helped improve their instruction, according to the assistant principal.

The data revealed the strength and vision of the school principal, who appeared to be the source of teachers’ philosophies toward relationships, a sense of being ultimately accountable for students’ achievement, and the need for compassion and understanding towards students at the site school. Both the principal and the assistant principal developed the system of data-based instruction, according to interview data. The principal’s centrality in the school’s success was noted in the data with comments such as, “The principal came in here and turned things around,” and “the principal is the heart and soul of this school” and “the principal sees what needs to be done, goes after it, and gets it done.” The data led the researcher to conclude that the teachers’ philosophies and success was largely based on the accessibility of test score data to guide their instruction, and the direction, encouragement, and inspiration of a strong, visionary leader.

FINDINGS CONCERNING INSTRUCTIONAL SKILLS

Interview and observation data revealed the theme of the instructional skills of the study’s participants, although the guiding questions did not anticipate the existence of the theme. The five components of the theme, expressed in the participants words, were “We
work closely together”, “I have to look at what they have experienced”, “I’ve got it under control”, “Teachers teach on a high level”, and “The only way I know to teach is good”.

Questioning strategies in conjunction with direct and explicit instruction dominated classroom observation data. Cooperative learning strategies were viewed during lab activities, in which the teacher assigned pairs of students to work together at a table. Interview data recorded that teachers assessed students’ prior knowledge informally at the beginning of a unit of instruction using questioning strategies. Students’ knowledge was frequently assessed informally during the class discussions. When limited understanding or misconceptions were apparent, due to students giving incorrect answers to content questions, the teacher provided examples to connect the content to students’ experiences outside of school.

Teachers recognized that students’ “backgrounds were not broad in any way (6A)”, and as a result, they found ways to connect the content with students’ limited experiences. Teacher 6A stated, “I have to look at what they might have experienced, and then pull it in.” The data included the inclusion of cartoon characters, elements in nature, weather events, children’s toys, and experiences of going hungry in science lessons. The researcher noted students’ unbroken attention to the lesson and the teacher words during discussions involving familiar events and lessons, thus the researcher noted the apparent effectiveness of it.

Interview data revealed that ‘working together’ made all the difference in teaching skill and ‘explained the success of the science teachers,’ according to the site school’s principal. Their working together enhanced lesson planning and writing assessments, according to the instructional coach, while ‘making lessons real’ promoted learning (6A). Teachers worked together in collaborative groups, following the training
by the instructional coach several years ago. Although the instructional coach stopped
working directly with science teachers in 2009 to focus entirely on the math teachers, the
science teachers continued to meet together for lesson planning, assessments, and item
analyses. Observation data recorded all classrooms functioning without explicit
directions, although one teacher stated the need to remind students of ‘what to do, even
on day 164.’

High functioning classrooms are vital for student achievement, according to the
MSU director Tom Peters (personal conversation with researcher, May 2011).
Observation data and the researcher’s memos recorded the absence of any prolonged
classroom disruption. Students that interrupted the teacher’s discussion were disciplined
in low-key ways, such as on teacher’s comment: ‘You don’t need to say that; I’ve got it
under control (8B).’ Another teacher gave a student who made a comment off-the-
subject a writing assignment, saying “how about doing this for me three times (7A)?”
Because none of the data recorded the loss of control by the teacher, the researcher
concluded that teachers were highly skilled in maintaining classroom control.

“Teachers teach on a high level here” at the site school, said Teacher 6A.
Observation data recorded teachers’ requiring students to write Cornell notes in class,
using questioning strategies that mandated more than simple one word answers, internet
searches for information, complex reading notes, and the writing of review guides prior
to unit tests. The data supported the conclusion that teachers taught on a high level at the
site school and helped to explain the high ranking of the students’ test scores on the
PASS.

The interview data revealed the confidence that the teachers had in their teaching
abilities. According to Teacher 7A, “The only way I know to teach is good.” Although
the researcher was unable to conclude whether the confidence existed prior to the students’ success on the PASS, the data recorded all teachers except for one voicing their confidence in their teaching, thus the researcher concluded that confidence was a component of their instructional skills.

**SUMMARY OF RESULTS/FINDINGS**

Chapter 4 presented the descriptive framework for the five themes revealed in the data obtained through interviews, observations, school document inspection, review of photographs, and the researcher’s memos. Providing a vivid description of teachers in a high poverty middle school, the largest themes were participants’ philosophies, demonstrations of their philosophies, personal and professional experiences, the culture of the site school, and participants’ instructional skills. The framework used the participants’ words to identify the components of each theme. The discussion that followed justified the connection of each component to one of the themes. A theoretical analysis of the data was tentatively presented. Its credibility was limited due to the lack of corroboration by participants; the researcher did not apply member-checking to the theoretical analysis. The following chapter presents the conclusions of this study, suggests several avenues of further research, and presents the study’s implications.
CHAPTER FIVE: DISCUSSION

The intent of this case study was to add to the body of research regarding effective teachers in high poverty schools by describing successful science teachers in a middle school in South Carolina. The researcher purposefully selected all of the science teachers at the site school after learning that students’ 2010 science test scores on the PASS ranked second in the state. The high ranking of a science department in a high-poverty school was contrary to an abundance of research linking students’ poverty conditions to low achievement (Harris, 2007; McKinsey and Company, 2009).

The data revealed the themes of participants’ philosophies, demonstrations of their philosophies, personal and professional experiences, the culture, and leadership of the site school, and science instructional skills. The chapter also details the study’s shortcomings and limitations, suggested some avenues of further research, and then described the implications of the findings of this study.

SUMMARY OF DESCRIPTIVE THEMES IN THE DATA

Observation and interview data, supported by data from school documents, researcher’s memos, and school photographs, revealed five descriptive themes that answered the case study’s guiding questions, which did not anticipate the fifth theme.

The theme of personal and professional backgrounds explained that teachers remembered caring examples, kind actions, and difficult experiences earlier in life and included those lessons learned in their actions toward students.

The theme of philosophies toward students described the priority of relationships, understanding, and compassion in their ideologies. Their philosophies included a sense of being accountable for student achievement and a sense that their work was a ministry or a fulfillment of civic duty.
Their provisions of student needs, teachers’ plans for repetitive instruction, a refusal to accept poverty as an excuse for low achievement, their efforts to demonstrate care and concern, and their affection towards students were viewed as demonstrations of their philosophy. The essence of teachers’ philosophies was that relationships provided an avenue through which their teaching could be effective. That philosophy was demonstrated in caring actions towards students.

The site school’s environment was peaceful, due to the relationships among teachers and students. The school environment provided teachers with access to test score data to guide instructional decisions, while a strong school principal articulated a philosophy towards students living in poverty and provided training to enhance teachers’ skills. Its leadership promoted data-based instruction, developing instruments as needed to assist in tracking test score data, recruiting an instructional coach to train teachers to use data effectively, and using classroom observations as opportunities to improve the quality of teacher instruction. The principal was strong, energetic, and persistent, as one teacher said, the principal “sees what is needed, goes after it, and gets it done.” The high ranking test scores seem to testify to the effectiveness of the teachers’ and principal’s efforts to get things done.

The teachers’ instructional skills, as a major theme in the data, included regular meetings for purposes of collaboration with grade level teachers, the use of students’ background experiences to illustrate content information, skills in maintaining high-functioning classrooms, and the promotion of high levels of thinking among students. Teachers expressed confidence in their abilities to effectively teach students, thus implying a commitment to continue teaching at the site school.

CONNECTIONS TO PREVIOUS RESEARCH
The data revealed that the leaders in a high poverty middle school in South Carolina had understanding and compassion for students who are living in poverty conditions. Leaders at the site school carefully questioned prospective teachers regarding the prospect’s sense of compassion, which the school’s leaders viewed as an essential component of teaching success.

This case study’s data confirmed many of the conclusions noted in the literature review identifying the outstanding common features of high-performing high poverty schools. Among the confirmations were leadership qualities (O’Day, 2002; Reeves, 2005), a focus on caring teacher-student relationships (Gorski, 2007; Haberman, 1991; Halvorsen et al, 2009; Spivey, 2006), direct and explicit teaching (Engelmann, 2001; Izumi, 2003; Minnett, 2003), connecting student experiences to content (Marzano, 2003; Powell, 2010), providing experiences in the classroom (Gorski, 2007; Haberman, 1991; Halverson et al, 2009); demonstrating understanding for student needs (Spivey, 2006), and teachers’ reports of confidence in their teaching ability (Spivey, 2006).

The findings of this case study extended research conclusions in the literature to the content area of middle school science, regarding the relationship between teacher skills, school qualities, and student achievement in high poverty schools (Brookover et al, 1982; Chenoweth, 2007; Cotton, 2003; Edmonds, 1979; Gaziel, 2007; Leader & Stern, 2008; Lezotte, 2010; Reeves, 2005). The participants in this case study were highly skilled teachers who managed their classrooms well and used their relationships with students to promote instruction. The identified gap, which this study addressed, was the specific philosophies or ideologies of teachers in a high poverty school and the demonstrations of their philosophy.

**Research on Poverty**
The level of income of students’ parents or guardians was the largest predictor of low academic achievement in the United States. In South Carolina, only 36% of students living in poverty were proficient in science in 2008, while over 70% of students living in affluent conditions exhibited proficiency (Harris, 2007; McKinsey & Company, 2009; Rocha & Sharkey, 2005; Sanders et al, 2009). Yet this study’s site and its data demonstrated that high achievement in a peaceful environment can be realized through effective leadership, a focus on caring relationships with students, the use of data-based instruction, a lot of repetition, and accepting accountability for students’ success. The site school’s second place rank on the state’s 2010 PASS science test proved those actions can lead to high achievement among students living in poverty conditions.

**Research on Science Instructional Strategies**

Izumi (2003) noted the prevalence of direct and explicit instruction among high-poverty elementary schools; likewise, this case study noted the abundant use of this strategy in a high-poverty middle school. This researcher also noted the use of questioning strategies (Alic, 2001; National Research Council, 2003) that assessed prior knowledge and connected student experience to science content. Learning theory views students as active processors of information (Bransford et al, 1999; Donovan & Bransford, 2005); the questioning strategies used by the site school teachers were purposefully designed to engage all students in the learning.

Although the NSTA has recommended the use of cooperative and inquiry-based learning (National Science Teachers Association, 2003), the data in this case study noted only a limited use of that instructional strategy. Teachers paired students for lab activities and classroom investigations and then acted as a coach and guide while students completed the activity.
Research on Leadership

One of the foremost characteristics of high-performing, high-poverty schools found in both quantitative and qualitative studies was strong leadership, finding that 25% of student achievement attributable to the principal’s impact (New Leaders for New Schools, 2009). Components of effective school leadership were communications of expectations for student achievement and teacher excellence (O’Day, 2002; Reeves, 2005), maintaining a focus on learning through instructional leadership and regular monitoring of student learning within an orderly school environment (Carmon, 2009; Cotton, 2003; Leithwood & Montgomery, 1982; Waters et al, 2003). The data in the present study revealed all of those leadership qualities at the site school, with the addition of the data regarding the principal’s low-key manner of relating to others, expressed in the words, “I just talk with my teachers. That’s how we do things. We read books together and we study together.” An important finding in this study was the affirmation of Bartell’s (1990) observation that effective principals provide constructive feedback and communicate clear expectations, resulting in an indirect but significant effect on student achievement (Cotton, 2003).

Teachers at the site school described the significant strength of the principal; one revealing comment was “the principal sees what’s needed, goes after it, and gets it done,” including leading the school to be named an AVID National Demonstration Site and applying successfully to have an instructional science coach appointed to the school. The assistant principal for instruction was found to be a leader in professional development, with a concentration on AVID strategy instruction; the assistant principal for instruction stated, “AVID teaches organizational skills and promotes critical thinking skills that these students are not getting from their homes.” School administrators created a data board
and an absolute value worksheet to guide teachers in pacing their instruction. Thus, the site school’s leadership represented research conclusions in tangible ways that illustrated students’ poverty living conditions do not automatically relegate them to the ranks of low-achievers (Anfara, Andres, & Mertens, 2003; Pascopella, 2009; Reeves, 2005).

**Research on Relationships with Students**

This case study’s data confirmed the finding that the principal’s leadership style in high-achieving schools resembled a promoter (Seashore et al, 2010); teachers were told to concentrate on building relationships with students for the entire first week of school, because “children will work for you if they know you care.” Although teachers’ efforts to build personal relationships with students had a prominent place among the observed characteristics of high-performing, high-poverty schools (Haberman, 1995; Halverson et al, 2009), specific characteristics of the student-teacher relationship were not found in the researcher’s review of the literature.

Erb (2001) in speaking for the National Middle School Association recommended that the emotional environment of the classroom should be positive. Details of a positive classroom environment were revealed in the data to be caring actions, provisions for school materials, comfortable seating, gifts, mentoring activities, Christmas gifts, friendliness, concern for their well-being, praise for their accomplishments, and kind words.

While relationships encouraged students’ desire to learn, according to the site school’s principal, teachers’ skills advanced the achievement of students more than any other component of an effective school (Balfanz & Byrnes, 2002; Nye et al, 2004, New Leaders for New Schools, 2009). The data from this case study confirmed those conclusions with rich details of teachers’ instructional skills, ability to relate content to
children’s background knowledge, and creating experiences on which students could build additional knowledge.

**Research on Classroom Actions**

The present study’s observation data implied teachers’ preference for explicit teaching; it also recorded teachers’ ability to connect science content to students’ background experiences. In this way, the data supported Izumi (2003) and Minnett’s (2003) observation of the effectiveness of explicit and direct teaching with children living in poverty. Additionally, the data revealed the use of strategies associated with AVID, which was designed to advance students living in poverty by addressing the deficiencies in their knowledge (Sapp, 2006). Cornell note-taking, advanced writing assignments, and questioning strategies were three of the AVID strategies observed by the researcher at the site school. The data revealed the use of direct instruction in every classroom and the adaptation of AVID strategies to the teaching of science, suggesting that the effectiveness of the teachers at the site school was based, at least partially, on the use of those strategies.

Spivey (2006) suggested teachers’ personal philosophies seemed to drive their decisionmaking in implementing strategies that make connections with students. The current study provided support for Spivey’s suggestion. Support and understanding were demonstrated in teachers’ allowing extended time for students to complete homework, even assisting them during class time and after school. Data describing teachers’ efforts to make lessons real appeared to follow the recommendations of the National Middle School Association that lessons be set in real world contexts (Powell, 2010). One representative comment was, “I have to know them, so I can pull in things from their backgrounds.” Data recorded teachers making connections between science content and
sports examples, television cartoons, current weather events, lack of adequate food and shelter, and even the involvement of family members in crime. In addition to teachers’ efforts to connect student experiences to classroom instruction, another finding in the data that confirmed research conclusions was teachers’ constructing classroom experiences to support a general base of knowledge (Gorski, 2007; Haberman, 1991; Halverson et al, 2009).

The researcher observed the apparent implementation of other specific recommendations of the National Middle School Association at the site school (Powell, 2010, pp. 9-10). Teacher continuously monitored learning, used an informal question-and-answer strategy, and scaffolded instruction when students incorrectly answered teachers’ questions on content. They allowed students to touch and manipulate science materials, because they learn by doing at this age, according to the NMSA (Erb, 2001; Jackson & Davis, 2000); teachers supported students’ intellectual development by asking questions that required them to pause and reflect prior to answering. The case study’s data revealed the commitment of the participants to tailor instruction to student development and intellectual needs (Lipsitz et al, 1997; Repetto et al., 2006). Thus, the data illustrated practically all of the main components of high-performing high-poverty schools, which were strong leadership, teachers’ efforts to build personal relationships with students, the use of explicit teaching methods, connecting student experiences to classroom instruction, and providing experiences to support a general base of knowledge.

**Research on Teacher’s Philosophies towards Students**

A philosophy that viewed the building of relationships as a prerequisite for learning was found in this study’s interview data from two school administrators and
seven teachers; observation data recorded classroom actions of every teacher directed towards relationship building. The dominant theme of teacher-student relationships with students and their critical place in the instructional process confirmed the observations of Gorski (2007), Haberman (1991), and Halverson et al (2009) that teachers’ efforts to build personal relationships with students was a commonality among high-poverty, high-performing schools.

One of the goals of the present study was to discover not only actions representing a philosophy but also the origin of the philosophy, that is, what background experiences contributed towards its formation. Just as Ladson-Billings (2001) described the impact of eye-opening experiences on teachers’ philosophies towards students living in poverty, the data in this study presented some personal background experiences of its participants, including growing up in poverty conditions, struggling to learn in school, enduring social rejection, and witnessing their own students’ deprivations of basic necessities. Two representative, poignant comments in these data were “those experiences made me who I am today” and “I guess I just understand [these students] better” because of them. Such experiences deeply affected their outlook, increased their sensitivity toward students, and caused some re-evaluation of the way they taught (Ladson-Billings, 2001). Freedman and Appleman (2009) have suggested teacher education programs instill a sense of mission that would increase the effectiveness and the commitment for teaching in difficult environments. This study suggested that the direct experience with those who are living in poverty assisted in the construction of a sense of mission.

This study’s data indicated that teachers’ philosophies towards students living in poverty contained a sense of mission. Participants in the present study described their work as a means of fulfilling “one’s civic duty and obligation to give back to society,”
doing “the right thing,” and ensuring that children living in poverty receive equitable educational experiences. Thus the data provided descriptive details of teachers’ sense of mission and its source, adding weight to suggestions by Freedman and Appleman (2009), who concluded that teacher education programs can instill a sense of mission that undergirds effective teaching and increases a commitment to continue teaching in difficult environments.

**Research on Data-based Instruction**

The prolific use of data to guide instruction at the site school was revealed in the data, in addition to revealing teacher’s sense of mission and the connection between relationships and instructional effectiveness; resulting in a suggestion that the students achievement at the site school, as measured by the 2010 PASS science test, was due to the application of test score data to the pace and content of teaching. One representative comment in the data was, “When I know one class scored low on PASS last year, I repeat more of the content and plan additional practice activities for them.” The site school corroborated the observations of Cotton (2003) and Lezotte (2010) that high achieving schools tend to regularly monitor student learning by tracking student learning multiple ways, both with immediate response systems in the classroom and longitudinal records, such as data boards maintained in the site school’s conference room.

**Research on the School Environment**

Data from the researcher’s memos and photographs of the school noted that orderliness and a sense of safety within the school building were accompanied by posters, signs, and displays expressing the school’s expectations for student achievement. Those observations, in addition to the availability of data-based instruction and the focus on relationships, confirmed Lezotte’s (2010) summary of the attributes of high achieving
schools and Daniel’s (2004) quantitative comparison of low-performing and high-performing schools. Safety and orderliness were implied by data recording student movement between classes, while achievement expectations were implied by wall displays and street signs that identified hallways and stair wells. A comment referring to expectations for achievement in the data was the admonishment, “No excuses for not doing your homework. I am convinced that every one of you can complete this project.”

All of the sources of data for the present study recorded those precise attributes of safety, orderliness, and high expectations at the site school: the researchers’ written memos, observations, interviews, and photographs. The principal’s explanation, “The calm and peaceful atmosphere that you sense here results from our relationships with our students,” confirmed the views of Kannapel and Clements (2005) and Jesse, Davis, & Pokorny (2004) of the interconnections between high expectations and caring relationships. Thus, the data suggested that the orderliness of the school environment was a by-product of amicable, caring relationships between teachers and their students.

**Summary of Previous Research**

This case study confirmed previous research conclusions regarding the outstanding attributes of high-performing, high-poverty schools, including a calm environment, the use of data-based instruction, and a focus on relationships as a means to boost student achievement. Additionally, the data revealed the implementation of many of the recommendations of the National Middle School Association. The only observed deviation from the National Middle School Association recommendations was the site school’s preference for direct, explicit teaching rather than inquiry teaching, which the National Middle School Association strongly recommended in *Turning Points 2000*. 
Contributions of this study’s data to the research base were the inter-related components of compassion, understanding, and common sense among the attributes of the teachers; secondly, this study’s data contributed to theory on teachers’ philosophies and thought processes towards their students living in poverty. The data here noted that teachers cared for their students, not just because the principal practically required it via oral injunctions and written memos, but their sense of mission, their understanding, and their desire to do the right thing motivated them towards high levels of effectiveness in both instruction and their relationships. Those two aspects of the school environment—relationships and instruction—were so closely entwined in the data that they appeared practically as one concept, indicating that the level of effectiveness depended on their level of caring, concern, and understanding. In those respects, the data confirmed research observations on the attributes of high achieving, high poverty schools, with the delimitation of this study’s focus on teachers in one content area rather than an entire school.

CONNECTIONS TO THEORY

The data suggested an extension of cognitive-perceptual theory, which posits that one’s understandings of past experiences influence the types of behavior and thought patterns in the present. The analysis of this study’s data suggested that the tenets of cognitive-perceptual theory could be applied to effective teaching in a high poverty school, especially its position that perceptions of personal experiences in the past impacts one’s behavior in the present (Bruhn, 1990) and sets the stage for altruistic forms of behavior (Ferguson, 2003; Monroe & Epperson, 1994; Moore, 1996; Schacter & Thum, 2004). A third of the teachers at the site school had been inspired by caring teachers, Christian schools had modeled kindness for half of the teachers, and every teacher had
learned to care for other people through childhood experiences. During their early years, teachers had formed deep emotional bonds with family members, learned moral virtues from diligent parent, experienced varieties of closeness with God, overcame learning difficulties, and struggled to be accepted by society.

Additionally, the refusal of the teachers to accept payment for their participation suggested that they were intrinsically motivated rather than extrinsically motivated. In view of their observed generosity towards students, as seen in providing school materials, donating money for Christmas gifts, and efforts to form warm relationships with students, their refusal to accept compensation confirmed the data. Although the study’s data did not indicate the mechanisms by which teachers had developed compassion and understanding for their students, the researcher concluded that teachers’ perceptions of a variety of previous experiences contributed to their philosophies towards their students.

In the researcher’s view, the critical factor in the memories of those experiences, the good and the bad, was that individuals’ personalities filtered those memories so that the outcome was kind and compassionate actions, rather than bitterness or a sense of entitlement. Happy and pleasant memories evidently inspired helping and optimistic actions, while difficulties and grief seem to have motivated teachers towards providing care and concern to students in various difficulties. Rather than scorning their students who lacked material necessities, consistently did not complete homework, and needed continuous review, the teachers at the site school provided effective instruction and genuine care and concern, indicating a form of altruism. According to Bell (2011), altruism is a readiness to sacrifice one’s own interests in favor of the interests of others. Because the data recorded actions resembling altruism and teachers’ comments that past
experiences molded their views, the data suggested a link between cognitive-perceptual theory and effective teaching in a high poverty school.

**SHORTCOMINGS AND LIMITATIONS OF THE STUDY**

This case study’s shortcomings and limitations were the fallibility of a human being who controlled data collection and analysis, the unavoidable subjectivity of the data, and the poverty conditions of students at the site school (Bogdan & Biklen, 2007). Efforts to ensure the trustworthiness of the data, as discussed in Chapter 4, addressed the potential shortcoming of a single person analyzing the data; the triangulation of the data sources reduced the inevitable subjectivity of a case study.

**The Research Instrument**

This case study had a single researcher who was teaching science at a school less than five miles from the site school to the older siblings of students at the site school. In addition to that potential bias, the researcher recognized a special feeling towards good teachers in high-poverty situations. After accepting a fifteen-year-old teenager as a family member and working through associated parenting issues, the researcher recognized some bias towards others in similar circumstances. Initially, the researcher recognized a personal favoritism towards teachers at the site school, because of their efforts to improve the lives of children living in poverty. As the data collection commenced, however, the researcher became focused on the actions and the words of the study’s participants. The researcher was able to overcome that initial subjectivity and all of the recognized biases in order to objectively record and analyze the data for this case study.

**Reliability of Data Analysis**
Some limitations existed in the data analysis due to a failure to determine inter-rater reliability. Although a small portion of the data was coded by doctoral-level colleagues in a manner that corresponded with the researcher’s codes with only one exception, the reliability of the code checking process was not determined. Transcripts were provided to all participants as a means to check their accuracy; however, three of the eleven participants did not comment on their transcripts, suggesting an additional limitation in the data analysis. The main components of the descriptive data framework and the second-tier data were also given to all of the participants, but only three responded in very limited ways, thus creating additional limitations on the data analysis.

**Subjective Data**

Although the researcher objectively recorded data, the potential for subjectivity remained; the triangulation of the data sources was designed to help reduce that potential subjectivity. Not only was each participant formally interviewed several times, but also the researcher had multiple short informal conversations with each one. Other sources of data were classroom observations, school documents, the researcher’s memos, and photographs; in addition to the seven science teachers, participants were two school administrators and a science coach whose contributions enriched the data.

Personal conversations with other school personnel provided confirmations of participants’ comments; nevertheless, the possibility remained for the representation of less-than-accurate recordings of teachers’ classroom actions and thoughts towards their students. Referring to this possibility, one teacher was recorded in the data saying “Some teachers will put on a ‘dog-and-pony show’ for you, but I am going to do what I always do; I’m not going to act any different when you are in my classroom.” Clearly the
possibility for subjectivity existed; however, the number of different data sources reduced the subjectivity and increased the data’s trustworthiness.

**The Participants**

The triangulation of the data sources may not have been sufficient to overcome peer influences among the teachers, which may have influenced the data that they provided to the researcher (Caldas & Bankston, 1997; Hattie, 2003). Both of the seventh grade teachers and the principal referred to a high level of competitiveness among themselves and with other schools for student test scores; that same competitive spirit may have colored their comments that they provided for the researcher.

Additionally, because the proportions of ethnicities of the teachers did not resemble students’ ethnicities (100% of the teachers were Caucasian, while only 40% of the students were Caucasian), the disproportionate mix of ethnicities may have created a limitation of this case study. Over half of the student identified as African-American, almost a fourth identified as Hispanic, less than half identified as Caucasian students. In contrast to the student mix of ethnicities, every teacher and this researcher identified as Caucasian. The potential relationship between teacher ethnicity and student achievement was not investigated; further research potentially could yield the data related to the relationship among teachers’ ethnicities, student ethnicities, and student achievement.

**Poverty Conditions of Students**

The social conditions of the type of poverty in which the students lived may have created an additional limitation on the results of this case study (Bogdan & Biklen, 2007; Payne, 1996). Students attending the site school in an urban area may have been compelled by economic or social conditions related to poverty to respond to teachers in ways that may differ from other students in other settings. According to Ruby Payne
(1996), generational poverty and situational poverty are distinctly different forms of poverty that potentially have different levels of impact upon student achievement, yet this study did not classify the form of the poverty in which students are living.

**Timing for the Study**

A major shortcoming of the study, which was delimited by its focus on one content area, was the amount of time in which data was collected. The eight weeks of data collection did not provide a full understanding of the dynamics of relationships between teachers and students, which the principal called the school’s number one priority. The current study described components of teachers’ relationships with students, including calm tones of voice, verbal affirmations of affection, and expressions of optimism towards student achievement; however, the dynamics of the formative stages of those relationships were never observed. In this study, the immediate response of students to disciplinary actions could have indicated the existence of a respected, well-established system of school discipline as well as the quality of the student-teacher relationship. The limited amount of time in which the study was conducted did not allow these determinations to be made.

The twelve weeks of data collection prevented a depth of a line of questioning to allow more complete understanding of the philosophical and psychological motivations undergirding teachers’ classroom actions. The provision of longer periods of time for teachers’ self-reflection may have resulted in deeper understandings of their philosophies and thought processes towards students living in poverty; that provision was not part of this case study (Ladson-Billings, 2001).
SUGGESTIONS FOR FURTHER RESEARCH

The outcomes of the present case study, its shortcomings, and its limitations suggested several avenues of research, including a research team, comparison studies among high-performing and low-performing schools and subject areas, ethnographic studies, leadership style investigations, and longitudinal studies. The limitation created by the subjectivity of a single researcher at a site in the same district of employment could be addressed by a team of researchers in a different part of the state.

School Types

Because the focus of this study was the qualities of effective science teachers in a high poverty middle school, further research could expand the focus to include high-ranking high poverty elementary and high schools to determine whether similarities exist in the qualities of effective teachers. With the continuing economic difficulties of the state, the results of research that investigated effective teaching at all grade levels could be very useful.

A Research Team

The collection and analysis of data by a team of researchers, rather than an individual could eliminate a lot of the problems inherent with a single researcher, including biases and too narrow of a focus. By working away from familiar surroundings, researchers could be more objective in their observations and less likely to see what they expect to see. Researchers’ ethnicities, genders, and social class should be balanced to approximate those of the participants to possibly create greater empathy. Thus, another suggestion for further research is the assembly of several individuals to confirm and extend this case study’s findings.
Studies in other Grade and Subject Areas

Because of this case study’s delimitation to science teachers, an investigation into math and language arts teaching could provide important conclusions for the three subject areas that are used to calculate AYP. A more complete understanding of the qualities of effective teachers at all grade levels in the three core subjects would support the efforts of schools towards achieving AYP.

Comparison Studies

The delimitation of this case study, which focused on a school with high-ranking scores, could be explored by including schools with low-ranking scores in a comparative case study. The teachers who participated in this study were considered effective due to their students’ standardized test scores; the philosophies and classroom behaviors of teachers whose students consistently receive low standardized test scores could be compared and contrasted to those of this study’s participants. By describing the common qualities of science teachers at both types of schools, those descriptions could be compared and contrasted. The resulting data analysis could reveal the qualities that have the highest correlation to student achievement. Research conclusions related to effective teaching are needed for all types of learning communities; no single teaching model can possibly apply to all schools in every type of community, due to content variations and student differences (Willms, 1992).

Time Frame Expansion

Because the time for data collection was limited to twelve weeks, a suggestion for further research based on this shortcoming is that an ethnographic study be conducted to allow a researcher extended time. In a longer time period, understandings could be obtained on classroom management issues that are related to student achievement.
student relationships, effective disciplinary systems, acceptance of classroom routines. The time factor that limited the depth of data related to teachers’ perceptions of the influence of past events could be addressed in a follow-up study. Reflections on past events over time may provide richer data and lead to stronger support for theory.

**School Leadership Investigations**

The qualities of the strong, central leadership at the site school suggest several interesting areas of research. Because the current study’s data contained limited data related the components of leadership in high poverty schools, a more intensive study could yield important information. A comparative case study of effective principals of high poverty schools could delineate qualities and actions that correlate to a high-functioning school, as well as contrast those qualities to principals in dysfunctional schools. The means of holding teachers accountable for implementing a specific school vision, such as the one at the site school, could be investigated.

**Longitudinal Studies**

A longitudinal study could investigate the level of academic achievement of the site school’s students when they advance to the secondary level; another study could compare and contrast the behaviors and classroom actions of these same students’ secondary teachers to the teachers at the site school. Do students form relationships with successive teachers more readily, following the experience at the site school? Do students internalize the concept of high expectations following their communication at the middle school level? A longitudinal study could address the preceding types of questions.
Case Studies of other Ethnicities

Finally, the effect of the factors unique to this study site—the pursuit of warm student relationships combined with the communication of high expectations for achievement—on other groups of students could be investigated for the possibility of determining whether this is a universal human need among school-age children. An obvious avenue of further research would be an investigation into the qualities of teachers whose students are not living in conditions of poverty. Secondly, a study could determine whether the academic achievement of children who identify as American Indians, American Eskimos, and Caucasians correlates to teacher qualities at the site school, whose students were approximately 75% African-American, 24% Caucasian, and 1% Latino/Latina.

IMPLICATIONS OF THE STUDY

This study’s conclusions confirmed research regarding relationships with students, the importance of connecting content to student backgrounds, the construction of stable classroom atmospheres, and leadership qualities among effective schools with students living in poverty. The case study of effective teachers in a high poverty middle school had implications for pre-professional teacher training, the recruitment, and selection of teachers by personnel departments, and theory development.

Pre-professional Training

The practical implications of this study’s conclusions are their potential to inform teacher training programs at the state’s universities and colleges. The economic downturn in South Carolina, ongoing since early 2009, has not improved the living conditions of students; in 2009 the census reported that one-fourth of South Carolina’s students were below the poverty level (U. S. Census, 2010). When the economic
conditions are viewed in conjunction with national reports of a persistent achievement
gap among students at various economic levels, then the need for teachers able to
effectively teach children living in poverty is clarified. By various standards, the quality
of South Carolina education hovers in the bottom half among the fifty states. The
implication is that high achievement is possible among high poverty schools, whose
numbers are increasing because of the state’s declining economy. The specific
implications for the teacher training programs are educating future teachers on the effects
of poverty on learning, providing direct experiences with poverty, training in group
dynamics, with extensive understandings of child/adolescent development, and training
in instructional strategies, such as AVID, that were designed to meet the learning needs
that are unique to students living in poverty.

**Poverty Training**

Spivey (2006) noted that teachers’ philosophies and experiences seem to drive
their decision-making in high-poverty classrooms. Teachers needed to form relationships
with students and make connections between content and students’ backgrounds. The
implication for professional education programs is that a need exists for descriptive
information regarding poverty, such as the seminar on poverty that Midlands Technical
College presents to state teachers annually. A panel discussion involving successful
teachers in high poverty schools should be a required part of the professional training
program. As one teacher in a high poverty high school lamented to the researcher in
2010, “I wish I had been given more training in the basics, instead of taking advanced
courses in higher mathematics. I need to know more of the basics.” Among those basics,
according to the implications of this study, are fundamental understandings of the nature
of poverty, its effect on learning, and strategies for meeting the learning needs that are unique to students living in poverty.

**Direct Experiences with Poverty**

As noted by Chenoweth (2007), Leader and Stern (2008), and Reeves (2004), teacher quality is the most significant factor in student achievement. Teaching effectiveness increases as connections are made between the content and students’ backgrounds; thus the implication is pre-professional programs should provide direct experiences, otherwise, they should require specific types and amounts of volunteer work among those who are living in poverty as a means of increasing students’ familiarity with poverty. Some suggested avenues for direct experiences are community organizations, such as the United Way and the Red Cross, adult education organizations, soup kitchens, and church groups. For example, the researcher’s invitation to a ‘family reunion’ at a local government housing project greatly increased familiarity with those living in poverty; likewise, weekly responsibilities providing recreation opportunities for children and volunteering in a local soup kitchen affected the level of compassion.

Pre-service training could support the development of empathy, caring and commitment to culturally-diverse classrooms (Bennett, 2008); additionally, they can instill a sense of mission that undergirds effective teaching and increases a commitment to continue teaching in difficult environments (Freedman & Appleman, 2009).

**Training in Group Dynamics**

The findings of the study revealed high levels of understanding for students and effective management of calm classrooms. The implication regarding the stability and calmness that characterized the science classrooms at the site school is that classes in group dynamics could train prospective teachers in management techniques. The
researcher’s participation in a group dynamics class in a masters’ degree program at a state university confirmed the potential of that class for classroom management. A high functioning classroom is essential for effective instruction, according to Dr. Tom Peters, the head of South Carolina’s Math/Science Unit. Teacher candidates should have deep understandings for the interactions of a group, coupled with abundant knowledge of adolescent growth and development.

**Instructional Strategies**

The implication of the results of this case study for teacher training programs is the need for teach instructional strategies that meet the needs of students living in poverty. AVID is one strategy that has proved successful, but the existence of others should be investigated. The suggestion is that teacher candidates thoroughly learn one strategy, such as AVID, present a series of lessons that implement those strategies, and respond to critiques regarding the lessons. The researcher’s pre-professional training in instructional strategies consisted on one course with content limited to lecture and discussion methodology. The current practice of many school districts in providing advanced instructional training only to current teachers does not increase the entry-level skills of teachers; therefore, the teaching training programs should address the gap.

**Teacher Recruitment and Selection**

The findings of this case study regarding the philosophies and actions of effective middle school teachers have implications for personnel departments that recruit teachers for high poverty schools. Those responsible for hiring teachers should understand the commonalities among the philosophies of this study’s participants. Although not every participant revealed every component to the same extent, their presence implies a relationship to student achievement.
The dominant component of philosophies towards students living in poverty was a sense of compassion and understanding for them. The study’s data included the information that the site school questioned prospective teachers on their level of compassion, using a list of questions that the school’s administrators had designed. The implication is that personnel departments’ hiring decisions should consider the philosophies of teacher candidates. The decisions should be based on the pattern of questioning developed by the site school, which probed the movies and book that ‘made them cry’ and the ‘types of people that made them mad’. Answers to those questions evidenced the presence of compassion, while a question such as, “What is your philosophy toward teaching?” may yield an answer with no connection to the important aspect of compassion.

Theory Development

Theoretically, the data implied that cognitive-perceptual theory can help identify individuals who tend to have personal qualities that would support successful teaching in a high poverty classroom. The theory may be extended to other kinds of student populations through further research. The data regarding personal characteristics of teachers who participated in this study revealed the qualities of compassion, sympathy, flexibility, and understanding for students who are living in poverty. Interview data revealed the understanding that these qualities were connected to prior experiences. The matching of past experiences to present needs would need to be further understood; however, for the delimitations of this study of science teachers in a high poverty middle school, the implication was that conclusions provided some support for the theory.
Conclusion

The data revealed that the leaders in a high poverty middle school in South Carolina have provided training to enhance the instruction of highly-skilled teachers who have understanding and compassion for young people living in poverty conditions. The motivation for this case study was to understand effective science teaching in a high-poverty urban middle school in South Carolina, whose students exhibited high achievement that was contrary to most research conclusions. The guiding questions were designed to guide the descriptive case study methodology and obtain descriptions of teachers’ philosophies toward students, classroom actions that demonstrated their philosophies, their related personal and professional experiences, and the school’s environment and leadership. The data revealed answers to the guiding questions and an extensive description of the teachers’ instructional skills.

Implications of the study’s findings for pre-professional training involve coursework, seminars, and supervised experiences with poverty conditions; implications for personnel departments consist of using the pre-employment interview time to investigate prospective teachers’ philosophies toward students living in poverty. Implications for the development of Cognitive-Perceptual theory are for further research that is validated by participants, to better understand the effect of their perceptions on their classroom actions. Finally, the desire of the researcher is to communicate this study’s findings in order to advance the achievement of a growing segment of students in South Carolina, which is students living in poverty.
EPILOGUE

The end of the data collection for this case study coincided with the administration of the 2011 PASS test to the students at the site school. Following the scoring of the test, rankings among school in South Carolina were published. For the second year, the site school ranked second in the state on the PASS science test. The top-ranked school was a small magnet school with twenty-four students; the site school was a public, non-magnet school with 144 students. “Still one of the BEST in the state!!” exclaimed Gregory MacDougall, a professor at the University of South Carolina and an associate with the state’s science leadership. The researcher was honored to witness the work of the teachers at the site school, who continue to prove excellence is possible, even among students living in poverty.

Those who are interested in the school itself should note that Southwood Middle School as represented in this study does not exist. The school district built a new school, reorganized attendance guidelines, and moved most of Southwood’s teachers to the new school. The percent of students living at the poverty level has decreased at the new school. Further information can be obtained at the Anderson District 5 office in Anderson, South Carolina.
REFERENCES


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poverty-good news or bad news? *Current Issues in Education* [On-line], 6(8).


Good Morning Georgette,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. Attached you’ll find the forms for those cases.

Thank you for your cooperation with the IRB and we wish you well with your research project. We will be glad to send you a written memo from the Liberty IRB, as needed, upon request.

Sincerely,

Fernando Garzon, Psy.D.
IRB Chair, Associate Professor
Center for Counseling & Family Studies

(434) 592-5054
March 18, 2011

Mrs. Meyer,

I received your request to implement a case study specifically focused on the science program at Southwood Middle School. As proposed, your case study will examine and document the successful teaching practices in the area of science at Southwood Middle School. The rationale for this study is based upon the school’s science test scores. Anderson School District Five enthusiastically endorses your proposal for this case study and would be most interested in reviewing your findings when complete.

Most sincerely,

Wm. R. Dukes III
Assistant Superintendent

cc: Betty Bagley, Superintendent
    Evelyn Murphy, Southwood MS Principal
APPENDIX C: PARTICIPANTS’ AGREEMENT TO PARTICIPATE

You are being recruited for a very special project, which is a case study on the effectiveness of the science department at your school. Because the 2010 PASS scores are ranked second in South Carolina, a very impressive standing in view of the student backgrounds, you are being requested to join this study. Its purpose is to describe the characteristics of effective science teachers that are relevant to student achievement. Those characteristics may include teacher philosophies towards students, background experiences that relate to their classroom actions or ideologies, and instructional strategies that promote achievement. If common characteristics are discovered among the science teachers at this school, the case study’s conclusions may help similar schools advance their student achievement and assist in training new teachers.

If you agree to participate in this project, which is part of the requirements for an Ed. D. degree from Liberty University, you are assured of privacy. In the study and all publications that result from it, you will have a pseudonym and all personal identifying information will be omitted from print.

Your participation in the study will consist of allowing the researcher to observe your classroom during mutually agreeable times, to respond to e-mails from the researcher, and to be interviewed. Each interview will last from 30 minutes to slightly over an hour. Following each interview, you will have the opportunity to read the written transcript, verify its accuracy, correct any mistakes and misunderstandings that it contains, and to delete any information that you do not want it to contain. You may also be asked to allow the researcher to view your lesson plans. You can expect to be compensated $25 per hour for up to four hours of participation in interviews and/or reviewing the information with the researcher. Your compensation will be given to you.
as a Visa gift card.

If this study is interesting to you, please sign and date on the line below. Then please indicate a convenient time for the researcher to meet with you and a time for the first classroom observation. Thank you very much for your consideration. You will receive a copy of this agreement.

Georgette W. Meyer

Email: georgettewmeyer@yahoo.com

________________________________________________________________________

Your name ..................................................................................................................

Today’s date..............................................................................................................

________________________________________________________________________

A possible time for the first interview, which will last 15 – 30 minutes:

________________________________________________________________________

When the first classroom observation can occur; this will be 30 – 45 minutes:
APPENDIX D: PROTOCOL FOR CLASSROOM OBSERVATIONS

1. The observation time is non-participatory. As much as possible, record everything that happens, especially noting instructional strategies, the emotional environment in the classroom, and the teacher’s outlook on student abilities to learn.

2. What does the teacher say in order to start the class? What words are used to communicate expectations for student achievement?

3. What words are used to communicate transitioning between learning activities?

4. How does the teacher check for understanding of the content?

5. How does the teacher communicate confidence in student abilities?

6. What are the teacher’s movements in the room, related to the instruction? Record this information as a graphic or diagram that includes the locations of the people and the desks in the room, and then use arrows to indicate movements.

7. If the teacher seems to communicate perception of student ability or personal teaching ability, how is it communicated?
APPENDIX E: PROTOCOLS FOR TEACHER INTERVIEWS

Interview Protocol #1

1. Are you agreeable to having this interview recorded?

2. Do you understand that you can refuse to answer any question or deflect the
   questioning at any time? You may also offer information that hasn’t been asked,
   but you feel is pertinent to the objectives of my study.

3. What is your understanding of the objectives of my study?

4. How would you describe your current teaching position? How many years have
   you taught seventh grade science? What other areas/grades/schools have you
   taught? What were your students’ results at the other school? At this school?
   How many years have you taught at this school?

5. What type of students have you taught previously? What were some
   characteristics of the students, especially with respect to their poverty level?
   Describe some of your professional development experiences, especially those
   that relate to teaching the type of students at this school.

6. How do you plan for instruction for students who have limited background
   experiences related to science?

7. What experiences shaped you into the kind of teacher that you are today?

8. How would you describe your high school culture?

9. Describe the teacher that you most wanted to emulate.

10. What documents, meeting minutes, or memos are available that are relevant to
    the success of science teachers at this school?
Interview Protocol #2

1. What is your interpretation of events that occurred during my observation of your classroom? I would like to share my observation notes with you and get you to reflect on them.

2. What is your philosophy of teaching? Is it the same for all students you teach? Why or why not? How do children learn, in your opinion?

3. What factors contribute to your staying in this position? How would you describe your mission here at this school? How has this sense developed over time?

4. How does your teaching philosophy affect your thinking towards students at this school?

5. How would you describe an effective teacher? Is it academic success, or something else?

6. What kinds of teachers are the most effective with students who are living in poverty?

7. How effective do you feel you are with your students?

8. Please describe a recent teaching interaction that you had with one of your students that would help me to understand your teaching philosophy.
1. Describe a typical class in terms of what you do at the beginning, middle, and the end of class.

2. What are your expectations for student achievement, that is, how confident do you feel each day as you are teaching your students?

3. Describe an instructional time that was especially effective for one of these students. Why do you think it was especially effective?

4. How do you communicate your expectations for achievement to your students?

5. What is the place of student-teacher relationship in your class?

6. Does your understanding of NCLB and the need to make AYP influence your instructional planning?

7. Is there anything else that you would like to discuss? Are there any other stories you could share? What would be your advice for a new science teacher in a high poverty school?
APPENDIX F: INTERVIEW PROTOCOLS FOR SCHOOL ADMINISTRATORS

1. What understanding do you have of this case study at your school?

2. What do you understand about its purposes?

3. Before we begin, do you have any questions for me?

4. The central purpose is to obtain descriptive information about any common characteristics, if any, of the science teachers. The scores of the seventh graders on the 2010 were so high in the state that my attention was drawn to this science department. With my own background in science, as a teacher for eighteen years, I understand science teaching, but I do not understand what is needed for success at this particular grade level with the type of students at this school. How would you explain the success of these science teachers?

5. What effect, if any, does the school environment have on student achievement?

6. How does the fact that the school is undergoing restructuring under NCLB affect what teachers do in the classroom?

7. What types of professional development, in your opinion, has had the most influence on the teachers’ success?

8. What special philosophies, if any, are important for teachers to have in order to be successful with this type of student?

9. Do you believe that certain instructional strategies are more effective with these students? Why do you feel that way?

10. What do you think is the reason that the science scores ranked high on the 2010 PASS, yet the math and ELA scores were not as highly ranked, although they were not low, either?
11. What relevant documents, such as meeting minutes or memos, could you suggest to support the work of this study?
APPENDIX G: ARCHIVED TEST SCORE DATA

Test score data was obtained from the school principal and the district assistant superintendent. The goal of the test score analysis was to confirm that the 2\textsuperscript{nd} place ranking on the 2010 PASS science test represented a pattern of achievement not a one-time anomaly. The documents that were obtained were:

- 2008 PACT score state ranks
- 2008 PACT Percentage of Proficient and Advanced Scores
- 2009 PASS score state ranks
- 2009 PASS score ranks with similar schools
- 2010 PASS scores

Inspection of the test score data revealed that the site school’s seventh grade 2008 PASS science scores ranked 11\textsuperscript{th} in the state (N = 284); 2009 PASS science scores ranked second among 52 similar schools and 28\textsuperscript{th} in the state (N = 293); 2010 PASS scores ranked second in the state (N = 293). Only the seventh grade scores were inspected because all seventh graders take the science test; in the sixth and the eighth grade, students are randomly assigned to take either the PASS science test or the social studies test.
2008 PACT test score ranks

The letter below displayed the 2008 state-wide comparative rankings of the science scores at the site school.

From: Dukes, Tripp (trippdukes@anderson5.net)
To: georgetownmcyr@yahoo.com
Date: Tue, June 21, 2011 1:24:26 PM
Cc: 
Subject: data

Georgette,

Here are the statewide science numbers you requested. The first number is the total number of schools that tested in the grade level listed in the column header. The second number is where Southwood ranked within that group.

Good luck on with the rest of your studies!

<table>
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<th>2008 PACT Science</th>
<th>6th Total/State Rank</th>
<th>7th Total/State Rank</th>
<th>8th Total/State Rank</th>
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</table>

<table>
<thead>
<tr>
<th>2009 PASS Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Met</td>
</tr>
<tr>
<td>Met</td>
</tr>
<tr>
<td>Exemplary</td>
</tr>
</tbody>
</table>

Tripp Dukes
Assistant Superintendent
Anderson School District Five
864.231.1780
fax 864.260.4463

ANDERSON SCHOOL DISTRICT FIVE NOTICE: This email may contain business related information that is PERSONAL AND CONFIDENTIAL. If you have received this email in error, this does not constitute permission to examine, copy or distribute the accompanying material. If you receive this message in error, please notify the sender immediately or call 804-260-6000.
PACT 2008 TEST SCORE DATA

PACT 2008 test score ranks among middle schools in the school district indicated the 2008 PACT science scores at the site school were 229.7% above similar schools and 64.3% above all schools in science.

![Table showing PACT test score data for Southwood Middle School in 2008.](image-url)
2009 PASS Data

Southwood PASS Data ranked the site school with similar schools, indicating that its sixth grade science scores ranked first among all students, first among females, second among males, first among African Americans, second among students eligible for free or reduced lunch, and first among students receiving special education services. The seventh grade science scores ranked 2nd among all students, fourth among females, third among males, third among African American students, second among students eligible for free or reduced lunch, and first among students receiving special education services. The eighth grade science scores ranked first in all categories except females ranked fourth, males ranked second, and African American scores ranked second.
MAP Scores Spring 2010

The document ranks the mathematics, reading, and language usage test scores among the middle schools in the school district. MAP scores 2010 compared the growth by grade at the three middle schools in the school district. It indicated that the site school’s math scores were five to seven points lower than the top scoring school; however, the site school demonstrated a 9.6% growth in those scores.
Absolute Value Worksheet

An absolute value worksheet displayed for individual teachers’ 2006 PACT scores. The net gain refers to the percent of students who scores improved over the previous year’s scores. The 2006 science gain/loss report was part of the Absolute Value Worksheet maintained on every teacher at the site school. Its purpose was to document teaching effectiveness.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Teacher</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Grand Total</th>
<th>Loss</th>
<th>Same</th>
<th>Gain</th>
<th>Net Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Crawford</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>24</td>
<td>16</td>
<td>3</td>
<td>0</td>
<td>51</td>
<td>15.7%</td>
<td>47.1%</td>
<td>37.3%</td>
<td>21.6%</td>
</tr>
<tr>
<td>6</td>
<td>McClean</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>32</td>
<td>18</td>
<td>6</td>
<td>1</td>
<td>69</td>
<td>17.4%</td>
<td>46.4%</td>
<td>36.2%</td>
<td>18.8%</td>
</tr>
<tr>
<td>7</td>
<td>Alpert</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>40</td>
<td>15</td>
<td>3</td>
<td>0</td>
<td>68</td>
<td>14.7%</td>
<td>58.8%</td>
<td>20.5%</td>
<td>11.8%</td>
</tr>
<tr>
<td>7</td>
<td>McClean</td>
<td>0</td>
<td>6</td>
<td>13</td>
<td>34</td>
<td>17</td>
<td>2</td>
<td>0</td>
<td>72</td>
<td>26.4%</td>
<td>47.2%</td>
<td>26.4%</td>
<td>0.0%</td>
</tr>
<tr>
<td>8</td>
<td>Orr</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>26</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>55</td>
<td>27.3%</td>
<td>47.3%</td>
<td>25.5%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>6,7,8</td>
<td>Foster</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>32</td>
<td>12</td>
<td>2</td>
<td>0</td>
<td>62</td>
<td>25.8%</td>
<td>51.6%</td>
<td>22.5%</td>
<td>-3.2%</td>
</tr>
<tr>
<td>6</td>
<td>Hageman</td>
<td>2</td>
<td>2</td>
<td>24</td>
<td>36</td>
<td>13</td>
<td>2</td>
<td>0</td>
<td>79</td>
<td>35.4%</td>
<td>45.6%</td>
<td>19.0%</td>
<td>-16.5%</td>
</tr>
<tr>
<td>School</td>
<td></td>
<td>2</td>
<td>13</td>
<td>93</td>
<td>224</td>
<td>105</td>
<td>18</td>
<td>1</td>
<td>456</td>
<td>23.7%</td>
<td>49.1%</td>
<td>27.2%</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Teacher</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Grand Total</th>
<th>Loss</th>
<th>Same</th>
<th>Gain</th>
<th>Net Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>McClean</td>
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<td>0</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>0</td>
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<tr>
<td>6,7,8</td>
<td>Foster</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>17</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>32</td>
<td>37.6%</td>
<td>53.1%</td>
<td>9.4%</td>
<td>-28.1%</td>
</tr>
<tr>
<td>6</td>
<td>Hageman</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>50.0%</td>
<td>35.7%</td>
<td>14.3%</td>
<td>-35.7%</td>
</tr>
<tr>
<td>7</td>
<td>Alpert</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>45.5%</td>
<td>45.5%</td>
<td>9.1%</td>
<td>-36.4%</td>
</tr>
<tr>
<td>8</td>
<td>Crawford</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>42.9%</td>
<td>57.1%</td>
<td>0.0%</td>
<td>-42.9%</td>
</tr>
<tr>
<td>8</td>
<td>Orr</td>
<td>0</td>
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<td>6</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>66.7%</td>
<td>22.2%</td>
<td>11.1%</td>
<td>-55.6%</td>
</tr>
<tr>
<td>7</td>
<td>McClean</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>70.0%</td>
<td>20.0%</td>
<td>10.0%</td>
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<td></td>
<td>2</td>
<td>6</td>
<td>38</td>
<td>40</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>95</td>
<td>48.3%</td>
<td>42.1%</td>
<td>11.8%</td>
<td>-34.7%</td>
</tr>
</tbody>
</table>
APPENDIX H: SCHOOL DOCUMENTS

School Motto and Mission Statement

The school motto referenced geese, which the school principal indicated as a picture of the supportive networks among administrators and teachers. The mission statement represented the atmosphere at the site school.

School motto

SOUTHWOOD IS SOARING TO GREATER HEIGHTS!

STUDENTS AND SUCCESS
ORGANIZATION AND OPTIMISM
ATTITUDES AND ACHIEVEMENT
RESPECT AND RESPONSIBILITY
INSTRUCTION AND IMPROVEMENT
NEEDS AND NURTURING
GOALS AND "GEESE"


School mission statement

Southwood's Mission Statement

Our mission is to prepare students to be citizens who demonstrate social and personal responsibility, cultural awareness, physical fitness, academic competence, and a desire for life-long learning by providing challenging and diverse educational experiences in a safe environment.
Study of lower-income schools

The document was displayed in the teachers’ lounge at the site school, reminding teachers of their responsibilities and the needs of their students.

The study of lower-income schools found that the strongest elements in high-performing schools are:

1. Linking lessons closely to state academic standards.
2. Ensuring there are enough textbooks and other teaching materials.
3. Carefully and regularly analyzing student performance.
4. Putting a high priority on student achievement.

The study’s authors say that these criteria show that poverty and other challenges need not keep students from doing well.
Jaguar Pride

The document was posted in every classroom, referring to student pride at a school whose mascot was the jaguar. The document was copied by the researcher and inserted below.

Be successful – do your best in every class, listen closely, follow all directions the first time.

Be responsible – be on time and prepared for school, always have and use your student planner.

Be respectful – respect yourself and others and their property.

Be safe – keep your hands, feet, and objects to yourself.

Homework help

The document posted on the walls throughout the school advertised the Homework Help Session offered on Tuesday and Thursday afternoon from 3:30 – 5:00, followed by bus transportation to deliver children to their neighborhoods. Teachers assisting with the help session were listed by subject area and room number.
Documents used in discipline situations.

- The Student Letter (copied below by the researcher from the teacher’s document at the site school):

  Please take a moment to read and complete the following.
  You need to be among your classmates and peers.
  However, since you have been sent here to sit for the day, you and I must have had a problem of some kind. Perhaps you did not mean for things to happen like they did. Maybe you thought you were being funny. Maybe I misunderstood your or you misunderstood me. Perhaps something happened before you came into my classroom that upset you and you hadn’t had time to move on from it. Please take a few minutes to tell me your side of the story. Think about how both of us could have acted differently. We can discuss this later, after we have both had time to think about how to avoid this situation in the future. Leave this completed note on my desk. Tomorrow is a new day. Thank you.

- I must focus: This discipline document required misbehaving students to copy the following statement several times; it required students to consider making a commitment.

  I must focus on the lesson. I must allow my classmates to learn all the information presented without interruption. I am not being the best student that I can be at this present moment. From this moment, I will improve my behavior.
• Definition of quiet: This discipline document directed students to: Write the definition of ‘quiet’ the number of times indicated at the top of the page. *Definition of quiet: moving very little; still; with little or no noise; peaceful; gentle*

• Stop and Think: This document required misbehaving students at the site school to complete a form. It required students to reflect on their misbehavior.

---

**STOP AND THINK**

Name ____________________________ Date ____________

Your behavior today is unacceptable. Therefore, you must complete this form to help you better understand what you are doing and how to stop it.

1. Describe your behavior. What are you doing to disrupt my class? How are you showing your classmates and/or me disrespect? Be specific.

   _______________________________________________________________
   _______________________________________________________________
   _______________________________________________________________
   _______________________________________________________________

2. What can you do to better control your behavior? Again, be specific. Just writing “act better” is not an acceptable answer.

   _______________________________________________________________
   _______________________________________________________________
   _______________________________________________________________
   _______________________________________________________________

3. What do you think the consequences will be if you continue to misbehave in class?

   _______________________________________________________________
   _______________________________________________________________
   _______________________________________________________________

4. Are you ready to improve your behavior? __________ Are you ready to accept the consequences if you do not? __________

   Sign your name ____________________________
Title I Services and the Parent Letter.

The Title I Services and Letter to Parents from the school on 8/17/2010 documents explained the basis of the school’s failing to make AYP and described the consequences. It stated that school choice and supplemental tutoring services were being offered, with links for further information.

**Title I Services**

According to the Federal No Child Left Behind Act of 2001 (NCLB), parents of students enrolled in a Title I school that has been identified as "in need of improvement" as defined by NCLB must be provided an opportunity to transfer to another school within the district or offered supplemental tutoring services. Based on information from the S.C. State Department of Education, Southwood Middle School did not make AYP (Adequate Yearly Progress) for 2009-2010 and has been designated as a school in need of improvement under NCLB. Southwood students met AYP requirements in 20 of 21 objectives, however, missed the academic proficiency goal in math for students with disabilities. Therefore, Southwood will offer school choice and supplemental tutoring services for the 2010-2011 school year. For more information about school choice or supplemental tutoring services, please click the links below.
The principal at the site school wrote the letter displayed below, informing parents of the school’s failure to obtain AYP.

August 17, 2010

Dear Parents and Guardians,

According to the Federal No Child Left Behind Act of 2001 (NCLB), parents of students enrolled in a Title I school that has been identified as “in need of improvement” as defined by NCLB must be provided an opportunity to transfer to another school within the district or offered supplemental tutoring services. A school is identified as in need of improvement based upon a school not meeting the state’s definition of Adequate Yearly Progress (AYP) for two or more years.

Based on information from the S.C. State Department of Education, Southwood Middle School did not make AYP for 2009-2010 and has been designated as a school in need of improvement under NCLB. AYP is based on the percentage of students achieving the level of “Met” proficiency based on Palmetto Assessment of State Standards (PASS) scores. In order to make AYP, South Carolina schools must meet proficiency goals for students in all subgroups/objectives. Southwood students met AYP requirements in 20 of 21 objectives, however, missed the academic proficiency goal in math for students with disabilities. South Carolina’s proficiency requirements in English and Math are among the most difficult in the country.

Since Southwood did not make AYP, it will be designated as “Plan to Restructure.” This designation comes as a result of the school not making AYP after one full year of corrective action. The No Child Left Behind legislation requires District Five to allow parents and guardians of students attending the school the option of 1) transferring their children to another designated school; or 2) remain at the school and request free tutoring from a state approved provider in the fall of 2010; or 3) remain at the school and participate in the schoolwide programs. Two schools, Lakeside Middle and McCants Middle, have been designated as the receiving schools. A description of programs for each school is also attached to this letter.

According to our records, your child attended a school other than Southwood as a result of a choice transfer request. If you are interested in continuing to participating in the choice transfer option for the 2010-2011, please complete the Request for School Choice Transfer form attached to this letter and return it by mail, fax, or in person to the Anderson School District Five office no later than 4:00 PM on August 26, 2010. These forms must be submitted each year a student attends a school outside of his or her attendance zone.

Please maintain documentation for your records that the request was submitted prior to the deadline date.

Sincerely,

Evelyn Murphy
Evelyn Murphy
Principal
APPENDIX I: SCHOOL PHOTOGRAPHS

212.2 Turn up the heat!

The title of this flyer was given beneath a graphic of a large flame. It stated, “Warning: These grades are hot!” It represented the school culture of high expectations for student achievement.

An AVID poster displayed the focus on writing, inquiry, reading, and collaboration in teachers’ instruction.
The pictures below depicted some of the street signs on the walls and in the stair wells at the site school.
The photographs below depict the student retreat area in classrooms at the site school.
**APPENDIX J: PREMINARY CODES USED FOR INITIAL DATA ANALYSIS**

<table>
<thead>
<tr>
<th>Codes related to literature review</th>
<th>Preliminary topics founded in the data (using the words of the participants, observation data, school document/photographic data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Opinions held towards the teaching environment</td>
<td>1. Relationships (interview/observation data)</td>
</tr>
<tr>
<td>a. The physical environment</td>
<td>a. Teachers and teachers</td>
</tr>
<tr>
<td>b. The social environment</td>
<td>b. Teachers and students</td>
</tr>
<tr>
<td>c. The economic environment</td>
<td>c. Teachers and administrators</td>
</tr>
<tr>
<td>d. Safety and comfort</td>
<td>d. Teachers and instructional coach</td>
</tr>
<tr>
<td>e. Teaching in a Title I school</td>
<td>2. Conditions of students home lives (interview data)</td>
</tr>
<tr>
<td>f. Personal level of success</td>
<td>a. Effect on classroom actions</td>
</tr>
<tr>
<td>g. Leadership position within the school</td>
<td>b. Effect on instructional strategies</td>
</tr>
<tr>
<td>h. Unselfish/putting others needs first</td>
<td>c. Effect on actions of school administrators</td>
</tr>
<tr>
<td>i. Interests of others</td>
<td>3. School environment (interview/documents/photographic data)</td>
</tr>
<tr>
<td>j. Altruistic feelings</td>
<td>a. Effect of failing AYP</td>
</tr>
<tr>
<td>k. Optimism</td>
<td>b. Psycho-social nature</td>
</tr>
<tr>
<td>l. Sense of responsibility for student learning</td>
<td>4. Past events (interview data only)</td>
</tr>
<tr>
<td>m. Understanding of one’s impact on student achievement</td>
<td>a. Effect on teacher actions</td>
</tr>
<tr>
<td>2. Perceptions of students</td>
<td>b. Effect on instructional strategies</td>
</tr>
<tr>
<td>a. Prior experiences</td>
<td>c. Effect on participants’ relationships</td>
</tr>
<tr>
<td>b. Prior knowledge</td>
<td>5. School leadership (interview/document data)</td>
</tr>
<tr>
<td>c. Ability to learn concepts</td>
<td>a. Establishing the vision</td>
</tr>
<tr>
<td>d. Optimism</td>
<td>b. Ensuring accountability</td>
</tr>
<tr>
<td>3. Previous experiences</td>
<td>6. Classroom events (observation data only)</td>
</tr>
<tr>
<td>a. With children living in poverty</td>
<td>a. Calm</td>
</tr>
<tr>
<td>b. Teaching in high poverty schools</td>
<td>b. Orderly</td>
</tr>
<tr>
<td>4. Influence of previous experiences on teaching</td>
<td>c. Verbal basis</td>
</tr>
<tr>
<td>a. Impact on teaching philosophy</td>
<td></td>
</tr>
</tbody>
</table>
b. Impact on view of students living in poverty

c. Impact on philosophy towards school environment

5. Professional development

a. Poverty education

b. AVID

c. Connecting content to experience

d. Direct instruction

e. Instructional strategies

f. NCLB and meeting AYP

6. Classroom actions towards students

a. Smiling

b. Humor

c. Informal conversation

d. Relationships between teacher and student

7. Classroom instructional actions

a. Real world examples

b. Sensational/unexpected

c. Direct teaching

d. Instruction in study methods

e. Instruction in learning methods

f. Small group work

g. Project-based learning

h. Cooperative learning

i. Rigor and relevance of challenge in strategies
## APPENDIX K: TWO-TIERED CODING SYSTEM

<table>
<thead>
<tr>
<th>First tier data</th>
<th>Second tier data</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 – Relationships among teachers</td>
<td>101 – Teachers work together</td>
</tr>
<tr>
<td></td>
<td>102 – Teachers support each other</td>
</tr>
<tr>
<td></td>
<td>103 – Teachers take care of each other, protect each other, and like each other</td>
</tr>
<tr>
<td>200 0 Teachers’ relationships with students</td>
<td>201 – Teachers make sure students are physically comfortable</td>
</tr>
<tr>
<td></td>
<td>202 – Teachers provide students physical needs, including school materials</td>
</tr>
<tr>
<td></td>
<td>203 – Teachers maintained contact with students after they leave the site school</td>
</tr>
<tr>
<td></td>
<td>204 – Teachers encouraged good manners in students</td>
</tr>
<tr>
<td></td>
<td>205 – Teachers tutored students after school</td>
</tr>
<tr>
<td></td>
<td>206 – Teachers liked and enjoyed begin with their students</td>
</tr>
<tr>
<td></td>
<td>207 – The relationship was viewed as essential for teaching success</td>
</tr>
<tr>
<td></td>
<td>208 – Teachers demonstrated compassion towards students</td>
</tr>
<tr>
<td></td>
<td>209 – Teachers had confidence in students’ academic abilities</td>
</tr>
<tr>
<td></td>
<td>210 – Common sense and understanding were important for successful teaching</td>
</tr>
<tr>
<td></td>
<td>211 – Teachers cared for their students; students liked and cared for their teachers</td>
</tr>
<tr>
<td></td>
<td>212 – My time with students is valuable; I need to make the most of this opportunity</td>
</tr>
<tr>
<td>300 – Teachers’ personal experiences</td>
<td>213 – I am proud of them and celebrate their accomplishments</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>301 – My experiences motivated me to give emotional support to students</td>
</tr>
<tr>
<td></td>
<td>302 – My experiences motivated me to protect students from emotional pain</td>
</tr>
<tr>
<td></td>
<td>303 – I had childhood experiences that helped me to become a good science teacher</td>
</tr>
<tr>
<td></td>
<td>304 – I want my teaching to resemble the good examples of teachers that I had or that I know</td>
</tr>
<tr>
<td></td>
<td>305 – Previous teaching experiences affect me now</td>
</tr>
<tr>
<td></td>
<td>306 – Good teachers in the past influenced me to be this kind of teacher that I am now</td>
</tr>
<tr>
<td></td>
<td>307 – The competitiveness of other teachers makes me a better teacher</td>
</tr>
<tr>
<td></td>
<td>308 – My post-secondary education has helped me</td>
</tr>
<tr>
<td></td>
<td>309 – Professional development opportunities have made a difference in the way I teach</td>
</tr>
<tr>
<td></td>
<td>310 – Growing up in poverty circumstances made me a better teacher in this school</td>
</tr>
<tr>
<td></td>
<td>311 – Past difficulties that I had to overcome made me a more competitive teacher</td>
</tr>
<tr>
<td></td>
<td>312 – Connection to teaching success</td>
</tr>
<tr>
<td></td>
<td>313 – Childhood experiences helped me to be a successful teacher at this school</td>
</tr>
<tr>
<td></td>
<td>314 – Christian training and church attendance make be a more caring person</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>315 – I learned from my parents to work hard and to care for others</td>
</tr>
<tr>
<td></td>
<td>316 – I learned from mistakes that I have made</td>
</tr>
<tr>
<td>400 – Classroom actions that demonstrate a philosophy toward students living in poverty</td>
<td>401 – Teachers maintain a low-key classroom atmosphere</td>
</tr>
<tr>
<td></td>
<td>402 – I try to be a normal adult for children who don’t have a caring adult in their lives</td>
</tr>
<tr>
<td></td>
<td>403 – I am intentionally non-confrontational for children who don’t need additional stress in their lives</td>
</tr>
<tr>
<td></td>
<td>404 – I intentionally provide life experiences for students who lack them</td>
</tr>
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<td></td>
<td>405 – I am understanding and lenient when homework is not turned in</td>
</tr>
<tr>
<td></td>
<td>406 – I am sympathetic toward students</td>
</tr>
<tr>
<td>500 – Accountability</td>
<td>501 – We take care of things when they happen</td>
</tr>
<tr>
<td></td>
<td>502 – We use data-based instruction</td>
</tr>
<tr>
<td></td>
<td>503 – Poverty is not an excuse for low achievement. Students are capable of high achievement.</td>
</tr>
<tr>
<td></td>
<td>504 – We have high expectations for student achievement. We use instructional rigor.</td>
</tr>
<tr>
<td></td>
<td>505 – Students are held accountable for their achievement</td>
</tr>
<tr>
<td></td>
<td>506 – Students are expected to be</td>
</tr>
<tr>
<td>507 – I am ultimately responsible for my students’ success and their test scores</td>
<td></td>
</tr>
<tr>
<td>601 – The school handles discipline immediately</td>
<td></td>
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<tr>
<td>602 – The school does not compromise its high expectations</td>
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<tr>
<td>603 – No excuses are accepted for low achievement; the school provided after-school help for students</td>
<td></td>
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<tr>
<td>604 – I am here to stay; I am committed to my job. I like teaching here. I love my job.</td>
<td></td>
</tr>
<tr>
<td>605 – We all like each other.</td>
<td></td>
</tr>
<tr>
<td>606 – I am confident in my teaching ability.</td>
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<tr>
<td>701 – The principal is a motivating force for teachers’ instruction</td>
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<td>702 – The principal encourages teachers.</td>
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<tr>
<td>703 – The science teachers were coached and developed.</td>
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<tr>
<td>704 – School leaders give advice and direction to teachers</td>
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<td>705 – Leaders lead by their example.</td>
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<tr>
<td>706 – The principal is a strong central leader in the school.</td>
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</tr>
<tr>
<td>707 – The teachers work hard.</td>
<td></td>
</tr>
<tr>
<td>708 – Leaders have high expectations for teachers. They hold them accountable for student success and test scores.</td>
<td></td>
</tr>
<tr>
<td>709 – Teachers are trusted by the school leaders.</td>
<td></td>
</tr>
<tr>
<td>800 – Teachers’ philosophies towards students at the site school</td>
<td>801 – Kids are just kids</td>
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</tr>
<tr>
<td>802 – Their backgrounds don’t matter to me.</td>
<td></td>
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<tr>
<td>803 – I will point them toward the future; their past doesn’t matter to me.</td>
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</tr>
<tr>
<td>804 – Every single child has importance.</td>
<td></td>
</tr>
<tr>
<td>805 – I respect and admire these students.</td>
<td></td>
</tr>
<tr>
<td>806 – They don’t need more stress in their life.</td>
<td></td>
</tr>
<tr>
<td>807 – Teachers have a sense of mission.</td>
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</tr>
<tr>
<td>900 – Instructional strategies</td>
<td>901 – I use examples to connect content with students’ everyday experiences.</td>
</tr>
<tr>
<td>902 – I use a lot of repetition in my teaching.</td>
<td></td>
</tr>
<tr>
<td>903 – Teachers used AVID strategies in class.</td>
<td></td>
</tr>
<tr>
<td>904 – Instruction was tailored to meet students’ needs.</td>
<td></td>
</tr>
<tr>
<td>905 – Teachers used question-and-answer strategies</td>
<td></td>
</tr>
<tr>
<td>906 – Explicit instruction</td>
<td></td>
</tr>
<tr>
<td>907 – Teachers used technology and encouraged students to use it for learning.</td>
<td></td>
</tr>
<tr>
<td>908 – Teachers asked students to meet them after school for extra help with schoolwork.</td>
<td></td>
</tr>
</tbody>
</table>
**APPENDIX L: DESCRIPTIVE DATA FRAMEWORK TOPIC:**

**PARTICIPANTS’ PHILOSOPHIES**

Theme 1.0: Participants’ philosophies towards students at the site school

Component 1.1: Relationships are the key to success in teaching children living in poverty.

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Relationships are the primary thing for effective instruction with students who live in homes characterized by poverty. When a child living in poverty doesn’t do well on a test, parents are more likely to say, ‘What’s wrong? Doesn’t the teacher like you?’ Relationships must be developed before instruction</td>
<td>1</td>
</tr>
<tr>
<td>6A</td>
<td>If you have to relate it to something that is not so nice from their background to get them to understand, then you do. You relate it, but you sugar coat it. Sometimes that just what you have to do. Sometimes they have to bring up something awful from their background, but you turn it around into something positive. The other day a child asked, ‘Did you hear on the news about that guy that got shot and killed? Well, that was my cousin!’ I said, ‘that’s awful, but what do you think about that? And I turned it around into something positive. ‘Weren’t you glad you weren’t there? Aren’t you glad you weren’t in the wrong place at the wrong time?’ They brought it up. I have to just try to meet them in the middle.</td>
<td>2</td>
</tr>
<tr>
<td>6A</td>
<td>I do the interest inventory at the beginning of the year and another [survey] on learning styles. It gives me a place to jump off from. I think more than anything they learn by doing, especially at this age. I let them play with it a little bit, and then talk them through it a little bit, and then show them. If they can play with it a little, and see what makes sense to their own mind, that’s where I think I can hook them the best. By doing it, it really does get them.</td>
<td>3</td>
</tr>
<tr>
<td>6A</td>
<td>Just being there for them. They may have a mama at home. They may have a daddy, or they may have nothing but an aunt. I know one of our students is being raised by a cousin. The cousin has taken over and there’s</td>
<td>4</td>
</tr>
</tbody>
</table>
been a big difference in the child, for the good. It’s the first person who has taken an interest in the child this year. It’s a sad situation, but it’s positive. But you don’t know how long it’s going to last.

| 6B | We are like their parents. At this age, the students still want the approval of the teacher. We make sure they know when they have it. |
| 7A | The prerequisites for children to learn are a ‘sense of curiosity. If I can keep them wondering, they will pay more attention. In fact, students of poverty are often more curious than students from affluent families because they are being exposed to some things that they have never seen before.’ |
| 7A | My advice for a new science teacher in a high poverty middle school is ‘don’t be afraid to fall in love with your job.’ |
| 8B | People are still people, no matter what color their skin is or their economic background happens to me |
| 8B | It probably takes a lot more energy than for other students who have educated parents at home who will sit down with them and work on homework with them and do science projects with them |
| P1 | Teachers need to spend the first week of school convincing students that the teacher likes them, cares for them, and will support their learning |
| Coach | Poverty is a cycle of indifference, lack of resources and experiences, and lack of self-confidence. We as educators can be that one element in their lives that turns the tide for these children we can make them believe that they are special; their circumstances are no excuse for not being a successful contributor to society---- home, school, community, and the world. |
| 6A | The children in sixth grade still value the approval of the teacher; therefore, we are diligent to express our approval. |
| 7A | The student teacher relationship is vital. If a student knows that I care about them as a person, they will be more receptive to my guidance. I want my students to respect me as a person, not just a teacher. |
| 6A | I have to know them. I start at the beginning of the year with interest inventories. I have to get to know my kids, period. If I can get to know them well enough, then I can pull in things to get their attention. You
<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>P1</td>
<td>Teachers spend the first week of school convincing students that they like them and care for them and will support their learning</td>
<td>15</td>
</tr>
<tr>
<td>8C</td>
<td>If a student knows that I believe in him, then he can believe in himself.</td>
<td>16</td>
</tr>
<tr>
<td>7B</td>
<td>Relationships are the key to success in teaching children living in poverty. That’s 100% of it. If they like you, they will work for you. And if they respect you, they will work for you.</td>
<td>17</td>
</tr>
<tr>
<td>7A</td>
<td>To teach students with limited background experiences, the teacher must ‘know your content thoroughly, be prepared with a multitude of backup plans for delivery of instruction. What works with one might not work with others. Keep your sense of humor. Know your students.’</td>
<td>18</td>
</tr>
<tr>
<td>P1</td>
<td>We push relationships. That is number one. You care for your students and you make them believe it. Then they care. But you don’t ever compromise expectations.</td>
<td>19</td>
</tr>
<tr>
<td>Coach</td>
<td>You can’t demand respect. You have to give it to them [the students]. And they will return it to you. The principal at the site school is the motivator behind the attitude of optimism and hope for children living in poverty. She has a philosophy of ‘Let’s do it!’ She attends all meetings. She addresses things that need addressing, such as scores on tests.</td>
<td>20</td>
</tr>
</tbody>
</table>
Component 1.2: You have to feel a sense of mission. You are accountable.

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>6B</td>
<td>I think you have to feel a sense of mission teaching in this school. I was brought up with all the morals that I think anybody could hope for. We went to church every Sunday. We were taught to be well-behaved. I consider some of this to be my civic duty and obligation, and me giving back. I feel a lot of that sense of mission. When people come to the door asking for donations, I tell them I have given it all this week. It’s financial, as when I bought ice for my whole class just because. Other times it’s a different giving. You need some moral calling to be a better teacher. If you don’t have it, then I don’t see how you make it.</td>
<td>1</td>
</tr>
<tr>
<td>6B</td>
<td>I feel like I need to be a sort of moral compass for my students. If they try and do something because they think it is something I would do, that’s what I am hoping for. There are some that I could tell them to eat dirt and they would, because they trust me.</td>
<td>2</td>
</tr>
<tr>
<td>6B</td>
<td>Sometimes I feel like they know right from wrong, but they also know nobody cares, so they do wrong. They were misbehaving one day in the lunchroom when I wasn’t on duty. If I had been out there with them, I’m pretty sure it wouldn’t have happened. And I ask them, “What are you going to do over the summer, when probably no one will be watching you?” What are you going to do when the tough decisions come? Do you follow the crowd or not? Are you going to take drugs or not, when big brother is there with his friends and you want to look cool.”</td>
<td>3</td>
</tr>
<tr>
<td>6B</td>
<td>I tell the students that I address every issue. I never turn a blind eye when it comes to discipline and a moral compass. Begin a moral compass is part of my role here, especially being the only male; I have some moral obligation to act a certain way. Being a male that is well-educated and well-behaved.</td>
<td>4</td>
</tr>
<tr>
<td>8C</td>
<td>Yeah, you need some sort of mission to teach here. Otherwise, I don’t see how you make it.</td>
<td>5</td>
</tr>
<tr>
<td>7B</td>
<td>It’s important to help other less fortunate people</td>
<td>6</td>
</tr>
<tr>
<td>6A</td>
<td>Once after I started teaching sixth grade science, they asked me whether I would move back to eighth grade. It was at the end of the first nine weeks; the school year had already started. I said no, I’ve already started</td>
<td>7</td>
</tr>
<tr>
<td>7B</td>
<td>The way I communicate my expectations is that I tell them the first day of school that I treat it like a business. I go over a business model with them. I tell them that in a business, the bottom line is money and making a profit. In this business, the bottom line is test scores. This is how I’m going to run this classroom. You’re my bottom line, I tell them. By the end of the year, you’re going to be at the top, or I’m holding myself accountable. My biggest stress is test scores and student success. You have to motivate them and sometimes that can cost money, but it’s worth it.</td>
<td></td>
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<tr>
<td>8B/observation data &amp; interview data</td>
<td>At the end of a series of review questions asked orally, a student said, ‘I didn’t get any of that”. The teacher said, “You weren’t with me. Let’s discuss it after school.” The student transferred from another county where curriculum is taught in a different sequence. “This difference causes a lot of problems, especial in schools with high transient populations,” the teacher told me in the interview.</td>
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<tr>
<td>8B</td>
<td>This is the only time that some of these kids will ever hear this stuff</td>
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</tr>
<tr>
<td>7B</td>
<td>This is a vocabulary project. The students use pictures with words and drawings in the slides. This way I make sure that they know the material.</td>
<td></td>
</tr>
<tr>
<td>7A</td>
<td>All students have the right and responsibility to become successful citizens. I only have them for 36 weeks out of their entire lives so I must make the most of the time I am given.</td>
<td></td>
</tr>
<tr>
<td>7A</td>
<td>We as educators can be that one element that turns the tide for these children. We can make them believe they are special and that their circumstances are no excuse for not begin a successful contributor to society --- home, school, community, and the world.</td>
<td></td>
</tr>
<tr>
<td>8B</td>
<td>My philosophy is to do your job well. It’s what you’re getting paid to do. You should do it the best way you can. That is the way I was brought up if you’re going to do it, then you need to put everything into it.</td>
<td></td>
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<tr>
<td>6B</td>
<td>My father worked for the surgeon general, Dr. Edwin Koop. When AIDS came out, my father was in the middle of all that research. When he eventually went into higher education, he was astounded at the [low] work ethic of many of the professors. That affected my thinking.</td>
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</table>
Component 1.3: It is essential to have compassion, understanding, and common sense.

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<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
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<tbody>
<tr>
<td>7B</td>
<td>Common sense is essential. We ask that in interviews now. Our questions include “What type of person do you dislike? What type do you like? What book or movie has made you cry?” We want to make sure that teachers are compassionate, caring, and have common sense.</td>
<td>1</td>
</tr>
<tr>
<td>7B</td>
<td>When the teacher can’t get a parent on the phone, it’s not because the parent doesn’t want to talk to you; instead the parent is working several jobs supporting several kids. The situation is very different.</td>
<td>2</td>
</tr>
<tr>
<td>8B</td>
<td>A kid like that who is failing multiple subjects, there are reasons for that. Obviously he’s a pretty bright kid; you can get that immediately when you talk to him. As for homework, he doesn’t have the support to do it.</td>
<td>3</td>
</tr>
<tr>
<td>6B</td>
<td>Chronological order is one thing that [students] have trouble with. They have no concept of time. It’s one issue that’s difficult for them. Fortunately sixth grade science doesn’t do a lot with the concept of time.</td>
<td>4</td>
</tr>
<tr>
<td>7B</td>
<td>[Characteristics of effective teachers of students living in poverty] are compassion and understanding. But many teachers just don’t get this. For example, if Bob doesn’t have his homework because his mother is a prostitute, she was entertaining all night, and he had to sleep on the porch all night, is the teacher going to write him up or discipline him for not having his homework? That makes no sense!</td>
<td>5</td>
</tr>
<tr>
<td>7B</td>
<td>Its compassion, understanding, and common sense.</td>
<td>6</td>
</tr>
<tr>
<td>7B</td>
<td>You can definitely tell a teacher who has been sheltered their entire life when they come into a situation like this. I can tell you the first day of school whether they are going to make it. It takes compassion and understanding. A lot of them say, ‘It’s our job to prepare them for life,’ no, it’s not. It’s your job to prepare them for the next grade.</td>
<td>7</td>
</tr>
<tr>
<td>7B</td>
<td>The sad part is a lot of teachers are not compassionate and don’t like kids. You have to really like kids to work with kids like these, because they are</td>
<td>8</td>
</tr>
</tbody>
</table>
very needy. They are very touchy-feely, both boys and girls. It takes a lot of
adjusting. When I first got here, I said, ‘My gosh! This is not what I thought
it was.’

| 7B | Common sense is the best answer [concerning the philosophy of teaching].
You have to be flexible, very flexible, because no day is ever going to be the
same. | 9 |
| 6A | About homework, even though they know I expect it to be turned in on time,
I will listen to their excuses to an extent. I know that things happen. I gave
one student the benefit of the doubt that morning, although part of me was
saying, ‘She’s pulling the wool. She’s pulling the wool.’ Turns out that she
and her mother took her grandmother to the hospital and ‘didn’t think about
taking her homework to the hospital. I kind of won her over that day just
giving her the benefit of the doubt. | 10 |
| 8B | Whew! After hearing the characteristics of poverty. | 11 |
| 7B | Common sense is the best answer, when considering effective instruction.
And you have to be flexible, very flexible, because no day is the same. | 12 |
| 6A | They loved doing this one activity with jellybeans because they got to do two
things. They got to taste it and use the dichotomous key to separate it, and
then got to taste it to see if they were right. | 13 |
| 7B | My philosophy is ‘Every kid counts’. Compassion and understanding
demonstrate this. | 14 |
| P2 | In interviews with prospective teachers, we are asking about compassion,
with questions such as, “When was the last time a movie made you cry?”
We knew one person was not for our school when she said, “Oh movies
never make me cry.” | 15 |
| 7B | You have to really like kids to work with kids such as these here, because
they are very needy and very touchy-feely. It takes a lot of adjusting. | 16 |
| 8B | You never know what kind of issues and problems are going to come into
your door. You have to be parent, teacher, and coach. | 17 |
| 7B | In interviews for prospective teachers, we are asking about compassion with
questions such as ‘When was the last time a movie made you cry?’ When
one person said ‘Oh movies never make me cry, we knew right away that she
was not one for our school.’ | 18 |
| 7A   | My advice for a new science teacher in a high poverty middle school is ‘don’t be afraid to fall in love with your job.’ | 19 |
| 8B   | People are still people, no matter what color their skin is or their economic background happens to be. | 20 |
| 7B   | I don’t prepare them for life, my job is to prepare them for the eighth grade | 21 |
**APPENDIX M: DESCRIPTIVE DATA FRAMEWORK TOPIC:**

**DEMONSTRATIONS OF PARTICIPANTS’ PHILOSOPHIES**

Theme 2.0: Demonstrations of participants’ philosophies toward students at the site school

Component 2.1: I’ll get it for you.

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8B/ observation data</td>
<td>A student asked the teacher for a piece of paper; teacher declined, saying ‘No, I want you to borrow a piece of paper.’ I observed another student give him a piece of paper.</td>
<td>1</td>
</tr>
<tr>
<td>School secretary (personal conversation)</td>
<td>We have an Angel Tree at Christmas.</td>
<td>2</td>
</tr>
<tr>
<td>8C</td>
<td>To explain my feelings towards children who are living in poverty, we have the Angel Tree in the school cafeteria every year at Christmas. It has names on it of students who won’t have a Christmas. I will promote it all year and run the fund-raising for it. Several teachers manage the gift purchasing. Then I deliver the gifts at the homes</td>
<td>3</td>
</tr>
<tr>
<td>8B/ observation data</td>
<td>A student said, ‘My chair is not level.’ Teacher 8B asked, ‘Do you want another one?’ And then the teacher picked up a plastic chair from the back of the room and carried it to the student.</td>
<td>4</td>
</tr>
<tr>
<td>Observation data: 8B; 6B; P2</td>
<td>All of the students were using spiral-bound notebooks and had large three-ring binders with school name in large letters; the site school purchased a binder, notebooks, dividers, and paper for every student twice a year</td>
<td>5</td>
</tr>
<tr>
<td>8B/ observation data</td>
<td>I need some lead, a student said. “I’ll give you some lead,” the teacher said. “That’s OK, as long as you keep getting good grades for me,” the teacher smiled as he retrieved a piece of pencil lead from his desk drawer and handed it to the student.</td>
<td>6</td>
</tr>
<tr>
<td>8C/ observation</td>
<td>A student asked, “Do you have colored pencils I can borrow?” the</td>
<td>7</td>
</tr>
<tr>
<td>Observation Data</td>
<td>Description</td>
<td>Page</td>
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<tr>
<td><strong>6A/ observation data</strong></td>
<td>A student didn’t turn in the project because he said his family didn’t have any scissors. “OK if you will give it to me, I will cut it for you,” the teacher said.</td>
<td>8</td>
</tr>
<tr>
<td><strong>6B/ observation data</strong></td>
<td>Science textbooks were already distributed and placed on student tables when the students entered the room. All students had identical three-ring binders with the school name in large block letters.</td>
<td>9</td>
</tr>
<tr>
<td><strong>7A/ observation data</strong></td>
<td>Plastic boxes of colored pencils and scissors were on student tables</td>
<td>10</td>
</tr>
<tr>
<td><strong>8A/ observation data</strong></td>
<td>Jacob, are you taking notes? The teacher gave Jacob a pencil and then opened another student’s notebook and pointed to the page where notes were needed to be written.</td>
<td>11</td>
</tr>
</tbody>
</table>
Component 2.2: You have to repeat everything you do.

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<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8A</td>
<td>The way I plan for instruction with children who live in poverty is to plan repetition, repetition, and more repetition. They don’t get it at home. Maybe I teach it a slightly different way each time, but that’s what it is.</td>
<td>1</td>
</tr>
<tr>
<td>P1</td>
<td>Besides concentrating on relationship building, other important strategies are drill and practice with spiraling, because of their homes. I know they say we should let them discover it, but I think they need lots of drill and practice. Spiraling reminds them of what has come before.</td>
<td>2</td>
</tr>
<tr>
<td>7B</td>
<td>Repetition and repetition and repetition go for content, discipline, morals, and values. It’s not just teaching content. It’s all of that. You have to repeat everything you do. Rules are not a thing at home. At home, it’s like, “I don’t care what you do. Just go outside, just go away!” I heard a kid say, “I didn’t get into bed until 2:30.” I said, “Where were you?” And the kid said, “I was just walking around outside. Mom said to get outside and don’t come home.”</td>
<td>3</td>
</tr>
<tr>
<td>7A/ observation data</td>
<td>“We’re going to review, review, review,” the teacher told me after I asked permission to observe. Students, you need your notebooks out. Two things are going on today. We are going to look at the scores from yesterday. The next thing I am going give you back your responses from the quiz. My intent is to give you a second chance to learn it.</td>
<td>4</td>
</tr>
<tr>
<td>8C/ observation data</td>
<td>“Write this down so we don’t have to say it again,” the teacher admonished the class.</td>
<td>5</td>
</tr>
<tr>
<td>7B/ observation notes</td>
<td>“Alright, I’ll say it again today and every day until the end of May. You cannot go to [the new school] unless you are in the attendance district. Just because your mama can drive you to [the new school], don’t think you can go there. If you are scheduled to go to [the other school across town] and you want to play football there and you don’t go, you are not going to know the plays,” the teacher said.</td>
<td>6</td>
</tr>
<tr>
<td>8A</td>
<td>They might go home and there’s a party going on all night. If they are going to learn anything, this might be the only place they get it. That’s</td>
<td>7</td>
</tr>
</tbody>
</table>
why I use a lot of repetition when I teach.

| 7B | Repetition is essential when you teach. That goes for discipline, morals, values, it’s all of that. Repetition is not just for teaching content. It’s all of that. You have to repeat everything you do. It’s because rules are not a thing at home. |
| 6A/ Observation data | The pages for last night’s homework are still on the board, if you need to catch up. |
| 6B | I have students write their terms and definitions here in class, rather than assigning them as homework. Most of them won’t do them at home. Maybe 20% would do them at home. If they don’t get it here, then they won’t get it. |
| 8A/ observation data | I still hear talking. That means you have more questions. |
| 6B/ observation data | All of the teacher’s oral directions were displayed on the SMARTBoard screen at the front of the room. This allowed for both visual and oral learners. |
| 7B/ observation data | The teacher walked around observing the students’ progress with a PowerPoint project, then stopped and sighed very loudly. “You just don’t understand what a biome is. We’ve already done this twice. Take your hands off the computer. All eyes up here,” the teacher commanded. These questions are guaranteed to be on the PASS. |
| 7B/ observation data | The teacher conferred with individual students on the progress of their PowerPoint project, which had been started a day previously. “You saved it right here. I told you yesterday about this,” the teacher said. |
| 7B | The way I plan for effective instruction is to use common sense. I have to repeat a lot |
| 8B | It’s not all about test scores here, but definitely all about student learning. |
| Principal | I know experts say let them discover it. But I think they need lots of drill and practice, with spiraling. |
| School documents | The principal’s memo to teachers said, “Continuously review with drill and practice.” |
Component 2.3: I won’t accept excuses for low achievement.

<table>
<thead>
<tr>
<th>Who said it/data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8B</td>
<td>My advice for a new science teacher in a school such as this one is to be consistent. Be ready for a challenge, because it is a challenge. You can’t make excuses for one and not for another.</td>
<td>1</td>
</tr>
<tr>
<td>6A</td>
<td>They know if [making excuses for homework] keeps up too long, that I’ll go pick up the phone and call. They know I’m not going to play too far with them. They have a little leeway, because they are human and they are children. I’m not going to treat them like adults because they are not adults. They know I expect a lot out of them and when I do expect a lot out of them, I get a lot out of them. If you let your expectations drop, then that’s what you’re going to get. You keep your bar high and they will go for the bar.</td>
<td>2</td>
</tr>
<tr>
<td>7B</td>
<td>Rules are not a thing at home, where it’s like ‘I don’t care what you do; just go outside; go away!’</td>
<td>3</td>
</tr>
<tr>
<td>Coach</td>
<td>Teachers set the tone for student expectations and the mindset for success. We as educators can be that one element that turns the tide for these children.</td>
<td>4</td>
</tr>
<tr>
<td>7A</td>
<td>I don’t think that the social class of a parent should decide the future of a child. Children who come from affluent parents should not have any greater educational experiences than children whose parents are poor. In other words, why should a parent’s income influence the way it each their child? Poverty is not an acceptable excuse in my classroom.</td>
<td>5</td>
</tr>
<tr>
<td>P2</td>
<td>Poor doesn’t mean stupid. Poverty is not an excuse.</td>
<td>6</td>
</tr>
<tr>
<td>6A</td>
<td>We don’t dumb it down. They know I expect a lot out of them. When I do, I get a lot. You keep your bar high and they will go for the bar. Circumstances are no excuse for low achievement.</td>
<td>7</td>
</tr>
<tr>
<td>7A</td>
<td>Poverty is not an acceptable excuse in my classroom</td>
<td>8</td>
</tr>
<tr>
<td>P1</td>
<td>I know this type of student can succeed</td>
<td>9</td>
</tr>
<tr>
<td>8B</td>
<td>PD meetings talked about high expectations; even though [students] are lower socio-economic level students, then we should still have high goals and high expectations for them. They can still achieve it if we provide</td>
<td>10</td>
</tr>
</tbody>
</table>
the resources and put enough time and energy into planning and presenting the content. Put that energy into it!

<table>
<thead>
<tr>
<th>6B</th>
<th>Here we don’t make any excuses for student backgrounds. We tell them, “You can do something.”</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>This school has a commitment to change what we can and to avoid dwelling on the things which can’t be changed, and to avoid blaming low achievement on their circumstances.</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>I lost my assignment that I need to turn in,” a student said. “You have to find it, baby.” Another student said, “I don’t have it finished,” and the teacher said, “I expect it on time. That’s all there is to it.”</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>OK let’s go over the quiz. Turn your study guides over so you won’t be tempted as you take the quiz.</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>Get this done before you leave. I want to see it.</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>When one student answered a question incorrectly, the teacher said, “He needs some help. Braden, what do you say?” When Braden’s answer was wrong, the teacher called on Zach, who also missed the answer. The teacher said, “Come on Zach, you know this!”</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>“Excellent! You won the writing award. Now finish your picture. That’s what I need.”</td>
</tr>
<tr>
<td>6A</td>
<td>I communicate my expectations for achievement this way. I start at the beginning of the year and tell them they have a hundred. You are perfect when you come in here. Now you do your homework, and then you keep it. You do your best every day and you are going to keep it. If you study, you keep it. If you don’t, then you’re going to let yourself down. That’s where you are going to fall short, because you are not reaching up to your potential.</td>
</tr>
<tr>
<td>6A</td>
<td>The reason I didn’t say much to those chatty little kids that you observed was they know if they miss out today, they will miss out tomorrow. And that’s the one thing that they don’t want to do.</td>
</tr>
<tr>
<td>8B/</td>
<td>Facing the students already in the room at their seats, [the teacher] said</td>
</tr>
</tbody>
</table>
louder, “you shouldn’t need to be told! Start your daily quiz now!” The teacher was referring to the questions written on the board.

When the teacher saw one student merely observing her lab partner do the work, the teacher said, “Is she doing measurements? I want her to do some, too. Let her do all of the next set.”

About homework, even though they know I expect it to be turned in on time, I will listen to their excuses to an extent. I know that things happen. I gave one student the benefit of the doubt that morning, although part of me was saying, ‘She’s pulling the wool. She’s pulling the wool.’ Turns out that she and her mother took her grandmother to the hospital and ‘didn’t think about taking her homework to the hospital. I kind of won her over that day just giving her the benefit of the doubt.

I was drawn to this type of student; I know they can succeed. This school has a commitment to change what we can and to avoid blaming low achievement on their circumstances.

As the students worked at their seats, the teacher walked among their desks, checking on their progress. “When are you going to start?” and “OK, let’s get it done! This assignment can be completed in the office or in ISS! That conversation had better be about the rock cycle!” The teacher’s comments reinforced achievement expectations.

You need to know the graduated cylinder and the triple beam balance for the PASS.

Why do I need this science? Followed by a list of occupations that involve scientists

There’s no job in the world that doesn’t require division skills. You are going to prove you can do it. “What about working at MacDonald’s?” asked a student. The teacher replied, “And a customer comes to you and says ‘I have a dollar. How many orders of fries can I get with this dollar?’ Then what are you going to say?

All of the teachers give a quiz about once a week to keep the students on task, have them continue with their study, and not to let things slide.

A student asked, “What’s the benefit of floods?” This information was needed for a PowerPoint project. “I’m tired of answering that question
### 7A
Students were coming out at the end of the class, I was in the hallway. Teacher emerged with a dazed look, went rapidly down the hall, and then returned, obviously frustrated and upset. “They are a sweet class, just today it was “Teacher, I don’t get it! I don’t get it!” And they wouldn’t be quiet!

### 7B/observation data
When the rate of correct responses to review questions remained low, the teacher said, “We made flash cards yesterday in another class. If I have to make you study, I will.”

### 7B
On the PASS you students will be responsible for knowing the forth, fifth, and sixth grade standards in addition to our seventh grade standards. So don’t be surprised if you see questions on the PASS that we did not go over.

### 7B/observation data
You don’t seem to get this. Here is what it means. For the proper use of this term, you need to have prior knowledge.

### 7B/observation data
Quit complaining about these questions. We are not in kindergarten here. Here is another term that seems to be a vocabulary problem for you. Here is an example [that could relate to your personal experience].

### 7B/observation data
What we do after the PASS depends on what we do now. There are a lot of cool things that I would like to do.

### 7B/observation data
Now don’t be absent this time of year. The PASS test is coming soon. You need to be present for the review and for the test.

### 8A/observation data
Now get ready for a quiz. Start looking over the material now. Be ready to ask questions on it. Review what you did on the posters and your review from yesterday.

### 6B/observation data
“Of course we will clean up carefully when we are finished,” the teacher told the students.
<table>
<thead>
<tr>
<th>Page</th>
<th>Observation Data</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>7A/observation data</td>
<td>The directions for student notebooks were written in big letters with a frame on the board: Table of Contents, Topic/Date on page, Grades in back. DON’T FORGET was written beside the list.</td>
<td>39</td>
</tr>
<tr>
<td>7A/observation data</td>
<td>The teachers set the example by being highly organized. Eighteen lessons that I observed were orderly and progressed in a logical way. Standards were written on the board. Individual activities were short, 10-15 minutes, except for lab. Teachers told students the activities that they would be doing ahead of time.</td>
<td>40</td>
</tr>
<tr>
<td>6B</td>
<td>I am teaching [students] responsibility; for example, if the student says, “I lost something,” then I ask him, “What did you do when you lost it?”</td>
<td>41</td>
</tr>
<tr>
<td>7A/observation data</td>
<td>One female student had her head down on the table for the first few minutes. Instead of reprimanding or disciplining her, the teacher called the student by name and quietly said, “stand up, do what you need to do, but you can’t lay there and go to sleep.” Several minutes later the student got up, walked to the back to get a paper towel, and then returned to her seat. The teacher did not berate or nag the student, which demonstrated understanding.</td>
<td>42</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>To another struggling student, the teacher said, “Here, skip what you don’t know and read this now.” When other students complained about the big words on the worksheet, the teacher agreed with them and then asked, “OK, how many of you are halfway through? What do you need?” the teacher asked another student. “Help!” was the plaintive answer. “You know this. We studied this in class,” the teacher reminded them in a calm, low-key voice.</td>
<td>43</td>
</tr>
<tr>
<td>8A/observation data</td>
<td>Now, get ready for a quiz. Start looking over your notes now. Review what you did yesterday. You’ll do just great! If you listened yesterday, you’ll do great. You’re straight on this material</td>
<td>44</td>
</tr>
<tr>
<td>8B</td>
<td>The principal has high expectations for students and their test scores. Depending on who you talk to, it all starts with the teacher.</td>
<td>45</td>
</tr>
<tr>
<td>6A</td>
<td>The principal holds teachers accountable for test scores.</td>
<td>46</td>
</tr>
<tr>
<td>6B</td>
<td>Your projects are due tomorrow. No excuses! You can do this!</td>
<td>47</td>
</tr>
<tr>
<td>7A/observation data</td>
<td>You’re mad today,” one student said. “No, I’m just frustrated that students won’t learn division,” the teacher replied. “Now put your mind on this for the next forty minutes, forget everything out there, not matter</td>
<td>48</td>
</tr>
</tbody>
</table>
what else has happened today,” the teacher said in a firm, low voice.

<table>
<thead>
<tr>
<th>7B/observation notes</th>
<th>During the class discussion reviewing for the PASS, the teacher reminded the class, “KG made a perfect score last year. What are you going to do?”</th>
<th>49</th>
</tr>
</thead>
<tbody>
<tr>
<td>7B/observation data</td>
<td>“What worries me is that you will have an example on the PASS test and you will be asked to identify the variables from the example. Here is something for you to think about. This will help you understand the difference between the two types of variables.”</td>
<td>50</td>
</tr>
<tr>
<td>7B/observation data</td>
<td>The teacher told the research before beginning the class that a lot of hollering would probably be heard. Students just don’t get [the topic of] cells. Other grades in the past got it, but not this year. I just don’t get it.</td>
<td>51</td>
</tr>
</tbody>
</table>
Component 2.4: I like you guys

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>7A</td>
<td>When the teacher accidentally kicked a chair leg and students laughed, the teacher said, “Don’t laugh at me, I’ve had a hard day.” A few minutes later, the teacher said to the class, “I love you guys.” A few students asked, “What?” Then the teacher repeated the statement.</td>
<td>1</td>
</tr>
<tr>
<td>6A</td>
<td>Other people say I’m too low key. My way of teaching is very unconventional. And some days we are loud. We do competitions and we all holler.” The teacher was laughing as this statement was made.</td>
<td>2</td>
</tr>
<tr>
<td>P2</td>
<td>In reviewing the system of codes that I developed, the assistant principal (P2) said IEPs and BIPs are strictly followed, indicating that they are related to the provisions for the time-out places in the classroom.</td>
<td>3</td>
</tr>
<tr>
<td>7A/photographic data</td>
<td>I have a time-out place behind this board where the kids can sit. It’s a place where students can go. One boy sat back here for two weeks. He just needed to be by himself.</td>
<td>4</td>
</tr>
<tr>
<td>8B/observation data</td>
<td>I have a similar place to teacher 7A’s time-out place. You saw it during your observation. I have one in the back of the room. Observation data recorded a desk facing the rear of a set of bookshelves. A person sitting at the desk could have an unobstructed view of the board in the front of the classroom. This observation was similar to one in Teacher 7A’s classroom.</td>
<td>5</td>
</tr>
<tr>
<td>7B</td>
<td>I have a place for kids to go in the back of the room or even they can sit in the hallway if they need some time alone.</td>
<td>6</td>
</tr>
<tr>
<td>7A</td>
<td>When student success with the lesson was evident, the teacher said, “Boy, you all are doing well!”</td>
<td>7</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>When one student demonstrated insight into the concept being taught, the teacher said, “Ah!” in a pleased tone-of-voice, while closing the classroom door to block out noise of students going to lunch.</td>
<td>8</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>The teacher inspected each student’s results. When one student had especially good results, the teacher told others “here, you come and look at this! He has it!” after inspecting another student’s work, the teacher said, “Oh, he’s got the best one!”</td>
<td>9</td>
</tr>
</tbody>
</table>
When a student answered correctly, the teacher said, “Yes!” with a happy tone-of-voice.

On the wall outside the classroom door were two lists: The A-B Honor Roll and “Passed all subjects”

You are doing a fabulous job on your warm-up check-ups!” the teacher told the students.

The teacher stopped beside a student’s desk to read the words on the PowerPoint slide. “Read that sentence out loud to me,” the teacher said. After the student made some changes to the words, the teacher said, “OK, there you go. That’s good!”

I must have made the quiz too easy. You’re just smart. You’re brainiacs. You’re all brainiacs! 100% of you made a hundred. This is wonderful! “Excellent as usual, Josh.” “You raised me right,” the student responded.

Hakeem, will you please introduce everyone to the [researcher]?

Caleb, is anything wrong? Is something going on? Something bad? Yeah, real bad,” the student answered. “It doesn’t matter, It doesn’t matter. Just put it behind you,” the teacher whispered to the boy.

Is that tar smell too strong? Do I need to close the windows and turn on the air before we start class?

A student guffawed at another student’s answer to the teacher’s question. “Wait, let’s talk. It’s not funny,” the teacher said kindly. Other students weren’t answering questions correctly. The researcher’s memos recorded the lack of any condemnation or irritability in the teacher’s voice in the matter-of-fact tone of voice in the discussion and explanation of the concept.

One student said, “Wait, I have two questions.” The teacher answered the off-topic questions so that the entire class understood. The researcher’s memos recorded the absence of irritation and impatience in the teacher’s voice over the interruption of the planned lesson. The
| 6A/observation data | “I hope you are awake, Chris!” After the sleepy student lifted his head and opened one eye to acknowledge the comment, the teacher said “OK” and resumed the discussion. | 20 |
| 6A/observation data | After getting good results following a class quiz, the teacher said, “Very good! Very good!” in a very pleased tone of voice. | 21 |
| 6A | These kids know that once they are teacher 6A’s kids, they are teacher 6A’s kids forever. They will come back to me and say “Meet my children!” I look at the children of my former students and I think that I can’t be that old, she laughed. | 22 |
| 6B/observation data | “Is anyone allergic to peanuts?” the teacher asked prior to an activity involving peanuts. “Don’t anyone eat the peanuts!” | 23 |
| 8B | While walking around checking on individual students and answering questions during lab, one student called from across the room, “Teacher, come here!” Can I get a ‘please’ in that?’ the teacher said. “May you please come here?” the student responded without laughing. The teacher went to the student and sat down beside him to listen to the student’s concerns with the ‘balance being too light.’ | 24 |
| 8C | I have no trouble helping students, whether it is a math student or a science student, or a personal issue. I have no trouble talking to them and trying to help. It’s the personal relationship that I have with individual students. He knows that if it’s not working for him in [another class], “he can go talk to [me] about it.” | 25 |
| 8C | It’s happened for years now that I teach students safety. I’ll tell them when they get out of the car in the morning that they should tell mom that you love her because you don’t know what’s going to happen that day at school. Kids will come down the hall because they’ve heard about me. I had two kids bring notebooks for me to sign because they’ve heard about me. This means more to me than any of this other stuff going on. | 26 |
| 8C | I talked to a problem student and said, “you have the choice to make it the best that it can be or the worst that it can be.” She is graduating this year with a full ride to Clemson University. | 27 |
“I need to tell you all something very important,” Teacher 6A said in a firm but calm voice. “If someone offers you mushrooms, don’t take them. You don’t realize all of the things that can hurt you or make you sick.”

Teacher 6A laughed and asked, “Has anyone ever seen ugly fruit?” I observed all students smiling and laughing at the question.

Aw, come on now! You’re killing me! Ewww, we’re rusty today. I need to put some WD-40 on you. Yes, I’m going to put it on you,” the teacher said with a smile and a laugh.

“OK, all eyes up here and knees under the table. Here’s what you are going to do. You’ve been doing well with activities. You’re a good class. I’ve been telling people that you are good”

“The book will help you to label your work,” the teacher told the students. The teacher walked to one student who had not opened the book, opened the book for him, and pointed to the information.

I am still curious about your answer to the last question.

You get to spread out in this room. You are a small class. I look forward all day to you. Ok here we go. Answer these quickly and quietly.

You know, this is the first week that I’ve been here all week, except for Monday,” one student told the teacher, who smiled and patted him on the back. “I can’t help it if my mother has been like that, drunk all week,” he said, looking around the room for a response. No one responded.

 Whispered to researcher during the observation: “I can’t figure out what’s wrong with a couple of girls. They’re upset. And they won’t tell me why.” When the class period ended, the teacher quietly told the girls, “If you need to talk, OK.”

“I don’t know how to do this,” a student said. “Here, I will show you. You were out yesterday,” the teacher said, grabbing a pencil from the desk, sharpening its point, and then sliding a chair close to the desk to sit beside the student. After a few minutes, the teacher got up to check
the progress of other students.

<table>
<thead>
<tr>
<th>8A/observation data</th>
<th>Dominique, are you tired? To another student who offered to bring a chair to the classroom, the teacher said, “Yes, I’ll need it by sixth period. I’ll be real tired by then.”</th>
</tr>
</thead>
<tbody>
<tr>
<td>8A/observation data</td>
<td>Bridget, are you ready [for the test]? You’ve been out. Go ahead and take it. If you don’t do well, I’ll give you a different one. Same material with different questions. I’ll do the same for Sasha, she’s been out, too.</td>
</tr>
<tr>
<td>School secretary (personal conversation)</td>
<td>Compassion and concern are what make this school special. We go to the students’ games; we go to their high school graduations; we even go to the funerals of their family members. Years later they still remember our presence at some of those events. They come back and tell us, “Hey, I remember you were there!”</td>
</tr>
<tr>
<td>7B</td>
<td>The way [teachers] treat students is the same, because everyone is equal, but how you go about it is a little bit different. There are things we can say and do that are unique; for example, I can say ‘I’m coming to get your child on Saturday. We’re going to the school to study. We are going to walk around the mall and learn what it means to have manners.’ I do a lot of mentoring like this.</td>
</tr>
<tr>
<td>7B</td>
<td>Fred, who just graduated, and I text back and forth all the time. I keep up with [this former student]. He gets in trouble all the time; someone will text me and tells me about it. Fred will ask me, ‘Are you watching me?’ I tell him, ‘I will always be watching you until the day you die.’</td>
</tr>
<tr>
<td>7B</td>
<td>I build a lot of strong relationships [with former students]; some are in college now and we talk a lot.</td>
</tr>
<tr>
<td>8C</td>
<td>One year [when I delivered the Angel Tree gifts], I found a student living in an unheated one-room concrete shed with grandparents. They were cooking over an open fire. The only furniture was a mattress on the floor and a recliner. “In that little shed, about ten by fourteen feet, the grandparents were living with three school aged children. Yet when that student is in school every day, you would never know that he lives in those circumstances. He works hard every day; he has a good attitude towards school and toward learning.</td>
</tr>
<tr>
<td>7B</td>
<td>I swear the kids are smarter than the teachers, a lot of times. They are street smart. They know how to survive. I don’t know if a lot of us</td>
</tr>
</tbody>
</table>
could survive in their situations.

<table>
<thead>
<tr>
<th>8A</th>
<th>I play around with [students] a lot. We laugh and cut up and it works.</th>
<th>46</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A/observation data</td>
<td>Teacher 6A smiled and spoke with a pleased tone of voice as the growth of their experimental plants in the classroom was described.</td>
<td>47</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>“Will you please walk around and collect homework?” After viewing the number of papers that were collected, teacher 6A said, “Yay, I’ve got homework!”</td>
<td>48</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>Calling names to check attendance, the teacher said, “Who are we missing?” A student said, “Darius!” when Darius entered the classroom a few seconds later, the teacher said, “Here he is! We missed you!” Darius said, “What?” The teacher repeated, “We missed you.” And then started asking questions to introduce the science lesson.</td>
<td>49</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>“If you get shocked by electricity, is that a positive or a negative thing?” the teacher asked, jumping suddenly as though receiving an electrical shock. Several of the students giggled. The teacher described atoms as being ‘super duper small, protons as p-p-positive, and neutrons as new-new-neutral’. The teacher said, “When things heat up, they expand and need more elbow room,” with elbows spread out like wings and flapping them. All of these silly comments made students laugh.</td>
<td>50</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>OK, we are going to move on from here. This was good today. One student said, “Hey, I got a hundred on the test.” The teacher said, “Mandy, yeah, you did pretty good!”</td>
<td>51</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>When a student answered a question correctly, the teacher said, “Right! Good girl!”</td>
<td>52</td>
</tr>
<tr>
<td>7A/observation data</td>
<td>Students answered correctly to a series of questions. The teacher said, “Good! Good! Good!” several times in response to their answers. When students correctly answered later in the same observation, the teacher did a dance routine at the front of the room, with hands going up and down and back-and-forth while chanting, “They got it! They got it! They got it!” The teacher briefly hugged another student’s neck when he gave the right answer. Another student said, “I had a smart moment, didn’t I?” The teacher’s response was, “Yes, you had a smart moment.”</td>
<td>53</td>
</tr>
<tr>
<td>7A and researcher’s memos</td>
<td>After students left the room, the teacher said, “I am exhausted. They were behaving terribly today. It was lunch that did it to them. They were really off today. But then I was so excited that they understood balancing chemical equations! (Contrary to the teacher’s judgment, the researcher’s memos recorded a well-behaved and obedient class.)</td>
<td>54</td>
</tr>
<tr>
<td>6A</td>
<td>I try to keep a very open ‘get-to-know-you’ classroom. I want to be able to trust with the. They know that they can come in here and that this is a safety area; in fact, I have them sometimes when they get very upset with another teacher, the other teacher will bring them in here and just sit them. They can come in to have time to ‘defrag’ or whatever you call it. It helps, if they know there is an absence of threat in here, then that helps.</td>
<td>55</td>
</tr>
<tr>
<td>6A</td>
<td>They have me wrapped around their little finger!</td>
<td>56</td>
</tr>
<tr>
<td>8C/ observation data</td>
<td>This can’t look like my flower yesterday. That was something else!” the teacher commented on the board illustration. The teacher and the students laughed at the same time.</td>
<td>57</td>
</tr>
<tr>
<td>6B/ observation data</td>
<td>OK, we are going to move on from here. This was good today. One student said, “Hey, I got a hundred on the test.” The teacher said, “Mandy, yeah, you did pretty good!”</td>
<td>58</td>
</tr>
</tbody>
</table>
### APPENDIX N: DESCRIPTIVE DATA FRAMEWORK TOPIC:

**PARTICIPANTS’ PERSONAL AND PROFESSIONAL BACKGROUNDS**

Theme 3.0: Participants’ personal and professional backgrounds

Component 3.1: I had teachers that were especially good.

<table>
<thead>
<tr>
<th>Who said it/ data sources</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8B</td>
<td>My middle school and high school teachers did a lot more than just come in, sit down, and take notes. I don’t do anything special. I just come in and do my job.</td>
<td>1</td>
</tr>
<tr>
<td>8B</td>
<td>An eighth grade science teacher inspired me to go into science teaching.</td>
<td>2</td>
</tr>
<tr>
<td>7B</td>
<td>I had an English teacher in high school that really inspired me. On Friday he would say, ‘Now be careful on the weekend. If you get into drink and get into trouble, call me. Here’s my phone number. I remember thinking, ‘Here is someone who is not in my family and he doesn’t have to like me, but he actually does care.’</td>
<td>3</td>
</tr>
<tr>
<td>7B</td>
<td>The teacher that inspired me would give really hard quizzes and then he would give a lot of extra credit points. You could tell he was not there about grades and test scores. He was there to help you learn and to be a better person.</td>
<td>4</td>
</tr>
<tr>
<td>6A</td>
<td>I was very blessed to have a lot of the kind of teachers who were caring and southern, good country teachers. That kind of thing…I had teachers that were especially good. They went above and beyond.</td>
<td>5</td>
</tr>
<tr>
<td>6A</td>
<td>I never had ‘open the book, read the pages, answer the questions, and take the test; type of teacher. I had teachers that explained and questioned. Even at Auburn, when I was going to college, the only classes that were that kind were history classes. Everything else was ‘explore and explain’, that kind of thing, especially my education classes, they were really into stuff like that. So I guess that what made me more like what I want to do here.</td>
<td>6</td>
</tr>
</tbody>
</table>
Component 3.2: Christian schools modeled kindness for me.

<table>
<thead>
<tr>
<th>Who said</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8C</td>
<td>I taught in a Christian school, where students learned caring attitudes at home; they bring that expectation from home; they learn it at home. The teacher doesn’t have to drive it home as much [as here]</td>
<td>1</td>
</tr>
<tr>
<td>8B</td>
<td>I think that going to church makes a difference in teachers who care. As a science teacher, it’s a struggle sometimes. You just have to work through all of the questions, such as, ‘Do you believe we come from monkeys?’</td>
<td>2</td>
</tr>
<tr>
<td>8C</td>
<td>My Christian mother taught me everything has a purpose; we were in church every Sunday. It explains my sense of caring deeply for other people and making efforts to help those who are less fortunate.</td>
<td>3</td>
</tr>
<tr>
<td>8A</td>
<td>I know we’re probably not supposed to say anything about God, but that’s the only way I keep going, with all the difficulties I’ve experienced in my life. If it weren’t for God, I would’ve caved in long time ago. You choose your life. Circumstances make you what you are.</td>
<td>4</td>
</tr>
<tr>
<td>6A</td>
<td>The Christian training at the Christian high school I attended was a good school. They weren’t pushing any particular religion. It gave me the sense of the importance of caring for other people. Very much so. And getting out of public schools after forth grade. I think that made a difference, too.</td>
<td>5</td>
</tr>
<tr>
<td>8A</td>
<td>God directs us. He gives us the ability to decide, as one of His kids. He allows me to see both sides of a situation. He gives us the ability to learn from our mistakes, too (see 6A and 7A for similar comment on learning from our mistakes)</td>
<td>6</td>
</tr>
</tbody>
</table>
Component 3.3: I guess I just relate to these kids.

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8C</td>
<td>My first experience with the poverty issue was when I taught in another poverty school prior to this school. I had kids that got clothes out of dumpsters, who ate only at school, many had no family; two-thirds were homeless and lived in an institution for children</td>
<td>1</td>
</tr>
<tr>
<td>8A</td>
<td>We had very little money up to age 12, when I went to live with a cousin where I had a real home with structure. It was a very orderly and strict environment. It was my cousin that insisted on my going to college.</td>
<td>2</td>
</tr>
<tr>
<td>7A</td>
<td>My mother had me at age 16. She had three by age 20. I guess I just relate to these kids.</td>
<td>3</td>
</tr>
<tr>
<td>8C</td>
<td>I never thought of it as begin poor. I was free and reduced lunch. The guidance counselor at the [technical high school] said I shouldn’t go to college because my mother worked at OTASCO and my dad worked in the mill. One of my friends asked me, ‘why are you teaching at that school?’ I asked him, ‘why not?’</td>
<td>4</td>
</tr>
<tr>
<td>7B</td>
<td>I did go here to [the site] school. I have taught all grade levels, all socioeconomic backgrounds, and all races. It has been a pretty diverse group of students.</td>
<td>5</td>
</tr>
<tr>
<td>8C</td>
<td>My high school guidance counselor told me not to go to college, because my parents worked in the mill. I didn’t go to college until 9 years after I graduated from high school</td>
<td>6</td>
</tr>
<tr>
<td>7B</td>
<td>When I was in middle school, I was over-weight and I have always been short. I have always had to work. In high school when I wanted to play basketball, people said to me ‘you can’t play basketball’! I was determined to play basketball and I was tired of people telling me I couldn’t do it.</td>
<td>7</td>
</tr>
<tr>
<td>7B</td>
<td>I struggled as a kid with learning. It made me very competitive. And</td>
<td>8</td>
</tr>
</tbody>
</table>
competition shaped who I am today. [Researcher’s note: 7B was Teacher of the year 2010-2011; assistant principal for instruction for 2011-2012 school year; three masters degrees with progress towards Ed.D]

7B [People seem to say] ‘No matter how much talent you have, you can’t win.’ I go to church and people say, ‘those kids can’t do it.’ [Comments such as these] just adds fuel to my fire. It makes me more fierce

7B It’s a psycho-social thing in my head. My whole life people have said, ‘You can’t do this. You’re overweight and can’t lose weight,’ and I have. They have said, ‘You’re short and can’t play basketball,’ and I have.

6A I started out in a rural school. It was literally built on an ant hill in the countries of Alabama. It was basically a black-white mix, about half and half. Technology wasn’t even a part of that school back then. It was 29 years ago. I started in 1982. I taught there sixth grade and got my foot in the door teaching.

8C Planning instruction for students with limited background experiences almost comes natural. I’ve had so many background experiences. There was never a day when I wasn’t watching my dad doing something. When I was young I didn’t put the science together with what I was learning, but when I got older and decided to become a teacher, it just fit. When a student asks, “how does it work?” I can tell him how it works, because I’ve seen it work.

8A I stayed home when my son was born. That experience really affected my teaching. Seeing how he learned made me see teaching in a different way. The repetition and showing him how things work, doing activities with him, reading out-loud to him, all of those things were important in his process of learning new things.

6A I learned responsibility at an early age; I was part of a small group in elementary school allowed to help in the school office, the library, and the first aid room. I wouldn’t call us precocious, but we were pretty advanced. After the school integrated in forth grade, the teachers were spending so much time trying to catch up [the new students] that we didn’t have anything to learn. So they had us working around the school. We were girl scouts and we had been taught responsibility. Really and truly, there was a lot of trust put on us, and a lot of
pressure, but it was nothing to us.

| 6B | I did a little with youth growing up & coached football in college | 15 |

| 275 |
Component 3.4: I have experience.

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A</td>
<td>At Myrtle Beach where I taught, that was poverty. It was basic resource. A lot of it was poverty. It was what you would call ‘the bottoms of the beach.’ Most people would call it ‘the hood area’ of the beach. There were some good kids in there, too, but it was basically the area that was the lower socio-economic area.</td>
<td>1</td>
</tr>
<tr>
<td>6B</td>
<td>I enjoyed teaching for 3 years down at Criswell, a high poverty school on the shores of Maryland. It was a Title I school. It was really great. I really liked that job. And I liked the hours.</td>
<td>2</td>
</tr>
<tr>
<td>8B</td>
<td>Student teaching experience not with students living in poverty.</td>
<td>3</td>
</tr>
<tr>
<td>6A</td>
<td>I stayed in Alabama 5 ½ years, then moved to Myrtle Beach and taught 17 years, including eighth grade at Lorris High School and then Socastee Middle on St. James Road, sixth seventh and eighth grade EIA math.</td>
<td>4</td>
</tr>
<tr>
<td>7A</td>
<td>Spent the first year teaching at the site school, then taught 18 years at a rural middle school math, science, English, reading, and health, then returned to the site school 6 years ago</td>
<td>5</td>
</tr>
<tr>
<td>7A</td>
<td>Full range of students: English and ELLs, all races, all incomes and parental educational levels, privileged and the abused</td>
<td>6</td>
</tr>
<tr>
<td>6A</td>
<td>Elementary education degree from Auburn University, K-8 certified 1981. To get that degree, which you don’t get anymore because you have to specialize, I took a lot of things to have a broader spectrum of study. I got my masters degree by working on it at night and in the summers, in curriculum and teaching. I made sure it was elementary and middle school certified.</td>
<td>7</td>
</tr>
<tr>
<td>6B</td>
<td>Bachelor’s degree in political science; attended the Coast Guard Academy; Master’s Degree in Elementary Education from Salisbury</td>
<td>8</td>
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<tr>
<td>Page</td>
<td>Text</td>
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<tr>
<td>------</td>
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<td></td>
</tr>
<tr>
<td>8A</td>
<td>BS in Genetics and Zoology. After graduation I thought about what to do with that degree and then returned to school to get a teaching certificate in secondary science education. I taught mostly high school biology, some chemistry, and physics, for seven years in a school that was not Title I. I have taught continuously since 1977, except for 7 years when I stayed home with my son when he was born.</td>
<td></td>
</tr>
<tr>
<td>8A</td>
<td>I have an M. Ed in Divergent Learning and a Master’s +30 in Special Education so I can understand these kids better. And now I am getting certified in Gifted &amp; Talented Education.</td>
<td></td>
</tr>
<tr>
<td>7A</td>
<td>BA, elementary education, Erskine College; the M. Ed. Divergent Learning, Columbia College, was especially helpful in teaching children from poverty homes</td>
<td></td>
</tr>
<tr>
<td>8B</td>
<td>BS in science education from USC Upstate &amp; Master’s degree in school administration from Anderson University. I have 6 years of teaching experience, all of it at [the site school].</td>
<td></td>
</tr>
<tr>
<td>6A</td>
<td>Last summer [6B] and I attended a class at Clemson University taught by Jeff Marshall called Inquiry in Motion, teaching the four E’s, which are questioning techniques. The goal is to ask higher level questions.</td>
<td></td>
</tr>
<tr>
<td>6A</td>
<td>We had Title I training. We were trained constantly for the 17 years that I was at Myrtle Beach. When I moved here, I was already trained in everything. Things like rigor and relevance, we had long done that. We were just very fortunate. In fact, we were advanced in training.</td>
<td></td>
</tr>
<tr>
<td>7A</td>
<td>PD that helped teach students living in poverty was most of all AVID</td>
<td></td>
</tr>
<tr>
<td>8B</td>
<td>I have attended PD meetings where they talked about high expectations</td>
<td></td>
</tr>
<tr>
<td>7A</td>
<td>My failures in the classroom have been as important as my successes in shaping me into the kind of teacher that I am today. Nothing is more important than experiencing both.</td>
<td></td>
</tr>
<tr>
<td>6A</td>
<td>It was not only good teachers that I had but it’s also been years of learning it, along the way, trial and error.</td>
<td>18</td>
</tr>
<tr>
<td>MSU Regional Director</td>
<td>The instructional coach model includes relationship building with teachers and the coach, constructing a professional learning community, and working alongside school administrators. The purpose of the PLC is collaboration for lesson planning, assembling common assessments, and doing item analyses. Areas of limited understanding among students are identified and review and remediation are planned for those areas. The initial work of the coach is to obtain the trust of the teachers, identifying the coach position as a support and not an evaluator for teachers. By coaching teachers to more effective instruction, student achievement is expected to improve.</td>
<td>19</td>
</tr>
<tr>
<td>P1</td>
<td>The reason the science teachers are successful is that we know we are it. We have a drive to be competitive. And they had a coach who worked with them; the SDE provided funds for her. She did professional development with them, taught model lessons for them, and they studied the science support guide together and planned lessons based on it.</td>
<td>20</td>
</tr>
</tbody>
</table>
**APPENDIX O: DESCRIPTIVE DATA FRAMEWORK TOPIC:**

**THE CULTURE AND LEADERSHIP OF THE SITE SCHOOL**

Theme 4.0: The leadership and culture of the site school

Component 4.1: The atmosphere that you see here results from relationships.

<table>
<thead>
<tr>
<th>Who said it/data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A/observation data</td>
<td>After the teacher shut the door, no further noise or disturbance was heard from the hallway. I sensed a calmness and peacefulness in the classroom, despite the disturbance that had occurred in the hall immediately before I entered the classroom.</td>
<td>1</td>
</tr>
<tr>
<td>P1</td>
<td>The calmness that you sense comes from the relationships that we have with our students</td>
<td>2</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>The teacher’s voice remained clear and easy to follow in well-modulated tones. Students were attentive and spoke quietly when they commented or asked a question. They did not interrupt each other or the teacher; they did not judge others’ comments or make attention-getting comments. The teacher answered or commented on everyone’s remarks. A quiet discussion continued for several minutes. Tables were arranged in a U-shaped around the teacher. The class discussion had a conversational tone.</td>
<td>3</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>The teacher’s voice was easily heard, neither too loud nor too soft with a pleasant accent. At the end of a series of questions, the teacher said in a nice way, “OK, have you got that now?”</td>
<td>4</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>In the three observations of this teacher, I never heard a raised voice; students cooperated with the teacher’s directions. No disrespectful comments were heard.</td>
<td>5</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>The teacher spoke calmly with no raised tone-of-voice.</td>
<td>6</td>
</tr>
<tr>
<td>6A/observation and</td>
<td>Classroom atmosphere was calm and quiet. A life-size brown teddy bear sat in a rocking chair in one corner, science posters, WICR poster, potted plants on counter tops, shelves, tops of cabinets, and on the floor.</td>
<td>7</td>
</tr>
<tr>
<td>photographic data</td>
<td>8C/ observation data</td>
<td>The teacher spoke in a calm voice with slow and distinct speech. Classroom atmosphere very low key, no raised voices, no strong emotions observed. Most students were quietly taking notes; when questions were asked, they were thoughtful and directly related to the topic.</td>
</tr>
<tr>
<td>7A/ observation data</td>
<td>The teacher walked around the room checking on the progress of the students on the PowerPoint vocabulary project. Conversation among students was quiet and infrequent. Students stayed in their seats except to get a Kleenex. When students needed help, their request was subdued.</td>
<td>9</td>
</tr>
<tr>
<td>7A/ observation data</td>
<td>Every classroom was low-key. This seemed to be a common thread among all of the observations. Discipline was not a major issue in any classroom.</td>
<td>10</td>
</tr>
<tr>
<td>P1</td>
<td>The calm and peaceful atmosphere that you see in this school results from our relationships. We take care of things when they happen.</td>
<td>11</td>
</tr>
</tbody>
</table>
Component 4.2: They have data-driven instruction and the state science standards.

<table>
<thead>
<tr>
<th>Who said it/ data sources</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8C</td>
<td>It is only when students take both the science and the social studies sections of the PASS that we get a true picture of the student body; only the seventh graders do this. The fifth, sixth, and eighth grades take either one test or the other.</td>
<td>1</td>
</tr>
<tr>
<td>P1</td>
<td>Science teachers are better because the state support document for science is more highly developed than the one for math. Additionally, the lower grades are not getting enough drill-and-practice in math facts, so they come to us with limited knowledge of the math facts that are needed for success in middle school.</td>
<td>2</td>
</tr>
<tr>
<td>P1</td>
<td>We focused on raising our Below Basic students during the first four years (2002-2006). That was a designation on the PACT test. There were a large number of them.</td>
<td>3</td>
</tr>
<tr>
<td>P1</td>
<td>Failing to make AYP has not affected our teachers, although Title I schools are punished for it. We knew we were going to a new school. It was part of the overall plan of the school district to equalize the numbers of students at three middle schools. None of the middle schools in our district made AYP. We failed in only 1 of the 21 categories; 100% of the students getting special education services were not on grade level in math.</td>
<td>4</td>
</tr>
<tr>
<td>P1</td>
<td>They have data driven instruction and the state science standards.</td>
<td>5</td>
</tr>
<tr>
<td>Coach</td>
<td>Each student has a data folder containing MAP, PASS, and interim and report card grades. Students write reflections on their level of success and set goals for their progress.</td>
<td>6</td>
</tr>
<tr>
<td>Coach</td>
<td>We have a data board in our meeting room that houses all students’ MAP scores arranged by RIT ranges for two years. Teachers move these scores after each test. They also bring students into the room to show them where they are in regards to others in their grade; it is conducted as a pep talk to encourage students to continue doing well or to know they can perform at a higher level. This has been a great benefit as a visual for teacher to see which students need an extra push and for students to see their progress or lack of it.</td>
<td>7</td>
</tr>
<tr>
<td>6B</td>
<td>“The Senteo gives answers for each question. The red letters are incorrect answers, while the black letters are the correct ones. It also provides student names and the test/quiz scores.” Students were using handheld devices to enter their answers into the Senteo system. “The Senteo is a strategy that all teachers use. You need to include this strategy in your report,” the teacher said.</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td></td>
</tr>
<tr>
<td>6B</td>
<td>Title I funding makes all the difference. We have all this technology. If we did not have it, I would not know what the students are not getting or where their weak points are during this review for the PASS. I wouldn’t know these things without the Senteo.</td>
<td></td>
</tr>
<tr>
<td>7B</td>
<td>Have you seen this technology? It is called Senteo and it is manufactured by Smart Technologies. Using this technology, the children can take a multiple choice test. They select the answer, whether it is A, B, C, or D. They press one of these buttons to make their selection, which is immediately visible on the screen here. Using the technology of the handheld devices, I am able to immediately assess the knowledge of the entire class. It lets the teacher know what percent of the class understands each concept and each topic. When the percentages are low on a particular topic, I return to it and give extended teaching.</td>
<td></td>
</tr>
<tr>
<td>7B</td>
<td>The P1 makes us stop exactly where we are on Monday to review for 2 solid weeks [for the PASS]. We use the Senteo and do 30 questions per day. If 83% gets it, then it’s OK. If not, then we go back and we re-teach the material. The Senteo does all of the calculations for us.</td>
<td></td>
</tr>
<tr>
<td>6B, 7A, 7B, 8B, 8C/ Observation data</td>
<td>Almost every classroom had a SMARTBoard and the Senteo system. All classrooms had a digital projector, laptop with internet access, and the availability of a mobile computer lap. SMARTBoard was not observed in 6A and 8A classroom.</td>
<td></td>
</tr>
<tr>
<td>7B/ observation data</td>
<td>OK here are some questions for you to answer and here are your choices. Use our Senteo to answer these questions. Later, the teacher said, “I observe 75% of the class getting the question correct.” After reviewing the question, the teacher said, “Here is a second question.” After observing the students, the teacher admonished, “It’s amazing to me that we’ve done the Senteo all year long and you are still having difficulties with it.” Later as the teacher scrutinized the monitor, “OK, 66% got that answer correct. That’s not good enough!” More Q &amp; A oral discussion followed. The activity extended less than 15 minutes.</td>
<td></td>
</tr>
<tr>
<td>8A/observation data</td>
<td>Here is the Senteo.</td>
<td>14</td>
</tr>
</tbody>
</table>

283
Component 4.3: The principal gets it done.

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8B</td>
<td>The principal came in here ten years ago and pretty much turned things around</td>
<td>1</td>
</tr>
<tr>
<td>8C</td>
<td>The principal attends all meetings</td>
<td>2</td>
</tr>
<tr>
<td>8C</td>
<td>The principal sees what needs to be done, goes after it, and gets it done</td>
<td>3</td>
</tr>
<tr>
<td>8C</td>
<td>The principal places teachers in their classrooms. For every weak teacher, two strong teachers are close by for support. The principal places at least one male teacher on every hallway.</td>
<td>4</td>
</tr>
<tr>
<td>High school administrator</td>
<td>The principal gives the idea that ‘this is the hand you were dealt. Now what are you going to do with it?’ The principal was responsible for the school becoming an AVID national demonstration site. I don’t know much about the science coach, but again that is something the principal had the vision to go after.</td>
<td>5</td>
</tr>
<tr>
<td>P2</td>
<td>The principal and I have found that frequent unannounced walk-throughs are more effective for observing classrooms.</td>
<td>6</td>
</tr>
<tr>
<td>P1</td>
<td>We read books together, we study together, and we work on relationships together.</td>
<td>7</td>
</tr>
<tr>
<td>P1</td>
<td>I just talk to my teachers. I know what it’s like to be in their shoes. After all, I was a teacher for 26 years before getting this position.</td>
<td>8</td>
</tr>
<tr>
<td>6B</td>
<td>Yeah, you could say that the principal is the heart and soul of this school.</td>
<td>9</td>
</tr>
</tbody>
</table>
APPENDIX P: DESCRIPTIVE DATA FRAMEWORK

TOPIC:

INSTRUCTIONAL SKILLS OF PARTICIPANTS

Theme 5.0: Instructional skills of teachers at the site school

Component 5.1: We work closely together.

<table>
<thead>
<tr>
<th>Who said it/ data sources</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>7A</td>
<td>We have met with teachers at the high school to discuss vertical teaming. We have tried and we have failed. Many teachers just won’t change what they teach. They say, ‘I’ve always taught this material.’ Until you hold teachers accountable, change isn’t going to happen. Researcher’s memos noted the contrasting data; teachers between schools don’t work closely together in some cases.</td>
<td>1</td>
</tr>
<tr>
<td>7B</td>
<td>[Teacher 7A] and I are very friendly, but we are also very competitive. That has shaped me. I don’t know if I had started my career with anyone else in middle school whether I would be the same. [Teacher 7A] would bug me that her kids did better than my kids. It told her, ‘It won’t happen again!’</td>
<td>2</td>
</tr>
<tr>
<td>7B</td>
<td>This year the day before PASS I told my students, ‘Next door is not going to beat us. If they do, I’m coming to get you and we’re going to go through this stuff again. I will come find you, whether you are at [the new school], or [the school across town]. They know I’m serious. It’s competition. We love [the students] and they are our family, but who doesn’t want to be anybody?</td>
<td>3</td>
</tr>
<tr>
<td>7B</td>
<td>Competition is what has driven me. Plus I like kids! I genuinely like kids. I’m a big kid myself. I like to have fun.</td>
<td>4</td>
</tr>
<tr>
<td>8B</td>
<td>Working with [Teacher 8C] inspires me in my teaching now</td>
<td>5</td>
</tr>
<tr>
<td>7B</td>
<td>People probably thought [another co-teacher] and I was ridiculous for the middle school basketball program, but we were proud. We were walking around with our chests stuck out, saying ‘Look at us! Look what we can do!’ People say ‘[the site school] has never had a winning season’ and that is what has driven me.</td>
<td>6</td>
</tr>
<tr>
<td>P1</td>
<td>Teachers within the same grade discuss plans with each other and share</td>
<td>7</td>
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<td></td>
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</tr>
<tr>
<td>P1</td>
<td>The math science coach taught [science teachers] to do common assessments. After each assessment, the teachers were taught to do item analyses.</td>
<td>8</td>
</tr>
<tr>
<td>High school administrator</td>
<td>The math-science coach works alongside the school administrators</td>
<td>9</td>
</tr>
<tr>
<td>High school administrator</td>
<td>These teachers have been developed over time. They did not get this way overnight.</td>
<td>10</td>
</tr>
<tr>
<td>P1</td>
<td>Except for the coach I am not sure how to explain the science teachers’ success. They all have varying amounts of content knowledge, patience, compassion, and rigor.</td>
<td>11</td>
</tr>
<tr>
<td>P1</td>
<td>Teachers within the same grade discuss plans with each other and share ideas.</td>
<td>12</td>
</tr>
<tr>
<td>6A</td>
<td>What helps us is that we (teacher 6A and I) work so closely together.</td>
<td>13</td>
</tr>
<tr>
<td>6A</td>
<td>The reason that I am teaching sixth grade science is that they needed me to partner with [teacher 6B]. The big push was teamwork. Team assessments are what we do. We share assessments. So that’s the reason I am here.</td>
<td>14</td>
</tr>
<tr>
<td>7B/7A/8C observation data</td>
<td>The teachers were asking one another before school in a meeting in the hallway outside 7B’s classroom, “Do we need to go back three years to review for the PASS? Do we need to go back to forth and fifth grade and then cover the sixth grade standards?”</td>
<td>15</td>
</tr>
<tr>
<td>7B/observation data</td>
<td>Both 7A and 7B’s students doing were doing the same activity, indicating collaboration in learning activities. Students were using the laptops in the mobile computer lab to create PowerPoint slides.</td>
<td>16</td>
</tr>
<tr>
<td>Instructional coach</td>
<td>We work closely together. That makes all the difference. We use common assessments, though the wording may be altered to reflect each teacher’s presentation style.</td>
<td>17</td>
</tr>
</tbody>
</table>
Component 5.2: In planning lessons, I have to look at what they have experienced.

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A/observation data</td>
<td>As the students were completing their study guides, the teacher began reviewing answers to a ‘Super Scientist’ worksheet. “OK, let’s start with something you know. What’s the meaning of this word?”</td>
<td>1</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>Here’s one way to think about it. Have you seen dried mushrooms? Have you stepped on them? When you step on them, they go poof! The poof is the spores. It is like dust, the wind helps it to spread.</td>
<td>2</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>Why don’t we use thermometers with mercury? The fish in our lake have it. Mercury is a poison. We don’t like it to get out into the environment.</td>
<td>3</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>“In the storms that we have had here recently, did you notice the trees that were uprooted? What did you notice about the roots? Did they go down deep?” When students said no, the teacher said, “That’s their problem,” and began an explanation on plants.</td>
<td>4</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>When students were having difficulty understanding xylem and phloem, the teacher said, “Xylem has a z sound. Whazzzz-up? Bugs Bunny says, ‘Whazzzz-up? When you are z-ing, you are going up. The zenith is the top of the tree. Xylem carries nutrients up the tree!” The students laughed and seemed to understand.</td>
<td>5</td>
</tr>
<tr>
<td>7A/observation data</td>
<td>Give me a one word example of phenotype. “Green hair,” answered a student. “No!” said the teacher. “It’s a possibility,” insisted the student. “Yeah, in the punk world!” the teacher admitted. “Awesome!” exclaimed several students as they laughed.</td>
<td>6</td>
</tr>
<tr>
<td>7A/observation data</td>
<td>When you water your mama’s plants, why doesn’t the water overflow?” this question was asked during a discussion of aquifers and the water table.</td>
<td>7</td>
</tr>
<tr>
<td>7A</td>
<td>“I have found that the more ‘real’ my lessons are, the better the student will remember them. For example, if I want a student to learn the process of digestion, I have the students first chew a cracker and work forward in bite-sized lessons (pun intended).”</td>
<td>8</td>
</tr>
<tr>
<td>6A</td>
<td>In planning for students with limited background experiences related to</td>
<td>9</td>
</tr>
<tr>
<td>Observation Data</td>
<td>Text</td>
<td></td>
</tr>
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<td>------------------</td>
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<td></td>
</tr>
<tr>
<td>8C/observation data</td>
<td>science, well, I have to look at what they could possibly have experienced in their limited background. I have to look and see where they come from. I have to know them.</td>
<td></td>
</tr>
<tr>
<td>7B/observation data</td>
<td>On your mom’s rosebush you see little green buds. Those are called the sepals. And the purpose of petals? They are there to attract organisms and for beauty, like Ishmael’s purpose in our class. Some students giggled at that comment</td>
<td></td>
</tr>
<tr>
<td>7B/observation data</td>
<td>With this group of students, I use a lot of sports examples. When you talk to them about competition and teamwork, how a coach functions, or accountability, they will understand it through sports, lots of NBA and NFL examples.</td>
<td></td>
</tr>
<tr>
<td>7B/observation data</td>
<td>Why do we call this group of organisms a community? When I was growing up in my neighborhood, we would have what we called a block party. It was a get-together. That was a community.</td>
<td></td>
</tr>
<tr>
<td>7B/observation data</td>
<td>You have to find enough food or you will die. We all have hazards, all of you have them. Everyday hazard exist. What about your car? Natural hazards exist. You have hazard lights on your car.</td>
<td></td>
</tr>
<tr>
<td>7B/observation data</td>
<td>When it’s raining, do the Atlanta Braves play? The weather is a limiting factor. You need to understand this concept.</td>
<td></td>
</tr>
<tr>
<td>7B/observation data</td>
<td>Sustainability is another concept that you need to understand. Death affects sustainability. If there are seven kids in your house, all males, ages sever through fifteen, and the parents leave for five weeks. There is only enough food in the house for one week. The house is locked. The boys cannot get out of the house. What will happen? What can you say about their sustainability? Now you’re going to play a game where you have to find enough food to sustain your life.</td>
<td></td>
</tr>
<tr>
<td>8A/observation data</td>
<td>To connect the content on the topographical map, the teacher asked questions including, “Has anyone ever been to the mountains? Is there a football player here? Did you ever have to run up and down the hill? Don’t tell me why you had to run up the hill! What I want to know is what your feelings were when you had to run up the hill! That was similar to these contour lines on the map. They are going uphill.</td>
<td></td>
</tr>
<tr>
<td>8A/observation data</td>
<td>Are you too young to remember the ninja turtles? Do you remember Power Rangers? Do you remember Transformers? Metamorphosis means change. On your papers, write the word transformers beside</td>
<td></td>
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<tr>
<td>data</td>
<td>metamorphosis.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6B</td>
<td>These students have no sense of chronological order. Time and years, they have no concept for that. I have to create the experience of chronological order for them.</td>
<td></td>
</tr>
<tr>
<td>7B/observation data</td>
<td>We had some very historical storms last night; F-4 and F-5 tornadoes are practically unheard of in this part of the county. If you watched the news, you would know that 127 people are missing. You all complain about your lives, having to take notes and work for a living, but your lives could be so much worse; you really don’t have anything to complain about.” The teacher played a news video of the tornadoes and led a discussion on differences between a tornado watch and a tornado warning. Then the teacher began a review of scientific variables, which was unrelated to the discussion on the storms.</td>
<td></td>
</tr>
<tr>
<td>7B</td>
<td>Do I make special allowances in my teaching for kids who come from poverty? I think it is just giving them experiences. The majority of learning is based on what experiences you have in life; for example, on a field trip when we crossed the lake, a student asked whether it was the ocean. You have to prepare them for life with experiences. They don’t have the background knowledge and background experiences. You have to do that in the classroom with videos, explanations, and models. Experiences are the only real difference. Otherwise, kids are kids. It doesn’t matter to me where they come from; I always tell them that. It’s where you go that’s important and what’s happened in the past is history.</td>
<td></td>
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</tbody>
</table>
Component 5.3: I’ve got it under control.

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8B/ observation data</td>
<td>When a student interrupted the teacher’s directions to a student in lab, the teacher said without irritation, “I’ve got it under control. You don’t need to say that.”</td>
<td>1</td>
</tr>
<tr>
<td>6B/ observation data</td>
<td>When the teacher left the room for a few minutes to retrieve some papers from the printer down the hall, none of the students got out of their seats or misbehaved during that time.</td>
<td>2</td>
</tr>
<tr>
<td>7B/ observation data</td>
<td>You’re not done. I saw your sheets. Just because it is April, our work ethic is not going down. Ok let’s go through this quickly, to make sure we got it.</td>
<td>3</td>
</tr>
<tr>
<td>6A/ observation data</td>
<td>Students were seen copying the drawing on the board into their notebooks without being directed. It seemed that the teacher’s expectations were well-established and accepted by students.</td>
<td>4</td>
</tr>
<tr>
<td>6A/ observation data</td>
<td>“Ok, who is finished? Hurry, hurry, hurry!”</td>
<td>5</td>
</tr>
<tr>
<td>8C/ observation data</td>
<td>This lab report looks like homeroom work rather than homework, the teacher told students.</td>
<td>6</td>
</tr>
<tr>
<td>8A/ observation data</td>
<td>What does this topographical map show? Look up here!</td>
<td>7</td>
</tr>
<tr>
<td>6A/ observation data</td>
<td>“Some of you still need to give me your homework,” she told the class.</td>
<td>8</td>
</tr>
<tr>
<td>7A/ observation data</td>
<td>I’m warning you, this class is a doozy,’’ the teacher said, implying that classroom management was difficult. Researchers note: Students were sitting quietly working steadily on their assignment.</td>
<td>9</td>
</tr>
<tr>
<td>6B/ observation data</td>
<td>When students entered the classroom, they immediately began answering the question on the screen with no reminders from the teacher. No oral</td>
<td>10</td>
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</tr>
<tr>
<td>data</td>
<td>directions were heard. Students followed teacher’s expectations.</td>
<td></td>
</tr>
<tr>
<td>6B/observation data</td>
<td>“Can I have a pass to the bathroom?” one student asked. “Your job is to copy these questions.” No further discussion was heard about going to the bathroom.</td>
<td>11</td>
</tr>
<tr>
<td>7A</td>
<td>When the kids misbehave, here is what I have them write for me. It speaks for itself. I don’t need to say anything more.</td>
<td>12</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>Students were talking among themselves during the teacher’s discussion. “OK, let’s get back on an even keel. We usually don’t over-talk each other. Let’s go back to talking one at a time.”</td>
<td>13</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>“Darling, this isn’t a beauty shop. Put the lipstick away,” the teacher told a female student during the class discussion.</td>
<td>14</td>
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</tbody>
</table>
## Component 5.4: Teachers teach on a high level.

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<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
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</thead>
<tbody>
<tr>
<td>7A/ observation data</td>
<td>In learning chemical equations you need to remember where the reactants and products are written. You need to understand how to balance a chemical equation. (This was an eighth grade not seventh grade standard).</td>
<td></td>
</tr>
<tr>
<td>6A</td>
<td>I am getting less worksheet bases as I go. I would rather let them create their own worksheet and exchange papers, than for me to create a worksheet. I go on the internet and borrow stuff from people; there are so many things that are even higher [than what you observed].</td>
<td>2</td>
</tr>
<tr>
<td>8C</td>
<td>An AVID strategy, such as the interactive notebook, raises the expectations for the student. It places the focus on the responsibility of individual students in acquiring their learning.</td>
<td>3</td>
</tr>
<tr>
<td>7A</td>
<td>The reason I do this at the end of the year is that [this material] is in the eighth grade standards.</td>
<td>4</td>
</tr>
<tr>
<td>High school administrator</td>
<td>As a teacher, you are expected to use the strategies that you get during professional development.</td>
<td>5</td>
</tr>
<tr>
<td>6B</td>
<td>It’s good to have mixed [ability] groups in the classroom. The mid-level student will get something and the higher levels will get more. We are not going to dumb it down.</td>
<td>6</td>
</tr>
<tr>
<td>8B/ observation data</td>
<td>Set up Cornell notes. After telling students the topic, the teacher told them to create Costa questions on the rock cycle: four Level I questions and two Level 2 questions for each section of the rock cycle. Alright? Are you still with me? You can work with a partner. You have to write the questions and then you have to answer them.</td>
<td>7</td>
</tr>
<tr>
<td>8B/ observation data</td>
<td>Poster on the wall described Costa questions: Level 1: Basic input, gathering information; Level 2: Processing information; Level 3: Creating your own ideas.</td>
<td>8</td>
</tr>
<tr>
<td>8B</td>
<td>I don’t get uptight on using specific strategies from the AVID notebook. I’ve been to the classes. I use Cornell notes and interactive notebooks. Other things from the notebook I have adapted for my own use.</td>
<td>9</td>
</tr>
<tr>
<td>8B</td>
<td>We do AVID questioning assignments about every two weeks for review and for reading new material.</td>
<td>10</td>
</tr>
<tr>
<td>8C/observation data</td>
<td>OK, students, you will need your notebooks out on your desk. Standards were written on the board, as they were in every observed science class. As the teacher began the lecture, students were observed setting up a page in their notebooks for Cornell notes and writing notes. The teacher was not writing notes on the board, indicating that expectations were already firmly established.</td>
<td>11</td>
</tr>
<tr>
<td>8C/observation data</td>
<td>We are running out of time in this block. Now write your summary and we will finish this lesson tomorrow. You are having a quiz tomorrow.</td>
<td>12</td>
</tr>
<tr>
<td>7B/observation data</td>
<td>“Are we doing C-notes?” a student asked. “Yes,” teacher said. “Do you have the questions for us, Mr. [Teacher]?” “Write your own questions [today],” the teacher said, although not unkindly. What’s our topic?” student asked. “Inquiry,” said teacher. “How do you spell that?” student asked before seeing it written on the board. Under the topic were listed 4 terms related to scientific inquiry. The teacher led a discussion with examples on each term while students wrote notes. “You need to understand these terms,” the teacher said.</td>
<td>13</td>
</tr>
<tr>
<td>School Document</td>
<td>Wall poster: AVID rigor/relevance framework : The four quadrants of thought; the three-story house with levels of thinking</td>
<td>14</td>
</tr>
<tr>
<td>7B/ school document and photographic data</td>
<td>The WICR posters were observed on the walls. Another poster listed the science process skills.</td>
<td>15</td>
</tr>
<tr>
<td>8A/observation data</td>
<td>Students were creating Cornell notes as the teacher asked short questions and waited for students to answer them.</td>
<td>16</td>
</tr>
<tr>
<td>8C</td>
<td>AVID focuses more on the future than on the present. It includes college information, study skills that they will use in college, and career information. AVID is constantly talking to the kids about where they are going in the future.</td>
<td>17</td>
</tr>
<tr>
<td>6A/observation</td>
<td>Today after a very little quiz, you are going to make your own study</td>
<td>18</td>
</tr>
<tr>
<td>Source</td>
<td>Data/Notes</td>
<td>Text</td>
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<tr>
<td>---------</td>
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</tr>
<tr>
<td>6B/observation data</td>
<td>6B/observation data</td>
<td>I noticed that students were doing an inquiry activity with peanuts. Draw what you see. Use the book to label the embryo, the seed coat, and the cotyledon, which is stored food. Then there are a couple of things I need to make sure you understand before you go to lunch.</td>
</tr>
<tr>
<td>6B/observation notes</td>
<td>6B/observation notes</td>
<td>If the question on your quiz isn’t the same as the one in your notes, then you need to interpret the question. This quiz is on defining, recognizing, locating, prioritizing, and describing,” the teacher said.</td>
</tr>
<tr>
<td>7A/observation data</td>
<td>7A/observation data</td>
<td>Read the announcement on the board! It says, “We will not race anything until you can prove that you can do the math required to determine speed.”</td>
</tr>
<tr>
<td>7A/observation data</td>
<td>7A/observation data</td>
<td>Work this problem with your partner. Come to a consensus. I don’t want to talk to you until you have an agreement.</td>
</tr>
<tr>
<td>6B/observation data</td>
<td>6B/observation data</td>
<td>OK write your heading on your paper. You are going to take some notes; Cornell notes style, with the heading and the title.</td>
</tr>
<tr>
<td>Photographic data</td>
<td>Photographic data</td>
<td>Steel signs on walls of hallways, under windows, and in stairwells were named College Avenue, Career Path, and Binder Boulevard.</td>
</tr>
<tr>
<td>6A</td>
<td>6A</td>
<td>The sixth grade students know that teachers expect them to achieve. Teachers teach on a high level.</td>
</tr>
<tr>
<td>Coach</td>
<td>Coach</td>
<td>All of the site school is AVIDized; all teachers have been trained to use AVID strategies in their classes</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>6A/observation data</td>
<td>One student asked, “What’s that?” The teacher said, “Google it and let me know what you find.”</td>
</tr>
<tr>
<td>6A/observation data</td>
<td>6A/observation data</td>
<td>A student was heard describing a website and some facts he had learned from it. “You found that on the internet? Anytime you can share anything with us here in class, that’s good!” the teacher said in an encouraging and pleased tone of voice. “I learn something every day as I grow up. It’s smart trivia. It’s science trivia.”</td>
</tr>
<tr>
<td>7B</td>
<td>7B</td>
<td>Our class has access to the mobile computer lab. It allows each student to work on a laptop. They are plugged into the charging station when</td>
</tr>
</tbody>
</table>
they are not in use. Each student is assigned a numbered laptop so we can keep up with who has worked on each one.

| 8A | Having the [state science] standards was difficult for me to accept [at first]. I do not like cookbook teaching. Then I realized the pacing guide and science curriculum are very good things for our students, many of whom are transients. They move around a lot. They can leave here and go to another school and they will pretty much be on the same page, anywhere they go. |
| 8B | If the discussion slacks off, then I change. You have to change gears and go to what we have planned next. |
Component 5.5: The only way I know to teach is good.

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8B</td>
<td>In the beginning I sat down with a time line and planned each lesson activity. This should take 5 minutes and this should take about 20 more minutes. Now I can plan lessons without doing that, because I understand the flow of things.</td>
<td>1</td>
</tr>
<tr>
<td>6B</td>
<td>I had no trouble getting a teaching job, even though I have a Ph.D. I applied for the job and got it right away. I think they just wanted someone who could teach. I have been here for 10 years.</td>
<td>2</td>
</tr>
<tr>
<td>7A</td>
<td>The only way I know to teach is good. That’s how I do it.</td>
<td>3</td>
</tr>
<tr>
<td>7A/ observation data</td>
<td>I will tell you that this class gets it here. They don’t get it at home; at least 85% to 90% of them do not get it at home. Researcher note: the teacher was referring to learning science.)</td>
<td>4</td>
</tr>
<tr>
<td>6B</td>
<td>I coached football; I worked on Capitol Hill in Washington, DC as a senator’s aide, “doing whatever they needed me to do.” The I decided I will make my money from teaching; it would be insane to coach football and get paid $1400 for a year; I will get my PhD. and that’s how I will make the extra money that I want.</td>
<td>5</td>
</tr>
<tr>
<td>P1</td>
<td>I am saying this in front of [7B]; that teacher has set new records for our school. The expectations were raised. Then eighth grade teachers were challenged. They had to decide what they were going to do because students were coming to them so well prepared.</td>
<td>6</td>
</tr>
<tr>
<td>7B</td>
<td>I am just very competitive. I use a business model in my class room. And it works for me.</td>
<td>7</td>
</tr>
<tr>
<td>7A/ observation data</td>
<td>Where did you save [your PowerPoint file] last?” the teacher asked a student. The teacher sat beside the student and guided his search of the computer for the file and when it was located, the teacher exclaimed, “Yay, Yay, I found it! I’m good! I’m good!” It was not loud and no other students commented on it.</td>
<td>8</td>
</tr>
</tbody>
</table>
## Component 5.6: Explicit or direct instruction

<table>
<thead>
<tr>
<th>Who said it/ data source</th>
<th>What they said</th>
<th>Tally</th>
</tr>
</thead>
<tbody>
<tr>
<td>8B</td>
<td>Having discussion driven lessons works, which is fine with me, because I like to talk. I like to hear their questions and have open discussions. These kids are very vocal and like to talk.</td>
<td>1</td>
</tr>
<tr>
<td>8B/ interview and observation data</td>
<td>I can sit there and talk with them all day long, if it’s really flowing; observation data records questions beginning with what, such as ‘What happens next? What is this? What’s the difference between…?’ Very little time or discussion between questions was observed.</td>
<td>2</td>
</tr>
<tr>
<td>6A/ observation data</td>
<td>“What did you learn in your reading your homework last night? Did you read about gymnosperms? How do they spread?”</td>
<td>3</td>
</tr>
<tr>
<td>6A/ observation data</td>
<td>I want to ask you if you know a word that means ‘light’. You know what it is. It is ‘photo’ and ‘synthesis’ means putting together,’ photosynthesis means ‘putting together with light.’ Have you put something together?</td>
<td>4</td>
</tr>
<tr>
<td>6A/ observation data</td>
<td>An ichthyologist is one who studies fish. Fish are ‘icky’ so an ichthyologist studies ‘icky’ things. He studies fish.</td>
<td>5</td>
</tr>
<tr>
<td>6B/ observation data</td>
<td>“Get out some loose leaf paper. Take your peanut and break it carefully in half like this,” the teacher demonstrated. “Copy these questions onto your paper and then observe the peanut carefully and answer the questions.”</td>
<td>7</td>
</tr>
<tr>
<td>6B/ observation data</td>
<td>Do you want a seed to germinate? Do you throw it in a hole and put dirt on it? How will it get sunlight? What does it use for energy to get up to the sunlight?</td>
<td>8</td>
</tr>
<tr>
<td>6B/ observation data</td>
<td>As you guys watch this video, I want you to figure out the difference between gymnosperms and angiosperms.</td>
<td>9</td>
</tr>
<tr>
<td>data</td>
<td>7A/observation data</td>
<td>Now practice starting, stopping, and resetting a stop watch before we do our races tomorrow. Why am I showing you this? To show you how human reaction can cause measurement errors.</td>
</tr>
<tr>
<td>data</td>
<td>7A/observation data</td>
<td>Look at the pH scale this way. You have two columns. One is labeled A, and the other B. Write 0-6 under A. Then write 8-14 under the B. You know A comes before B. And you know the low numbers come first.</td>
</tr>
<tr>
<td>data</td>
<td>8B/observation data</td>
<td>Explicit instruction preceded the lab activity. “If you look at the trays on your table, here is what you will see. From your research, you know the meaning of these different mineral colors.” Very clear explanations were heard as the teacher walked students through the lab procedure.</td>
</tr>
<tr>
<td>data</td>
<td>8C/observation data</td>
<td>‘Don’t write the procedure as a paragraph. Make a list of the steps. You need to create a table like this,’ the teacher pointed to one that was drawn on the board.</td>
</tr>
<tr>
<td>data</td>
<td>7B/observation data</td>
<td>What’s the difference between…” and “what does this mean?”</td>
</tr>
<tr>
<td>data</td>
<td>7B/observation data</td>
<td>Ok, [now that the game is over], let’s talk. Was this a real situation? Let me give you two examples. In each one, tell me what happens. Science is all about understanding cause and effect.</td>
</tr>
<tr>
<td>data</td>
<td>8A/observation data</td>
<td>The teacher asked short questions in a matter-of-fact and pleasant sounding voice. It was calm and low-key, yet interesting.</td>
</tr>
</tbody>
</table>
APPENDIX Q: DIRECTIONS TO PARTICIPANTS FOR MEMBER CHECKING

Purpose

This data sample needs to be coded using the numbers of the emic codes. Write the numbers of the individual codes above the phrases that match the codes.

Research questions

1. What ideologies and philosophies do the teachers have towards their students?

2. What, if any, classroom actions depict teachers’ philosophies towards the students?

3. How, if at all, did the teachers’ background experiences and professional training prepare them to teach in a high poverty science classroom?

4. What ideologies and philosophies do the teachers have towards their students?

Themes that were found in the data:

Theme 1: Relationships with other teachers

Theme 2: Relationships between students and teachers

Theme 3: Teachers have past experiences in their lives that influence them in the classroom.

Theme 4: Teachers make allowances for students because of the conditions of their home lives.

Theme 5: Accountability

Theme 6: School culture/ school atmosphere affects student achievement
EMIC CODING SYSTEM (based on the words of the participants)

1 **RELATIONSHIPS AMONG TEACHERS**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Work together</td>
</tr>
<tr>
<td>102</td>
<td>Compete with each other</td>
</tr>
<tr>
<td>103</td>
<td>Financial assistance</td>
</tr>
<tr>
<td>104</td>
<td>Protect each other</td>
</tr>
</tbody>
</table>

2 **RELATIONSHIPS WITH STUDENTS**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>201</td>
<td>Reduce stress</td>
</tr>
<tr>
<td>202</td>
<td>Provide physically including school materials</td>
</tr>
<tr>
<td>203</td>
<td>Stay in contact with them after leaving our school</td>
</tr>
<tr>
<td>204</td>
<td>Teach manners</td>
</tr>
<tr>
<td>205</td>
<td>Tutor on weekends</td>
</tr>
<tr>
<td>206</td>
<td>Like and enjoy students</td>
</tr>
<tr>
<td>207</td>
<td>Relationship is needed for teaching</td>
</tr>
<tr>
<td>208</td>
<td>Compassion is an essential ingredient</td>
</tr>
</tbody>
</table>

3 **INFLUENCE OF THE TEACHERS’ PAST EXPERIENCES**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>Cause me to want to give emotional support to students</td>
</tr>
<tr>
<td>302</td>
<td>Cause me to want to protect students from emotional pain</td>
</tr>
<tr>
<td>303</td>
<td>Cause me to want to replicate the relationships that I had</td>
</tr>
<tr>
<td>304</td>
<td>Cause me to want to reproduce the good teaching I had</td>
</tr>
</tbody>
</table>

4 **MAKING ALLOWANCES FOR STUDENTS**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>Purposefully create low key classroom atmosphere</td>
</tr>
<tr>
<td>402</td>
<td>Try to be a normal adult for children who don’t have one in their life</td>
</tr>
<tr>
<td>403</td>
<td>I am not confrontational with them</td>
</tr>
<tr>
<td>404</td>
<td></td>
</tr>
<tr>
<td>405</td>
<td>Understanding and lenient when homework is not turned in</td>
</tr>
</tbody>
</table>

5 **ACCOUNTABILITY**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>501</td>
<td>We take care of things when they happen</td>
</tr>
<tr>
<td>502</td>
<td>Data-based instruction</td>
</tr>
<tr>
<td>503</td>
<td>Frequent observations</td>
</tr>
<tr>
<td>504</td>
<td>Poverty is not an excuse</td>
</tr>
<tr>
<td>505</td>
<td>High expectations for achievement</td>
</tr>
<tr>
<td>506</td>
<td>Students are held accountable for their achievement</td>
</tr>
<tr>
<td>507</td>
<td>Students are expected to be organized</td>
</tr>
</tbody>
</table>
### 6 SCHOOL CULTURE AND ATMOSPHERE

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>601</td>
<td>Purposefully low-key</td>
</tr>
<tr>
<td>602</td>
<td>Community of caring people</td>
</tr>
<tr>
<td>603</td>
<td>Pushes relationships and respect</td>
</tr>
<tr>
<td>604</td>
<td>Does not compromise high expectations</td>
</tr>
<tr>
<td>605</td>
<td>Handles discipline immediately</td>
</tr>
<tr>
<td>606</td>
<td>Does not make excuses for low achievement</td>
</tr>
</tbody>
</table>