

TO ALL , THE Journey is finally over!

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Chapter 1

Context for Inquiry

I began my teaching career in 1968 at Arnold Burton Technology Center; a full day vocational school that offered both academic and vocational classes in grades eleven and twelve. I felt well prepared for this assignment. My college English courses had exposed me to Shakespeare, Chaucer, and the Romantic poets. My education courses provided guidance in planning lessons in my field, motivating students, and writing detailed lesson plans. As a result of my preparation and a very successful student teaching experience, I knew that I was ready to imbue my students with a love and appreciation for timeless literature.

During the “workdays,” I asked many questions about teaching and the kind of students I would encounter. Veteran teachers in the school assured me I would do fine and that the best way to become a successful teacher was to learn by doing. Little did I know that learning by doing would become a recurring theme throughout my career.

After six weeks of teaching, I knew that most of my students did not appreciate my efforts to share my love for the classics. From my very limited experience, I saw that standard lesson plans, lecture, questions and tests were not working and that I could not answer to the students’ satisfaction the questions: “When will we ever use this stuff? and Why do we have to learn this?”

Many visits to the vocational labs opened my mind to new dimensions of learning. Students who were openly bored in my class were actively engaged and totally immersed in their learning experiences. I noticed major differences in my class and the labs. While my classroom had desks in orderly rows, the lab classrooms were more flexible and desks were arranged in circles or haphazard rows; students teamed with each other on projects, unlike my classroom where students who worked together were viewed as cheating; and the vocational teacher served as a facilitator to learning by asking probing questions, redirecting thinking, and moving on to another group of students while groups grappled with the problem and learned by doing.

I wanted that kind of active learning to take place in my own classroom. From my observations, I gradually began to change my teaching focus: less lecture, more group projects that allowed students to move around in the classroom, more problem solving, fewer worksheets, and fewer pencil and paper tests. Within a short time, I noticed higher student enthusiasm, more

motivation, outstanding group projects and a new role for me as facilitator to their learning. Best of all, I seldom heard the question: Why do we have to learn this?

In my new learner-centered classroom, students learned to write, to read for understanding, and most importantly how to connect their learning to everyday life. I am convinced that changing my teaching methods made the difference and that academic classes taught in this way were applicable for all students.

After twenty-two years of teaching, I became the principal of the technical center at a large comprehensive high school in a rural school division. As I observed the teachers in my building, I saw the same active learning, the teaming, learning by doing and the teachers serving as facilitators. The methods still worked and the students were active participants in the process. In order to broaden my knowledge of our school's programs, I explored the academic wing. In many classes, I saw teachers lecturing at the front of the room, students completing worksheets, taking notes, and sitting in desks in fairly orderly rooms. I observed that students were not actively involved with each other or with their teacher and a lack of vitality and enthusiasm on the part of the students was readily apparent. In one class I observed, ten out of twenty-eight students were sound asleep but the lecture continued.

Two years later, I became a doctoral student. My goal and abiding interest then and now are to provide quality learning for all students. From my own experience and from reading and research, I wanted to determine why core academic teachers did not use more active learning in their classes when I saw that these methods worked. My search for answers began and led me to a study of contextual learning.

Statement of the Problem

The high school where I conducted my study serves 2,000 students in grades 9-12. At present, the high school offers two basic concentrations of study: the Career/Technology Academic Concentration and the Traditional Academic Concentration.

The traditional academic concentration is designed for students who plan to attend a four-year academic college and prepare for a career that requires a college degree. Students in the class of 1998 enrolled in this concentration receive an Advanced Studies 23.5 credit diploma that includes three years of one foreign language or two years of two languages. The mathematical

sequence requires two math courses above the level of Algebra I and a science sequence that includes three units from earth science, biology, chemistry, physics, biology 2, honors physics and AP physics.

The Career/Technology Academic Concentration was designed for those students who want to enter the job market after graduation from high school or who want to attend a school or college that offers technical training beyond high school. Students in the class of 1998 enrolled in this program of study received the regular 21.5 credit diploma. Requirements included three credits of math, three credits of science, and no foreign language requirement.

For either program of concentration, students and their parents determine student goals in March of their eighth grade year. Counselors from the middle school make recommendations based on past grades and career interests. When students enter the high school in grade 9, their concentration has been determined. In most cases, students remain in the same concentration throughout their high school career.

The high school implemented the 4 x 4 block schedule in school year 1995-96. After a two-year analysis of student grades, it was apparent that large numbers of students in the Career/Technology concentration were failing their academic courses. Failure rates reached 25% in technical math classes alone for school year 1996-97.

As a result of the failure rate and the dropout rate (6.8% in school year 1996-97), department meetings throughout the school centered on ways to combat the failure rate. Results were compiled and yielded some surprising results. Factors identified by departments included poor attendance, lack of interest in academic studies, lack of parental concern, a pattern of failure throughout the students' school career (some students are still classified as 9th graders after having repeated the same academic courses three times), a lack of basic skills especially in reading, class size, and inexperienced teachers assigned to these courses.

Departments identified ways to overcome these factors. Included in their recommendations were revoking driving privileges, mandatory tutoring at lunch time with disciplinary referrals for those who fail to attend, Saturday school, more parental contact, direct intervention through our prevention specialist particularly in conflict resolution, anger management, and substance abuse, and more use of computers in each academic class.

Surprisingly, departments did not mention high expectations for these students. As a matter of fact, no expectations of any kind were mentioned and little attention was given to teaching methods used in these classes other than more computers and vague references to more “activities” which were not specifically identified. The majority of department responses indicated that the failure rate was a student problem not a faculty problem and that punitive methods for students were the best solution.

Alarmed by the high failure rate in science and especially in biology, one teacher during her planning periods interviewed thirty-six students in May, 1997, who were enrolled in two biology career/technology classes to determine their perspectives on why they failed and their attitudes about school. The interviews revealed that nineteen of the students used negative words to describe school with the number one response of “boring” given by seven of the participants. Students indicated they only understand the material in class if the teacher “explained it more,” “slowed down,” and “made it more fun.” They responded they learned best by doing, group work, and writing the notes in their own words.

Even though this teacher did not teach these students, they poured out a scarred home life filled with strife. Problems ranged from physical beating, verbal abuse, alcohol abuse, daily use of marijuana, and unemployment of the parents. One wonders from reading their stories, why they even came to school much less functioned while they were there.

Alarmed even further by these revelations, the teacher presented her findings to the associate principal. As a result of her concerns and the high failure rate, she received special training at Clemson University to learn how to teach contextual biology. This approach is quite different from memorizing the terminology, completing labs that are primarily dissection, completing worksheets and taking tests. The emphasis in the contextual course includes the role of biology on community life, is environment centered, and its focus is on how biology affects our everyday life. A complete package of tests, videos, and workbooks were also purchased to implement the course.

The Research Questions

Using this teacher (I will call her Mrs. Z.) as the focus of my inquiry, I completed a case study of her journey throughout the first school year in which she implemented contextual

biology. The questions I asked included the following:

1. What factors influenced Mrs. Z. to make major changes in Biology curriculum and teaching methods?

There was no department pressure or administrative pressure and yet this teacher singlehandedly initiated the contextual class into the biology curriculum.

2. Did Mrs. Z.'s role in the classroom change as a result of her approach to teaching?

Contextual learning advocates believe that a teacher must become a facilitator of learning rather than the dispenser of knowledge. I wanted to know how and why this happened or if it never happened at all.

3. Did her classroom change as a result of the new course?

Contextual learning advocates emphasize that contextual learning classrooms are often noisier, chairs are not in straight rows, and students interact with each other. I wanted to know if these changes took place and what other adjustments if any were made in the classroom environment.

4. What were Mrs. Z.'s expectations for her students?

High expectations are always mentioned in contextual learning theory. I wanted to know her level of expectation for her students and how she implemented these expectations into her class.

5. Did students engage in teamed projects and co-operative learning?

Contextual learning emphasizes depending on each other in group projects and drawing on each other's strengths to solve problems. I wanted to know if this happened in her class and how she handled the issues of co-operative learning that many teachers grapple with: how to group, how to deal with those who don't do their share, how often groups are changed, and the "best" number of students per group.

6. Did students' attitudes change as a result of the class?

Contextual learning advocates emphasize that if students are involved in relevant learning, their attitudes toward school change for the better as they become active learners. I wanted to know if she "saw" renewed interest by students in her classes, better attendance, and a more positive attitude about learning and life.

7. Did the class affect student achievement?

Contextual learning advocates believe student achievement will rise as a result of contextual methodology. I wanted to know if this happened in her classes. Specifically, I wanted two or three students' "stories" of this progression in achievement if it had occurred.

8. What were Mrs. Z.'s successes?

Reflective teachers mull over their practice and are constantly thinking of new ways to motivate students. I wanted to know how she defined success, examples of "success stories" within her classroom and the factors she attributed to student success.

9. Which contextual lessons failed and why?

Through our conversations, we discussed her lesson plans for the following week. The next week's focus was lessons that did not work, her reflections on why they did not work, and planned changes she made when the same lesson was presented again.

10. What were the changes that resulted from Semester 1, 1997 to Semester 2, 1998?

With the 4 x 4 block schedule, students are able to complete one year of a course in a single semester. I wanted to know how her approach changed when a new class entered in January 1998, and the result of the changes.

11. At year end, what thoughts and observations did she have about her classes, about herself and the next school year?

Specifically, I wanted to know how she changed from the experience and what she believed were the implications for her as a professional and for her students. The final question was in hindsight: Would she have undertaken this same journey based on what she knows in May 1998?

Significance of the Study

Contextual learning has many aspects and encompasses the role of the teacher and the students in the learning process, real-life activities within and beyond the classroom to enable students to make connections and understand why the lessons are applicable to their own lives. Team projects are done so those students can exchange information, learn the value of teamwork and rely on each other as well as active learning that includes projects and hands-on activities. Other issues examined by contextual researchers are the importance of students learning how to learn, identifying and teaching to the preferred learning styles of students and even the physical

arrangement of the furniture in the classroom.

Contextual learning practices are not a new phenomenon in education. John Dewey (1899) described a home economics classroom where students were actively engaged in preparing food and which moved them “from more or less passive and inert reciprocity and restraint to one of buoyant energy” (p. 301). In developing questions regarding effective schools, John Goodlad and associates (1970) determined after observing and interviewing in 158 classrooms in 13 states that children were seldom actively involved in the learning, were neutral toward learning and “rather than probing, seeking, inquiring, children were predominately responding and covering” (p. 79). An additional study by Goodlad in 1984 noticed little change from the previous study. Observations revealed students who were passive learners, sitting at their desks and completing reading or writing assignments “with little emotion, from interpersonal warmth to expressions of hostility” (p. 230).

Student reaction to learning is often determined by the role of the teacher. Contextual learning views the teacher as a facilitator in the learning process. Goodlad (1970) referred to the importance of teaching children how to learn rather than the teacher merely telling students what they need to know. Adler (1982) came to the same conclusion. His study’s focus was on active learning, involved the use of the mind, and placed the student as the main agent in learning and not the teacher while Caine and Caine (1991) described the role of the teacher as facilitator and as one who encourages students to explore information and link knowledge. Bruner (1986) described the teacher this way: “she was a human event, not a transmission device” (p. 126).

My personal educational experiences agree with these studies. As an English teacher in a vocational setting, I observed students in the vocational labs who were active learners, who helped each other on projects without fear of being accused of cheating and who were guided by a vocational teacher who moved from project to project, probing and asking questions that placed the responsibility of solving the problem on the students. Ways of solving the problem may be different from group to group unlike a true false or multiple choice that has one correct answer and leaves little room for creative thought and developing problem solving skills.

In my present position as evaluator of thirty-one vocational teachers, I observe active

learning taking place: the masonry teacher who teaches math within the context of building a wall, the building trades teacher who teaches board feet at a local lumber mill, the agriculture teacher who has students demonstrate welding skills through hands on and written explanations and the collision repair instructor who requires students to submit career portfolios that document vocational competencies in a written format.

Making connections and redefining the term classroom are also a part of our vocational strategy: electricity students who wire Habitat for Humanity houses, CAD students who design new building facades for the Main Street America project and marketing students who create and implement window displays for downtown merchants as well as business students who prepare course brochures and business cards for teachers are engaged in active, real-life learning.

My study focused on contextual learning in an academic biology class. Many of the studies in my literature review did not identify the disciplines where the research was conducted or “lumped” academic and vocational classes together under a single set of data or conducted the studies in vocational settings where contextual learning has historically been implemented. My research bridges that gap and focuses on contextual learning in a traditional classroom setting.

Additionally in my division’s quest to reduce the dropout rate and improve student success, this study illustrated learning methods that worked with students, great ideas that failed because of classroom limitations, numbers of students and discipline seen through the eyes of a teacher in our own school with real faces, real students, real problems, and real solutions applicable to us. Other researchers can use this study to conduct other in-depth research such as class size as a factor in student success, preventive discipline techniques and the role of the teacher in the change process.

A final reason I completed the study was to provide the personal voice missing in other studies and catching only the briefest glimpse inside the classroom. After reading the literature, I wanted to know what the teacher felt, how the students reacted to contextual practice, how individual teachers make a difference, how a teacher involved in a new teaching approach handled frustration, success, and failure, and even what the teacher and the classroom looked like. My study provides that “up close and personal” account.

Chapter 2

Literature Review of Contextual Learning

The term contextual learning has been used by contemporary educational scholars to define and describe a number of theories regarding teaching and learning that include the role of the teacher, the role of the student, active vs. passive learning, relevant learning so that students make connections from the classroom activities to their own lives and teaching to the student's preferred learning styles. However, many of the concepts of contextual learning were endorsed both John Dewey and William James as early as 1897 and 1899. The first part of chapter two examines these early theorists who advocated many of the same principles as contemporary scholars. A review of classrooms one hundred years ago will lead to a review examination of the principles of contextual learning as they impacted our classrooms in 1998. While many things have changed in education over the last one hundred years, much has remained the same.

Contemporary contextual scholar, Dale Parnell in 1995 called William James the Historical Father of Contextual Learning. In his series of essays, Talks to Teachers, printed in 1899, James described the "older pedagogic method of learning things by rote, and reciting them parrot-like in the schoolroom" (p 733). He suggested that "students must keep notebooks, make drawings, plans, and maps, take measurements, enter the laboratory and perform experiments, consult authorities, and write essays (p 734).

James also believed that teachers must vary their lessons in order to excite students, ask questions in different ways and change data used in numerical problems. He also admonished teachers (James, 1899) not to preach to pupils but rather "to get your pupils both to think; to feel, and to do" (p 753). A good teacher, James believed, will help students make connections between the new lesson and children's experience and that "the shuttle of interest will shoot backward and forward, weaving the new and old together in a lively and entertaining way" (p 769) so that students connect learning with something already there. He provided the example of an object while not interesting on its own may become interesting through association with an object that already exists. When this occurs, the two associate objects grow together and become "as real and as strong as that of any natively interesting thing" (p 76). Connections to what one already knows is vital to the student according to James. He advocated building on previous

learning and helping the student associate the old with the new in some natural way.

Not only should students make connections within the classroom but they also should be able to see the connections between disciplines and learning in our classroom to another. James (1899) described it this way: “When the geography and English and history and arithmetic made cross-references to one another, you get an interesting set of processes along the way” (p 769). In order for students to make connections, reference materials beyond the standard textbook is necessary. James (1899) described how two postage stamps can enhance a history or geography lesson, tap into student interest and incite wanting to learn the geographical or historical facts that the teacher needs to instill.

Ninety-seven years ago, James advocated many of the components of contextual learning: connecting ideas as well as disciplines so that learning is seen as a united whole and not isolated parts, varying lessons with anecdotes and supplementary materials to enrich learning, providing for varying learning styles and recognizing that the role of the teacher is to move beyond the lecture/memorization method, to having students take ownership in the material and thus foster their own learning.

John Dewey’s philosophy of learning in 1899 paralleled James. He urged teachers against confining knowledge and experience into separate domains and believed school should provide a place where students could practice living. He described a home economics classroom that he observed in 1899.

As one enters a busy kitchen in which a group of children are actively engaged in the preparation of food, the psychological difference, the change from more or less passive and inert recency and restraint to one of buoyant energy, is so obvious as fairly to strike one in the face (p 301).

Dewey (1897) also believed, as did James, that students must connect what they learn in a classroom and their own preparation for community life. Students should not learn something for the remote future or because the teachers says that it is important. According to Dewey, learning in this way “does not become a part of the life experiences of the child and so are not truly educative (p 431). Thirty-six years later, Dewey (1933) reiterated that the carrying over from one experience to another is dependent upon like elements in both experiences just as James advocated in making natural connections from such object to another. Dewey also believed that

“schooling is then technical because of its isolation, and the child’s thinking cannot operate because school has nothing in common with his earlier experiences” (p 241).

Dewey also stated that students not only must connect learning to life but also see that learning connects across areas and believed, like James, that material may be taken from “a variety of fields, number and measure from mathematics when they are needed, from historical, geographical, biological facts when they carry forward the undertaking” (1931, p 424). However, the central question is the magnet that draws them all together and corresponds to experiences outside school where learning does not occur in isolated segments with labels attached.

Dewey also addressed the role of the teacher in facilitating student learning. In a pamphlet published by Harvard University press in 1931, he stressed the need for intellectual activity on the part of teacher and students and described teachers who presented lessons while students passively received the information: “In practice there persist methods in which the pupil is a recording phonograph, or one who stands at the end of a pipeline receiving material conducted from a distant reservoir of learning” (p 423).

Dewey also endorsed the teamwork component that contemporary scholars define as essential to contextual learning. In 1899, Dewey endorsed teamwork and cooperation as important to solving problems, stating that “for one student to help another in his task has become a school crime where the school work consists in simply learning lessons, mutual assistance, instead of being the most natural form of cooperation and association becomes a clandestine effort relieve one’s neighbor of his proper duties” (p 301). Both Dewey and James emphasized the importance of the teacher serving as a facilitator to learning, the student activity receiving the information and applying it to his life, making connections among disciplines, and the importance of teamwork.

Modern researchers have also extolled the importance of contextual learning in today’s classrooms. Like James and Dewey, these scholars have examined the role of the teachers in a contextual learning classroom, the role of the student, the importance of bringing supplementary materials into the classroom and the importance of making connections among disciplines as well as applying learning to one’s own life. These principles will be examined in this section of the literature review, plus the highlights of successful learning projects observed by researchers

in classrooms throughout the country as well as a project from my own classroom that brought these principles together through a study of Chaucer's Canterbury Tales.

The Role of the Teacher

John Goodlad (1970) believed there should be a checklist of reasonable expectations for schools given the frequency with which the concepts behind them have been endorsed over the years. One of those expectations is that classroom instruction would be guided by an emphasis on learning how to learn. Rather than the teacher telling students, they should be given the opportunity "to explore, to try, to inquire, and to discover for oneself" (p 13).

Bruner (1983) in Childs' Talk echoed Goodlad when he described an experiment where mother and child played games to foster the child's language development. The games involved the appearance and disappearance of objects. The teacher in this case is the mother who actually introduced new procedures to the game and eventually handed over the skill to the child as his ability for executing it developed. The experiment can easily be transferred to a classroom setting. Bruner expressed it this way: "If the 'teacher' in such a system were to have a motto it would surely be "where there was a spectator, let there now be a participant" (p 60). Bruner also believed that the key to finding meaning for students lies with the role of the teacher. In 1986, he wrote about a favorite teacher who spoke to the class about the puzzling fact that water changed from a liquid to a solid. Immediately, Bruner felt the teacher's sense of wonder and realized later that "her words were an invitation to extend my world of wonder to encompass hers" (p 126). The teacher's sense of wonder was not simply informative or as Bruner stated, "She was a human event not a transmission device" (p 126). He believed that transmission of information came from an outmoded pedagogy that viewed the process of education as a "transmission of knowledge and values by those who know more to those who knew less and knew it less expertly" (p 123) and that "the pedagogy that resulted was some view of teaching as surgery, suppression, replacement, deficit feeling, or some mix of them all" (p 124).

Adler (1988) echoed the same concerns as Bruner regarding the role of the teacher: Teachers who regard themselves as the principal, even the sole, course of the learning that occurs in their students simply do not understand teaching as a cooperative art. They think of themselves as producing knowledge or understanding in the minds of their students in the same way that shoemakers produce shoes out of pliable or plastic materials (p 171).

He also believed that teachers should ask rather than tell and that the students are the main agents in learning and not the teacher. In Adler's view, the art of teaching is coaching, which he viewed as more cooperative than didactic and illuminated through discussion.

Likewise, Caine and Caine (1991) in their brain-based research identified the importance of the role of the teacher in facilitating learning. They view educators "as generators of meaningful, connecting, and linking knowledge who can not only use the appropriate software but far surpass its performance in interactive questioning and explanations of information" (p 23).

All these scholars view the teacher as a facilitator of learning, as one who is able to inspire students to become involved and who creates a classroom environment that includes much more than simply dispensing knowledge. As the role of the teacher changes, questions then arise: What is the role of the student in a contextual learning classroom? and what have researchers determined after observations in the classroom about the usual role of the student?

A contextual learning classroom should be teeming with activity since the teacher has taken a secondary role. However, in far too many classrooms, the student is still only passively involved. Goodlad (1970) asked the following questions about school: How does the teacher bring pupils into the subject matter? Are students exchanging with each other? Is the teacher the source of knowledge, telling the children and then questioning them on what they have been told? Using these questions regarding effective schools, Goodlad and his associates observed in 158 classrooms of 67 schools in 26 school districts around the major cities of 13 states. Observers gathered data from three sources: interviews with teachers, interviews with principals, and observation of classroom activities. The staff visited three classrooms each day, preparing anecdotal records of visits, which were, with three exceptions more than forty-five minutes long.

After raw data had been obtained and written up by the observers, three members of the staff analyzed them. One area observed and analyzed was student involvement. Again, the issue of passive vs. active learning comes into play. One observer noticed that in one classroom only three children participated in a total class discussion lesson during a period of thirty minutes.

In categorizing the instructional environment of the classes, Goodlad (1970) and his associates discovered that: "rather than probing, seeking, inquiring, children were

predominately responding and covering” (p 79). Children seemed to be neutral toward learning and showed neither boredom nor enthusiasm. As Goodlad (1970) stated: “child-to-child interaction was only occasionally characteristic of classrooms and these students were gaining only very limited experience with the techniques and self-discipline of group intercourse” (p 85). Bruner called this group intercourse culture making where the “pupil, in effect, becomes a party to the negotiators process by which facts are created and interpreted and becomes at once an agent of knowledge making as well as a recipient of knowledge transmission” (p 127). In other words, teachers and students are active partners in the culture making process.

Not only should students become active participants in learning, they should also be discovery learners. Bruner (1986) first defined discovery learning as learning on one’s own. Through his years of research, the focus changed from learning on one’s own to recognizing that “most learning in most settings in a communal activity, a sharing of the culture. It is not just that the child must make his knowledge his own, but that he must make it his even in a community of those who share his sense of belonging to a culture” (p 127). Through sharing and negotiating, pupils will have made an appropriate step to “becoming a member of the adult society in which one lives out one’s life” (p 127). Bruner (1986) also believed the lesson itself should be presented as an exercise in “collectivity, one that depends upon the attunement of the teacher to the expressions and intents of members of a class” (p 133).

Other scholars have reached similar conclusions. In a paper presented at the annual meeting of the American Vocational Association Annual Conference on December 2, 1993, Walter Edling reported that learning is most effective when students are highly motivated, active participants rather than passive, and taught within a contextualized environment. He contended that most people learn best in an experiential manner involving personal participation, physical or hands-on activities and opportunities for personal discovery. He also believed that group learning, interpersonal communication sharing and positive reinforcement is essential in the learning process.

Parnell (1995) also advocated discovery learning and defined it as “students are guided toward discovering new knowledge rather than having the answer handed to them. Teachers help students explore, test, and seek their own answers, often with the help of learning partners” (p 9).

Echoing Parnell's discovery principle, Adler (1982) stated:

When instruction is not accompanied by discovery, when instruction makes impressions on the memory with no act of understanding by the mind, then it is not genuine teaching, but mere indoctrination. Genuine teaching, in sharp distinction from indoctrination, always consists in activities on the part of teachers that cooperate with activities performed by the mind of students engaged in discovery (p 172).

In order for discovery learning to occur, the classroom must not depend on the textbook alone for instruction but rather present students with a wide variety of supplementary materials. Adler (1982) believed memories can "only be formed by coaching, never by lectures and the reading of textbooks" (p 173) while Goodlad (1970) through classroom observations found that the prime medium of instruction was the textbook along with workbooks. Students completed these activities on their own with little interaction between the teacher and other students.

Connections Among Disciplines/Application to Life

In order for students to become active participants in learning, they must be able to make connections among disciplines and more importantly connections to their own life. Parnell (1995) called this the connection principle and defined it as "teachers help students see the connections between context and content, knowledge and applications, one discipline and another" (p 9). Caine and Caine (1991) asserted that there has been "no effort made to access the rich connections already in the brain that can provide the learner with an instant Aha! sense of what they have already encountered in real life" (p 4). They gave as an example of their assertion, parallel lines. Students have seen parallel lines in many places such as windows, fences, and mechanical toys. Instead of taking advantage of their prior knowledge, the authors' state: "most teachers will draw parallel lines on the board and supply a definition. Students will copy this 'new' information into a notebook to be studied and remembered for the test" (p 4). They emphasized that brain-based learning rests on how various disciplines relate and refer to the relation as the heart of thematic teaching. They wrote that currently 'literature, mathematics, history, and science are often seen as separate disciplines unrelated to the life of the learner" (p 4). "and that students learn from their entire ongoing experience with every current event, knowledge, or behavior being linked or connected to past learned or stored information. They

suggested that learners must be exposed to content and context-immersed in learning, engaged in talking, listening, reading, viewing, acting, and valuing.

They referred to perceptual knowledge that is meaningful to the individual and describe it as “what people use to organize their grasp of the world in which they live” (p 101) and that this knowledge gives students “the opportunity to make sense of what they are doing and enhance their communication and group processes” (p 105). In order to achieve this perceptual knowledge, ‘information must be taken off the page and the chalkboard and brought to life in the minds of students’ (p 115).

Scott Johnson (1996) espoused a similar belief in a paper presented at the Jerusalem International Science and Education conference. Johnson defined contextual learning as “a rich learning environment filled with authentic problems and real situations and is critical for developing intellectual skills” (p 1). George Copa and Virginia Pease (1992) in their two-year study to specify new designs for the comprehensive high school of the future reached the same conclusions. Their study highlighted a key need: to diminish the existing gap between schoolwork and life outside of school. According to Copa and Pease:

School is boring, many students say. What they mean is that they are unable to connect what they are learning to its usefulness in life. Without meaningful connections, the motivation to learn is lost, making high schools destined for extinction as productive organization (p 1).

In their study they referred to the Secretary’s Commission on Achieving Necessary Skills (SCANS) (1991). This SCANS committee determined that there were three foundation skills and five competencies that all students need as they go into the workplace or on to school. The five competencies include the abilities (1) to identify, organize, plan, and allocate resources; (2) to work with others; (3) to acquire and use information; (4) to understand complex systems; and (5) to work with a variety of technologies. According to the report, students currently see little connection between what they do in school and what they will do to earn a living. The authors of the SCANS Report believed that “teachers and schools must begin early to help students see the relationships between what they study and its application in real world contexts” (p 19).

Application in real world contexts was also the focus of a study conducted by Kathryn Pearce and others in 1992. The findings are quite similar to those headed by Copa and Pease and

the SCANS report. Pearce recommends a curriculum that is “related to needs, interests, past experiences, and capabilities of persons, and which is organized so that its meaning for the everyday living is apparent” (p 5) and that allow students to understand that subjects are connected which according to Pearce has “in the past been taught as discrete unrelated subject areas” (p 15). The study also recommends a curriculum that “must meet diverse student needs in personal, educational and occupational areas” (p 17).

Meeting student needs, making connections and providing real life contexts were identified as important in a 1995 study by Alexandra Weinbaum and Anne Rogers for the National Institute for Work and Learning. In describing the typical classroom setting dominated by lecture, books, and passive learners they concluded that “it is a remarkably poor environment for learning for many students. Real contexts provide an array of stimuli and supports for learning that classrooms do not” (p 2).

In declaring the focus of their research as contextual learning, Weinbaum and Rogers emphasized that “people have used such terms as experimental learning, real-world education, active learning, learner-centered instruction to mean similar ideas” (p 3). They also asserted that effective contextual learning results “from a complex interaction of teaching methods, content, situation, and timing” (p 11). They advocated a classroom where teachers place abstract tasks into contexts that seem authentic and serve to motivate students.

Grubb (1995) echoed the same belief taken from cognitive science that expert knowledge is often specific to a particular activity and that effective learning requires a context that matters to the individual while Parnell (1995) stated that contextual learning must include application where “new knowledge is specifically related to its practical, real-life application – especially how it relates to students’ future roles as citizens, workers, family members, lifelong learners, healthy individuals, and participants in culture and leisure activities” (p 8).

Copa and Peace (1992) agreed with Parnell and recommended authentic projects that are “selected from the life challenges and opportunities students face now or are likely to face in the future in their family, work, and community lives” (p 14). Caine and Caine (1991) also subscribe to tying learning into the life experiences of students. Their example of this correlation revolved around studying Shakespeare’s Hamlet. Rather than simply reading the play; answering

questions, and taking a test to check on students recall of the material, they recommend bringing the background and information students bring to class and applying those experiences to an understanding of the play. Examples of student experiences can include parents, power, and love, which will be tied to the themes of the play.

If connections among disciplines are made, if students see the relevance to their own lives, if the teacher serves as facilitator and the students are actively engaged, then the class becomes relevant and meaningful for students. Researchers who have observed in these classes where all the elements were present have given a glimpse of the multitude of activities that have taken place. The following sections provide a view inside those classrooms along with my former classroom where learning and relevance were combined through a study of Chaucer's Canterbury Tales.

Contextual Classrooms: A Glimpse Inside

Caine and Caine (1991) wrote that new information must be significant to students and connected to their personal experiences. Referring to their connection as map learning, they stated it is vital to “help students relate the material they need to know to what they already know” (p 51). They also advocated giving students real experiences, providing physical movement, social interactions, and practical projects to complete the connection.

Teaching in this way has many advantages. Caine and Caine (1991) gave three reasons for this approach. First, the brain searches for common patterns and connections. Second, every experience contains within it the seeds of many, and possibly all disciplines. If students are studying Eastern Europe in a history class, literature, art, music, and technology can become a part of the historical study. Thirdly, the student has a much better chance of grasping what is learned since the same message is packaged in many different ways.

Like Parnell (1995), Dewey (1897, 1931), and Copa and Pease (1992), Caine and Caine (1991), believed that “much of what happens in the school is in the context of a larger society in action....the impact of the world beyond the school cannot be underestimated” (p 133). To illustrate their point, Caine and Caine used the example of a potato as the axis for a lesson plan. The lesson begins with a sprouting potato. Using this “prop” the teacher tells the class that only when famine hit England did the wealthy people taste the vegetable. The lesson would proceed

with a study of famine with its historical and social implications. Connections would be made between the past and actual student experiences. Science could also play a part in this lesson in determining the soil and nutritional qualities of potatoes. Enrichment activities would include art, music, literature, field trips and creative projects. In Caine and Caine's (1991) words this approach "would allow the brain to tie all the facts together" (p 54).

From my years in education, I know that this potato lesson works. Not only does it draw on a variety of learning interests, it also bridges disciplines. I would add other components to this lesson particularly as it relates to art, music, and literature. An excellent creative writing exercise could be for students to write a play about certain periods of history where the potato played a major role. The main character is the potato with minor characters being other vegetables, gardeners, and families sitting down to dinner with the potato as the main course. A dramatization of the play with period music and appropriate art would round out the study and allow all students to share their creativity.

Caine and Caine (1991) affirmed the importance of dramatization as the potato example attests. Their brain-based theory emphasized debates, telling stories, playing historical figures, as well as re-enacting historical events. They stated: "Cooperative learning, communication skills and learning how to live in a complex society with people of similar and conflicting needs and emotions should receive as much attention as 'cognitive development'" (p 65).

To bring the class to life in the mind of the students, Caine and Caine (1991) also described a German class. On entering the class, students were essentially in Germany. They had German names and spoke only German. English was the foreign language of the students. The classroom also reflected Germany through German artifacts and posters of Germany. Students in this class translated fairy tales and sang German songs. Caine and Caine (1991) asserted the effectiveness of this technique in that "students in these classes won first, second, fourth, and sixth places in the state language contest" (p 116).

This total immersion in German culture is but one example given by Caine and Caine in order for students to make connections and become totally involved in learning. While Caine and Caine (1991) agreed that students must be exposed to subject matter in many different ways, they believed that a great number of the experiences "must be complex, real projects" (p 120).

This project method has the added advantage of connecting content to the students' everyday learning. Caine and Caine believed the project method enables the teacher and/or students to “model or demonstrate the subject, bring in experts, engage in genuine problem solving, interview authorities, and create learning games” (p 120).

In order to demonstrate how the project method can work, Caine and Caine (1991) gave the example of a study about eagles. Students researched nesting habits, reproductive patterns and ecological requirements. The videotaped sound of live eagles as they moved through the air was played while the students read literature regarding eagles. Students also studied the role of the eagle in the political process and in the arts. Computer simulations were used to help students identify where eagles were located. While Caine and Caine did not mention the Internet, it would be an excellent medium to explore information about the eagle while at the same time learning current technology skills.

This project method provides the essentials of good learning and incorporates many of the elements advocated by contextual scholars. Students are able to view the study of the eagle as a connected whole and not as separate parts. It is interesting to note that in the eagle example no specific discipline was mentioned. This was not designated as a science class, as an English class or a technology class but rather as a class about eagles that transcended subject boundary lines. Additionally, it provided students an opportunity to showcase and capitalize on their expertise as some were involved in literature, some in scientific pursuits, and others used their knowledge of technology to enhance the study. As Caine and Caine (1991) asserted, “the mood that should prevail is that of a team of researchers or explorers engaged in a meaningful, exciting adventure” (p 21).

A good example of authentic learning that motivated students came from my own teaching experience. Having taught Chaucer's Canterbury Tales in the traditional manner of having students read aloud, asking them a few questions, and then telling them what it really meant, I decided to change my teaching from a teacher-centered classroom to one that was learner-centered.

After placing students in cooperative groups, I assigned each a character to study. By whatever means they chose, they were to make the character come “alive” for the rest of us. My

classroom was transformed for a number of reasons. First, my classroom was noisier as students exchanged ideas and learned to work with each other. The deadlines they imposed on completing assignments were far stricter than any I would have made, and students met those deadlines. Additionally, students became the active learners that contextual scholars advocated.

Secondly, my role changed to that of facilitator. No longer was I at the front of the room dispensing information but rather moving from group to group serving as a listener, making recommendations, and sitting among the students as a group member. Students also learned that I would not provide them all the answers. They had to learn to think for themselves.

Thirdly, the whole design of my classroom changed. No longer were the desks in orderly rows, they were in circles or squares and some were even out in the hall. My desk was shoved to the side and became not a symbol of authority but rather another place for students to work.

As the days neared for the presentations, students saw a need for props and costumes. They immediately began thinking outside the narrow confines of our classroom and began using our vocational shops to create the items that were needed. To the delight of vocational faculty, our English classroom became a focal point of activity for the school.

Commercial Arts printed the invitations, Business classes computerized them, Carpentry created props, Child Care helped design costumes, Horticulture provided the green plants that represented a forest, and Cosmetology students provided the wigs with the hairstyles predominant in Chaucer's time.

On the day of the presentations, excitement was high. The principal, other classes, and faculty attended and the presentations were full of vitality and enthusiasm. Chaucer had become real to our students. It was no longer a class assignment but rather a school project.

This lesson that occurred over a one month period contained the elements of contextual learning documented as important by researchers in that the text was used as a springboard to the culminating activity of presenting the characters. The context of the play had moved from the page to the student's own personal involvement, and as a result students made the connection between events in the play and the reenactment.

Additionally, students worked in co-operative learning groups. Each of the individual group members had strengths that were tapped into and the reenactment that resulted was the use

of group process and not an individually graded test that asked for a parroting of facts and that was seen only by the student and the teacher. The group process allowed students to engage in lively discussions as well as to help each other. The projects became theirs and not mine as they assumed total ownership in the learning.

My role as facilitator also enhanced the process. Since this was also a new experience for me, I did not know the answers to their questions and could not tell them what to do. My students and I had become equal partners in the project. The lecture method could not have produced the same results and there was an exhilaration for me to move from center stage to a mover among groups, asking probing questions, affirming when they were unsure, and providing the additional resources that they needed. The traditional lecture method and the final test were much easier forms of teaching, but this role was far more gratifying.

Moreover, we were no longer just an English class as the lines between discipline had been erased and we redefined the meaning of classroom. The entire school became our large classroom when we used the skills and abilities of the vocational classes as a community of learners.

If I were involved in this process now, I would ask students to formally evaluate what they learned, but then their excitement, their dedication to the task and the positive outcome were the only affirmation that I needed. Even though I had no idea that I employed contextual learning principles, I had no doubt that what I had done worked.

A Contextual Research Study and Its Findings

After reading the research that indicates positive outcomes for students who are taught contextually, I located a research project that targeted teachers who were trained in contextual methodology as well as students enrolled in contextual classes. The study yielded some surprising results.

The study evaluated five Oregon public high schools that trained teachers in contextual methodology and the impact of the methodology on student accomplishments and attitudes toward learning. The project was funded by the U.S. Department of Education under the Innovative Education Program. The original grant objective was to train fifty teachers but in fact only thirty-three teachers were involved. The evaluator, Lester Reed (1996) cited three adverse

impacts of the lower teacher numbers. They were: 1) reduce the number of trained teachers to support dissemination and continuation of the program of implementing contextual methodology; 2) complicate the evaluation of project and reduce the significance of the data gathered; 3) significantly reduce the planned student population from 600-700 students to approximately 350 (p 8).

The project's first year involved conducting a Summer Institute for Teachers, pre-testing of contextual students, initial classroom instruction of students, and preliminary evaluation activities. In the second and final year of the project, teaching/learning activities using contextual methodology continued with post-testing of both contextual and non-contextual matched pair students conducted at the end of the 1995-96 school year. A survey was used to solicit student opinions and teachers completed a post-project opinion survey and submitted periodic classroom observation summaries. Each school also completed project evaluation reports and meetings were conducted with teachers and principals.

First, the Summer Institute for teachers held in June 1995 was rated. The ratings were high and most teachers saw the institute as a positive experience. A survey was administered to thirty-two teachers participating in the Summer Institute and prior to using contextual methodology. Twenty-eight of the surveys were completed and returned. At the end of the project, an identical instrument was administered. Only twenty of the original twenty-eight teachers completed the post-survey.

Reed's (1996) analysis revealed that teachers become more positive as they used the methodology and the post-teaching survey was more positive than initial opinions. Teachers completing the survey felt that all students would benefit from contextual methodology and that attention, motivation, and learning were enhanced. Teachers' comments on the post-survey concerning their contextual classrooms yielded responses such as "exciting," "noisier," "relevant," and "the opportunity for me to learn along with my students" (p 11). In responding to learning by students who were enrolled in contextual classes, post-survey responses stated that "students were more energetic," "involved in learning," and "material was understood by students" (p 14).

The primary differences that teachers cited between contextual and regularly taught

classes were “generally better grades,” “more self direction,” “I served more as a resource,” “the why do I have to learn this syndrome was missing” (p 15). Teachers also noted in the post-survey that students became aware of the importance of each individual in the group and were somewhat more willing to tackle complex projects (Reed, p 16). Additional comments from the post-survey revealed motivation increased to a sizable degree and that the students who benefited most from contextual methodology were all students and especially those bored in theory-based classes (Reed, p 17).

Methodology was also a focus of this study. In responding to the statement of the major difference between contextual and traditional methodology, the responses included “putting the student in an active role,” “connections made by the student,” and “putting more responsibility for learning on the student” (Reed, p 18). The study also indicated that contextual methodology is equally suitable for academically oriented gifted students (p 22).

The use of a teacher’ observation checklist provided for structured ratings and free response. Overall the results were favorable toward contextual methodology. However, Reed stated that “the results should be viewed as inconclusive due to the small sample size (only 14 of the potential 32 teachers participated by turning in the required periodic checklists)” (p 20).

To determine student opinions of contextual learning, Reed used a survey instrument. A total of 310 students from the five high schools were involved with a considerable mix of grade levels and disciplines. The survey instrument had two parts. Part one had ten questions and dealt with students’ perceived academic progress and learning styles. Section two had seventeen items and dealt with students’ opinions of contextual learning versus traditionally taught classes taken by the student.

Overall, students indicated that they learned better and remember longer if they used the information. Both of these factors are prime premises of contextual methodology. Students also tended to enjoy working together, another key component of contextual learning. Student responses were less sure on the opinions regarding contextual learning versus traditionally taught students. While students said they did better in their contextual class than in their other school classes, overall ratings did not reveal any significant support for contextual methodology vs. other teaching methods with many students reporting “don’t know” to many of the questions.

Reed (1996) attributed this to a fairly large number of freshman students (102 out of 310 respondents).

When Reed (1996) used only the non-freshman students compared to responses by all students, it revealed a slightly more positive reaction in regard to the use of contextual methodology. The most significant rating difference was the more favorable rating by non-freshman of their higher interest level in contextual classes than other classes. Overall ratings, while supporting the effectiveness of contextual methodology, did not provide ample evidence that the great majority of the students agreed with the approach or could make a judgment on the issues presented in the survey items.

Reed (1996) also noted that due to the distribution of disciplines in the project, many of which were career oriented, it was not possible to determine perceptions in academic type classes of non-freshman students who were poorer students.

The report raised some issues. Teachers were enthusiastic about the use of contextual methodology, yet the number of responses to the survey dropped considerably from the Summer Institute to the end of the year. Perhaps teachers suffered from end of the year fatigue or perhaps they worked in isolation with little chance to communicate with others involved in the study since there were no indications that teachers came together after the Summer Institute.

Additionally, no information was given concerning the types of contextual learning methodology that were used in these classes. One can assume that with the many disciplines involved, a wide range of methodologies must have been implemented with varying success.

More puzzling is student response to the survey. While students responded that they enjoyed the contextual methodology, the large number of “don’t know” answers and the low rating to the question of whether the contextual class approach should be used in all classes bring out some interesting issues: How different were these contextual classes in terms of methodology from other traditional classes? Were the students unable to perceive any discernible differences? Was the methodology so novel to students that they preferred the more traditional methods? How can students enjoy their contextual learning class but not be supportive of this methodology in terms of learning?

Reed (1996) stated in the Executive Summary: “The most valuable generalized

conclusion is that contextual methodology does not reduce the ‘academic learning’ of students – a generally heard criticism” (p 5). The generalized conclusion raises other questions: Did academic learning remain the same as in traditional classes? What was the measure used to determine that learning and was there any evidence that learning was enhanced?

The research into contextual methodology has proven challenging for a number of reasons. First and foremost is that the methodology is far more than simply a hands-on approach to learning. It is multi-faceted involving teamwork, the project approach, discovery learning, brain-based learning, learning styles, the roles of the teacher and the students in learning, and making connections to students’ lives and other disciplines. Additionally, while contextual methodology is more frequently used in technical classes because of the nature of the course, its use is applicable based on the research and my own personal experience in academic classes.

Another interesting aspect of my research has been school reform. In reading both John Dewey and William James, the classrooms they described were remarkably similar to classrooms of today where the principal method of instruction is lecture, note taking, and tests. The classrooms of today as in the time of Dewey and James are still dominated by desks in rows and the teacher in front of the room. True reform takes a long time and often involves not a whole division nor even a whole school but one classroom at a time.

A third issue is that of teacher isolation. Opportunities for interaction with other teachers are rare and when communication does take place it is often within departments and does not encompass other disciplines. Opportunities for teachers to observe other teachers are rarer still so that many teachers continue the old methods because they know nothing else or are afraid of change – they and the students are in a more comfortable niche with lecture, text, and tests.

Summary

Exploration of contextual learning in a biology class will serve as the focus of my study. From my research and my own teaching experience, I believe that contextual learning can make a difference in student achievement and help students see a connection between what they learn in a classroom and their own lives. Using the research as a guide, I examined the many facets of contextual learning in two biology classes taught by Mrs. Z. in school year 1997-98 and the changes that resulted in the students and the teacher during the first year of the contextual

classes.

Subsequent chapters focused on the research design and methodology chosen for this study as well as the reactions of students to the new approach, the teacher's reflections on the process, my insights on our collaboration, and an analysis of what I gleaned from the research, interviews, the classroom observations, and the teacher's reports.

Chapter 3

Research Design and Methodology

The research methods used in this study were qualitative. Data collection procedures were qualitative to accomplish the objectives of the study. The objective of the research was to record one teacher's journey as she began teaching a newly designed course in contextual biology.

Participant Selection Process

The subject for this study was a teacher (I will call her Mrs. Z.) with twenty-six years of experience who currently teaches contextual biology at a comprehensive high school of 2,000 students. The room where she teaches is the same room where she took biology in high school from a teacher who, according to her, only showed films, read the paper, and who was not reappointed to his position.

Mrs. Z. has strong ties to the community and has served on a number of community boards including the Association of Retarded Citizens. Her brother is mentally retarded and lives with his mother in the community, a second brother died from muscular dystrophy. She is married to a drug and alcohol counselor and has no children.

She is an avid reader of educational journals, served on the site-based management team, and is described by her evaluator as hard working and dedicated. She often remains at school until 6 p.m., preparing lessons and contacting parents. Her thirty-minute "lunch" is used to tutor students. Her educational philosophy is that "failure is not an option."

Mrs. Z. was chosen for this study because of her eagerness to participate as well as the new methods she employed in teaching contextual biology. Before I had even met her, I was impressed with her thorough research into why Career/Technology students were not succeeding in their core academic classes and how singlehandedly she had collected data, interviewed thirty-six students, and prepared a lengthy report with recommendations for the associate principal. Because Mrs. Z. is housed in the academic wing on the campus, I was not her administrator and did not observe or evaluate her.

Research Design

The research design included the premise that an appropriate research strategy emerges from careful consideration of the interaction of the problem, the method, and the researcher

(Reichardt and Cook, 1979). According to Bogdan and Taylor (1975) “qualitative methodologies refer to research procedures which produce descriptive data: people’s own written or spoken words and observable behaviors” (p 4).

The case study method was chosen for the research. Yin (1984) defined a case study as the preferred strategy “when the focus is on a contemporary phenomenon within some real-life context” (p 13). No attempt was made on the part of the researcher to judge the validity of the course or administer a treatment but rather to observe and sense what was occurring in the lives of the teacher and the students within the contextual biology classroom. The research was exploratory, inductive, and emphasized processes rather than ends research (Reichardt & Cook, 1979). This study was based on the research that states contextual learning can produce active learners who are able to see the relationship of the subject matter to their own lives, who take ownership in their own learning and who are engaged in personal discovery often using a teamed approach. A second premise of the study was that the role of the teacher changes to that of facilitator and that through employing contextual methodologies, student interest and achievement will be heightened.

The following questions guided the study:

- Why did the teacher choose to make major changes in the biology curriculum?
- Did the teacher’s role in the classroom change as a result of the contextual class?
- What were the significant changes in the classroom that occurred as a result of the new course?
- What were the teacher’s expectations for the students?
- What were the roles of the students in this contextual class?
- Did students’ attitudes change as a result of the class?
- Did the class affect student achievement?
- What were the teacher’s successes?
- Which contextual lessons failed and why?
- What changes occurred from Semester 1, 1997 to Semester 2, 1998 in her contextual class?
- What changes occurred from school year 1997-98 to first Semester 1998-99 in her

contextual class?

- Did Mrs. Z. change as a result of the contextual classes?

To answer these questions, I collected documents and engaged in an in-depth systematic interviewing and observing of one teacher, Mrs. Z. I collected data from a variety of written documents that included handouts and tests prepared by the teacher; a teacher-designed student survey completed in January 1998 by the first group of contextual students; summaries of student interviews conducted by Mrs. Z. in May, 1997; and reports she prepared for the administration and the site-based management team.

Direct observation recommended by Yin (1984) in case study research was also employed. I observed the teacher four times during the 1997-98 school year. Two of these observations were during the lab portion of the class while the other two observations involved students using the text and workbook in the traditional classroom setting. During the lab observations, I became a participant-observer and assisted the students in completing the assignment. Yin (1984) suggested that the participant-observation technique can be used in more everyday settings, such as an organization or other small groups and that participant-observation provides the opportunity to perceive reality from the viewpoint of someone inside the case study rather than external to it. Yin (1984) further stated, “the use of documents, archival records and interviews, for instance, all assume a passive investigator” (p 93). I took notes immediately after the lab observations. Mrs. Z. and I met before the lab observations to determine my role and to understand the objectives and events in each lab. Follow-up interviews included the teacher’s analysis of the activity.

The classroom observations included notetaking during the observations as well as recording impressions of the essence of the class immediately after. Follow-up interviews with the teacher regarding the lessons were a part of the process.

Interview Process

The unstructured interview process was employed throughout the study which began formally in November, 1997. Hitchcock and Hughes (1989) suggested that, in the unstructured interview, scope is allowed to introduce new material into the discussion which arose only during the course of the interview. I prepared a rough checklist of areas and themes in advance but allowances were made for us to explore other topics.

The fourteen interviews were tape recorded with the permission of the teacher and transcribed verbatim for analysis. Interviews were conducted in the school setting during the teacher's planning periods and after school. Most interviews were forty-five minutes long. After each interview, I wrote reflections that included not only the perceived facts but also impressions related to the emotional responses and body language of the teacher.

Data Analysis

As the in-depth interviews, collection of documents, and direct observations continued, themes and categories began to emerge. These themes and categories become the basis for the analysis of the contextual class. Yin (1984) adopted these multiple sources of evidence to develop converging lines of inquiry which provided for triangulation of data. Through subsequent interviews, I raised points that had previously been discussed for clarification; looked for confirmation in classroom observations; and examined the written reports prepared by Mrs. Z.

I also examined recurring regularities in the data which were then sorted into themes and color-coded. After each interview session, I listened to the tape and processed it individually to determine the key issues that had been discussed. These key issues were listed on individual index cards. As the interviews continued, many of these issues were expanded and examined in greater detail and new issues also emerged. Through the verbatim transcriptions, Mrs. Z.'s comments were attached to the index card, dated, and color coded. These key issues became the themes of my inquiry. Themes that emerged were the paradox of the power and powerless of teaching in the specific areas of student discipline, the number of students assigned to Mrs. Z.'s classes, and the time frame when the contextual classes were scheduled. Another major factor was the impact of the State Standards of Learning on what was taught and also her classroom practices.

Another prominent theme revolved around Mrs. Z.'s role as a researcher as she adopted and adapted the recommendations of scholars such as William Glasser and Lynn Cannaday and evaluated the impact of their strategies within her classroom.

In addition, Mrs. Z.'s belief in the value of providing quality instructional time through her constant presence in the classroom, providing opportunities for students to take ownership in their learning and her role as a facilitator also emerged repeatedly throughout the interviews and the

classroom observations.

Additionally, it became apparent that Mrs. Z.'s belief in high expectations as evidenced by her "failure is not an option" policy was a recurring theme both in her personal beliefs and in the activities in her classroom. This policy had a profound positive effect on student achievement, which was also examined in my study.

Along with achievement, student attitudes were considered extremely important as Mrs. Z. constantly provided activities that fostered a positive approach not only to learning but also to her students' lives.

Other themes that directly involved students included Mrs. Z.'s use of various forms of teamed activities, her reflections on their effectiveness as well as her definition of success as evidenced by her involving students through flexibility in assignments structured to meet individual needs and dissection which always began with a demonstration conducted by Mrs. Z.

At the beginning of our collaboration and throughout our association, the contextual book was a major focus. At the start of her class, the new book was the "answer" to meet student needs. Later, the textbook was supplemented with the previous book, and finally the book became "junk" at the end of the course. Along with the rejection of the book came the realization that the what of teaching is not as important as how it is taught.

Finally, interwoven with all the other themes and perhaps most important were Mrs. Z.'s personal reactions to school year 1997-98, changes she made in her own personal life in summer 1998, and the approach she took in first semester 1998-99 with her students that included a major shift in student and teacher responsibilities. Findings and analysis of these themes were described through writing, using verbatim quotations, specific illustrations, and documents. A final issue considered was the difficulty to generalize from a single case study to a larger population. The purpose of this study was to describe a contextual classroom through the eyes of the teacher, which will provide guidance for future studies concerning contextual learning.

Chapter 4

A Case Study: Mrs. Z.'s Beliefs and Practices

This research began in July, 1997, as a means of describing the implementation of contextual learning procedures in a biology class, but evolved through school year 1997-98 into much more than hands-on practice guided by research findings. It became a journey that began with the vision of a single destination, determining the answers to a set of pre-determined questions indicated in Chapter One. These research questions were analytical and did not take into account the human element that evolved throughout the school year during the weekly interviews I conducted with the teacher, Mrs. Z., and the observations I made in her classroom.

This chapter begins with an examination of the study completed by Mrs. Z. in May, 1997 which involved thirty-six interviews with students who were failing Career Technology biology followed by the learning environment created by Mrs. Z. in the face of 1997 when she began teaching contextual biology. Firmly held beliefs that guided students in Mrs. Z.'s classes are examined along with one steadfast belief that did waver, the role of the new text. The next portion of the chapter identifies the changes Mrs. Z. made in her classroom during second semester as well as a summer reflection from Mrs. Z. about her contextual experience. The chapter concludes with themes that emerged from the study and the effect these issues had on contextual practices.

Mrs. Z. Studies Students' Needs

I first met Mrs. Z. through a written document given to me in August, 1997, by the Associate Principal. This document spoke eloquently of the teacher's determination to discover why so many students had failed Career Technology biology in school year 1996-97. To find the answer, Mrs. Z. had completed thirty-six interviews with biology students who were failing the course. Her study was undertaken because of a previous study conducted by the site-based management team in Spring, 1997, that compared the failure rates between traditional academic students and those enrolled in career technology courses.

Mrs. Z. conducted the interviews during her planning period from two classes of career technology students. She developed a series of interview techniques that provided a "snapshot" of

each student, a series of completion sentences, two pages of checklists that compared the instructional aspects of the students' classes and three pages of personal questions that she asked during the individual interview section of the project. Students volunteered to be interviewed for two reasons. They wanted their voices to be heard and they were released from class.

The interviews took six weeks to complete. At that point, data were compiled and given to the Associate Principal. The report was subsequently discussed at the August, 1997, site-based management meeting with no action taken.

Mrs. Z.'s data indicated that students disagreed most strongly that they liked coming to school although they saw themselves most strongly agreeing that they were good students. The teacher's analysis of the average ranked responses follows.

COMPARISON OF AVERAGE RANKED RESPONSES FOR TWO CLASSES

Statement	Scale					Class A N=17	Class B N=19
	1 Strongly Agree	2	3	4	5 Strongly Disagree		
I like coming to school.						3.6	3.5
My classes are interesting.						3.5	2.8
I feel that the courses I have taken this year will help me achieve my future goals.						3.0	2.4
I always put forth my best effort in my classes.						3.1	2.9
I complete my homework.						3.6	2.8
I attend tutoring sessions in order to get help when I need it.						3.6	3.3
I study for tests.						4.0	3.0
I behave better than the other students in my classes.						2.6	2.2
I am a good student.						2.8	1.9

The second part of the survey illustrated the unfinished statements with the teacher's summary remarks about the responses made by the students.

1. I think that I am _____.
Over half of the students responded positively to this statement.
2. If I could change one thing about my life, it would be _____.

Twenty percent of the changes dealt with personal characteristics. Forty percent dealt with school, and forty percent dealt with other aspects of their lives.

3. If I could change one thing about school it would be _____.
Spending less time in classes and in school was the number one answer.
4. I wish that my teachers _____.
Twenty-five percent of the students wished that their teachers were fun/interesting.
5. In the future I hope _____.
Over half of the responses related to achieving a career goal.
6. I would do better in school if _____.
Fifty percent involved changes in teachers/training, 33% dealt with changes in themselves, and 17% involved changes in the school.

The next phase of the survey compared the types of activities done in each of the students' four classes. The survey indicated that students had difficulty answering these questions as student responses varied greatly for the same class. Data provided in this part of the survey is from the students in Class A where Mrs. Z. spent the most time with interviews, but only showed a few comparisons between the 26 technical classes and the 39 core classes in which the students were enrolled. The analysis of the data follows:

	<u>Technical Classes</u>	<u>Core Classes</u>
<i>Reading assignments are given.</i>	42%	51%
<i>Writing assignments are given.</i>	61%	61%
<i>Lecture is used over 50% of class.</i>	38%	53%
<i>Homework is assigned.</i>	15%	61%

The personal interviews with students proved enlightening to Mrs. Z., who could not believe that “so many students would pour their hearts out to a stranger.” The student voices spoke eloquently about their lives outside the school environment, and the real contradiction between what they learned in school and their real world. No longer were the students' stories treated as “data” to be submitted to site-based management but rather became a primary thread in the tapestry of Mrs. Z.'s determined effort to improve not only biology grades but also the lives of students. The comments and stories from the students helped the teacher substantiate what she

felt were the major reasons for core class failures and the school dropout rate. The names of the students are fictionalized but their stories are real. The following excerpts indicate some responses:

A father pushes his daughter onto the bed, puts a knife to her throat, and says, "See, I told you that I love you. If I didn't, I'd slit your throat right now." The next day Linda's biology class studied the stages of cellular respiration.

John smokes marijuana every day after school to mellow out before his father gets home. His homework never gets done.

Patsy is preoccupied with death because of the hate she has for her mother. She doesn't hear any of the class discussion of the parts of the cell.

Lowell had suicidal tendencies all during his elementary school years. His feeling of being unloved were reinforced by the beatings he received from his stepdad until he moved to Virginia to live with other relatives. He handles his depression by isolating himself in his bedroom where he prays and listens to gospel music. He forgets to do his make-up work.

Susie gets home before her mother and finds her father after he has blown his brains out. She misses several weeks of school and is unable to pay attention in class. She calls herself the energizer bunny--she just keeps going and going.

Overall, when asked what word best described them, 23 of the 29 students interviewed used positive words to describe themselves and the responses to what their dreams were reflected that 72% had specific career goals. As expected, 19 of the 29 used negative words to describe school with the number one response of "boring" given by 24% of the students.

As a result of the interviews, Mrs. Z. presented her report of how to meet the needs of these students in a formal report to the site-based management team. Her suggestions included an inviting classroom where students could voice their opinions and a supportive atmosphere

where students could take risks and make choices, a classroom where they are accepted as unique individuals and where teachers show how much fun and excitement learning can be.

Additionally, she addressed nine areas of concern along with corresponding suggestions in those areas for meeting the career technology students' needs. The areas and her suggestions are presented in the Appendix. Item nine, Curriculum Integration, became the basis for her own search to make biology more meaningful for career technology students.

At the same time Mrs. Z. conducted the interviews, she attended a Virginia Department of Education trade show at New River Community College. While there, she found a textbook that provided a contextual inquiry-based approach to biology that she felt would meet the needs of career technology students. In August, 1997, she attended a six-day seminar at Clemson University to become familiar with the format and activities of the text. Mrs. Z. explained the six-day seminar this way:

The purpose of the Clemson seminar was to teach the approach of contextual learning with the Biology, A Community Context textbook. One of the professors that wrote the text is a Clemson professor and the other was a professor at the University of Iowa. They showed us the inquiry approach to teaching where students were given an idea, they did experimentation to learn about the idea and to formulate their ideas and conclusions from the experiments. It was 70% lab.

Our Collaboration Begins: An Uncertain Journey

My personal association with Mrs. Z. began in August, 1997, at a High Schools That Work Conference. She was excited about her training at Clemson and believed that the contextual course with its hands-on approach would be just what her students needed. It was during this conversation that I told her of my research in contextual learning and that my dissertation would be centered on some aspect of that topic. I asked her if she would be interested in participating in the study and her immediate response was 'yes'.

At that moment, I knew Mrs. Z. was special. Not only was she beginning a totally new approach to teaching biology, but she was also willing to participate in my study without ever asking about her level of responsibility, the time commitment, or my expectations. As Mrs. Z. later explained, "I've never had a problem with trying something new if I think it's worthwhile and will help my students." Until our August meeting, I had only seen Mrs. Z. from a distance in

faculty meetings and knew her only as the author of the Career Technology report. From that enthusiastic unqualified 'yes' in August, a long term commitment began for both of us.

In September, 1997, we began meeting once a week for informal discussions that dealt with her teaching philosophy, her personal life with particular emphasis on how her life had influenced her philosophy, about her professional reading and how she implemented scholarly research into her classroom. I was struck by her enthusiasm, her burning intensity to make a difference and her reticence to believe that she was a change agent within the school. Through these wide ranging conversations, we moved from our professional association in the limited realm of contextual learning to collaboration in projects specifically geared to meet the more critical needs of career technology students.

A Vignette: Our Collaborations in Action

One result of our collaborations established a mentorship program for ninth-grade students who had failed, one of the recommendations Mrs. Z. had listed in her survey report in the Appendix. Our committee that recommended the mentorship component was interdisciplinary and included both veteran and inexperienced teachers, a guidance counselor, and the masonry teacher. The committee was entirely voluntary and members chose to become involved through an announcement in the daily bulletin.

The program proved successful for students and one ninth grader tutored by Mrs. Z. passed all subjects by the end of the school year. Teachers who agreed to mentor established personal relationships with their student and many even "walked" the student to lunchtime tutoring and kept contact with the students' teachers. As a result of the successful collaboration, the mentorship program was expanded in school year 1998-99.

A second recommendation of this committee involved causative factors for discipline infractions and developed an action plan that shifted more responsibility to the student for breaking the rules (another recommendation in Mrs. Z.'s report). Presented to the site-based management team in August, 1998, the report was tabled for further consideration.

What had begun as a single destination of contextual practices in one biology class had become a journey with varied routes that converged at the end of school year 1998 with some changes in school policy regarding student discipline as well as an expanded mentorship program

for 1998-99. Mrs. Z. described our collaboration this way:

Well, first of all it was nice to know someone cared enough about me and my passion to join me with on this whole journey. It's not only been a journey in the classroom, but also the CT committee. You've been an invaluable partner. What it has meant most to me as a classroom teacher is that we have a relationship between an administrator and a teacher, which usually doesn't exist, at least to the extent where we've worked together. Also it's made me, when we've gone over things, you've brought back things to me that I said I had forgotten. A lot of times you've reminded me of things I said, like when you said don't you remember that's what you said at the first nine weeks, you said this about these kids. It's made me go back and look at the history to see where I've come with these kids. You've made me see some successes that I've had and probably wouldn't have recognized. It takes teachers and administrators working together to find answers.

Reflection: The Meaning of Collaboration Evolves

For me, the collaboration began as a vehicle for completing a dissertation that could have implications for other teachers at the high school and for our division. Since I considered myself first and foremost a teacher, I did not feel that our collaboration was unusual. However, Mrs. Z. did and on many occasions reminded me that we were trailblazers, since administrators and teachers did not traditionally work together so closely within our division.

Our investigation of contextual practices also brought together two people very different in personality and working styles. Mrs. Z. is organized to a fault with separate notebooks for each of her initiatives and with each sheet of paper carefully preserved in vinyl sheet protectors. Each sheet was carefully dated and numbered unlike the researcher who writes notes on the back of envelopes and receipts and whose desk contains many scraps of paper in random order in varying degrees of completion.

Besides organizational skills, we had very different backgrounds. She had known traumatizing adversity in her life as the following statement indicated. She attributed these adversities to shaping her teaching philosophy.

I have always been an advocate for the underdog. I have worked as the founding President of the Association of Retarded Citizens, and I am a member of the County Association for Human Development to help the handicapped mainly. I have a mentally retarded brother, I had a brother that died of Muscular Dystrophy so I guess I am more sensitive to the people that need help and I have always had a place in my heart for them because we were always struggling and I felt that every

student could achieve whatever they wanted to if someone would want to help them.

A further conversation revealed another brother had been murdered by his in-laws. These factors along with her husband's job as an alcohol and drug counselor contributed to her advocacy of those who did not speak up for themselves.

Another aspect of her personality clearly evident was her steadfast belief that she would initiate and implement change. She described how her husband stated that she had moved from a missionary to an evangelist to a zealot to make others become involved in her work. Sometimes that zealotness proved too exacting for other teachers and some chose not to become involved because they believed they could not meet her high expectations although they could have made a contribution to her efforts had they been encouraged to join.

This study gave me the unique opportunity to get inside not only a classroom but also inside a teacher's mind as she reflected about, not only the learning experiences of her students in her classrooms but also the frustrations, the stress, and the factors beyond her control that directly affected the classroom learning environment. Ours was a collaboration that celebrated successes, mourned the losses, and reflected on the process.

A Vignette: Mrs. Z. Creates a Learning Environment

Mrs. Z.'s classroom illustrated clearly her organizational skills, her attention to detail, and her attempts to create a classroom environment where students are encouraged to wonder, to observe, and to become engaged. An early morning visit to Room 106 with Mrs. Z. as a guide provided glimpses of learning.

Without the clamor and movement of students, Mrs. Z.'s classroom, Room 106, resembles any high school science classroom anywhere. It brought back memories of my own biology classroom in 1964 even to the not unpleasant whiffs of formaldehyde that linger in the air. Housed in a 1963 building, the lab was redesigned in 1988 by Mrs. Z. to accommodate both lab and seatwork activities.

At first glance, roughly one half of the classroom is reserved for individual student activities. Twenty-nine desks in five rows form the center of the room. Even though all are empty, I gather a feeling about one student who has etched into the desktop the poignant message

“I wish I was dead.”

Mrs. Z.’s desk is placed at the front of the room with the blackboard behind her. Her desk is cluttered but organized into stacks and the detailed plan book speaks volumes about the level of preparation for each of her classes.

The view from Mrs. Z.’s desk encompasses not only her students but also a wide expanse of lawn and trees at the back -- a serene and natural biological setting. The windows, trees, and lawn have their own story.

The windows have served as an escape hatch for non-poisonous snakes donated by students and the community. Mrs. Z. related a favorite story about a live specimen donated by “Nanny” Bennett who brought her donation into the classroom in a mayonnaise jar. As “Nanny” proudly deposited the jar on Mrs. Z.’s desk, it slipped from her hand and broke as the live snake slithered out. Mrs. Z.’s students waited expectantly for her hysterical reaction, but instead they were disappointed when she calmly grasped the snake, found a new jar, plopped it in and continued with her lesson. After the students had left, the new jar was opened and the snake carefully released through the open window onto the lawn for one more opportunity at life.

Other specimens in the room met a more serious fate. Along the walls perched precariously on wooden shelves are poisonous snakes, preserved, unmoving in glass jars of alcohol. Close inspection reveals their opened eyes looking out as if they are surprised and shocked at their present state.

An added feature are the snake skins that line the walls in varying lengths and hues -- more “gifts” from students and the community. Mrs. Z. is known as one to accept all contributions whether living or dead.

Interspersed with the snake skins are two student offerings joined together with unsatisfactory but humorous results. One student provided the squirrel skin, the second student a tail from another squirrel obviously much larger than the donated skin. Both were locked together, joined unevenly with duct tape, and placed on the wall. The result is a tail much too long for the body and a gap between body and rear -- a badly designed animal at best.

From snakes and squirrels, I move to two deer fetuses housed in huge cafeteria food jars. A close-up look revealed the formation of tiny hooves that reminded me of the anti-abortion

posters that scream at us from billboards and t.v.--“choice or child?” while we see the tiny human face and fingers enclosed in a protective sac. Mrs. Z. says students flock to these jars mistakenly believing these will serve as a dissection project. Their best use is as an anticipatory set for her students.

While animals and snakes are well represented, the sea creatures are not neglected. Resting on the shelves are turtle eggs, a jawless lamprey from the Great Lakes who feasts on the guts of other fish, assorted shells from past beach vacations and a huge jellyfish which constitute the sea corner while birdhouses hover overhead on the very top shelf. Built from styrofoam by former students when the emphasis in science was measurement and construction, these models serve as a reminder to the teacher of the cycles of importance throughout her teaching career.

The lab portion of the room has black topped tables with sinks for rinsing and clean up. Preparation for today’s lab is ready as mealworms wait in their containers for their starring role in today’s event. Alive, wriggling, and highly pungent, they will serve as an introduction to the scientific method and offer students the flexibility to design their own experiment.

A final glance affirms that Mrs. Z.’s room is a busy but uncluttered place that provides a good illustration of many facets of biology. Many of the items we examine brought back memories to Mrs. Z. of former students, classroom events, and the continuity and cycles of learning that have taken place in her class. Mrs. Z. warns me the room will change when her students arrive.

Broken Silence: Fourth Period Begins

The stillness is broken six hours later when fourth period contextual biology begins. I hear the students even before I see them. They stand in the hallway beside the room pushing, jostling, and teasing each other. They block the bulletin board on the left side of the door but there is a clue to what is being studied from the title: The Animal Kingdom. Hand-drawn pictures in child-like crayolas depict crude drawings of reptiles and amphibians all appropriately labeled with characteristics of each in primary colors.

The bell rings and most students dash for their seats. Twenty students at the last period of the day and it is obvious they have energy to spare. The overhead projects the assignment. Three-by-five note cards with individual student names begin the lesson. For every correct

answer, the student receives two points. Answers are shouted by students whether or not their name is called. In the midst of the confusion, students are reminded of the rules “one person at a time, one answer at a time.” Brief order returns to the classroom and the questioning continues.

One student complains loudly that he hasn't been called on only to be reminded that he has already accrued two bonus points. His answer is “but I want more points.” It is as though those two points will make the difference between drowning and being saved.

Other students are equally competitive as they wait for their name to be called. Students who are disruptive are told “that's a minus one for you” and that student falls momentarily silent only to end up talking and punching his neighbor on the arm. He's reminded that he now has two minus one's and that the agreement worked out with his aunt last week is being seriously violated. The effect of the conference and its aftermath seems minimal to the student who is now looking out the window.

As the review is completed, lab sheets are distributed. At this juncture, a student reminds Mrs. Z. that his friend will let him video his collection of pet poisonous snakes but the only place “they bite you is on the space between your fingers and wham you're dead.” This statement is repeated and illustrated since one side of the room missed it. Meanwhile, Mrs. Z. gives more minus one's for disruptive activity.

The mealworm experiment is ready to begin. Groups have previously been formed. Oat bran cereal, oatmeal, and cornmeal are used in the experiment as well as alcohol and vinegar.

A lab manager comes forward, and she and the teacher open the Styrofoam container. Most of the worms seem either hungry, dazed, or half-dead. Five worms are allotted to each group and index cards slide them onto the specimen plate. Twenty students wait expectantly at the front of the room for their five worms while some students wail loudly they simply cannot touch anything that looks so gross. The teacher assures them these worms are not as bad as the ‘dog poop’ she cleaned up last night from two new puppies.

Groups move to the lab tables. Some start to work in each group while others thankful of the opportunity to leave their desks, begin to kick each other. Since the objective of this part of the lesson is to design their own experiment, activities are varied.

One group pours meal over its worms--a small amount at a time. Whether the worms are

frightened in this atmosphere or are simply hungry, they quickly burrow into the food only to be pushed out to the surface so they can burrow again. This activity is duly recorded on the lab handout along with the kind of meal that seems to be the worm's favorite.

Another group tries to determine how worms responded to stimuli by thumping them on the tail. The worms curl up and relax only to be thumped again and again and again. This group seems to have one thumper and four watchers. One student also has responded to stimuli when he announced that "some girl is rubbing my butt" only to be told that he has just gotten another minus one on his index card.

The lab manager works alone on her experiment that involved putting more and more meal over her worms until they were no longer visible. She said she preferred to work alone, but Mrs. Z. said that she and a previous lab partner had had an altercation during last week's lab because both were having a bad day.

One solemn young man who has said nothing during the entire class and who worked alone sits down quietly and assures me that his work is completed.

At the back table, students furiously tear off paper towels and douse one towel with water, one with vinegar and one with alcohol. At the end of each towel, a small mound of meal is poured. The worms are placed at the starting line and their reactions to the liquids are observed.

With water, the worms dart across to the meal, with vinegar the worm starts across hides under the paper towel and never reaches the prize at the end of the finish line.

With alcohol, this worm bypasses the towel and keeps a steady pace on the table surface toward the meal only to be pushed back to try it again. Soon after, the group announces that its worms are either drunk or maybe even dead.

Meanwhile, Mrs. Z. is a whirlwind of activity, asking questions, then probing with more questions to check for understanding. She never gives answers since part of her philosophy is that students must learn to think for themselves. Rapidly moving from group to group, she also monitors behavior, answers questions and encourages students.

Since each group designed its own experiment, time became a critical factor. Some students finished early and returned to their seats to finish the handout which others were still experimenting. Mrs. Z. reminded the students that if they didn't complete the assignment now, it

was counted as homework and turned in tomorrow. Meanwhile, the volume level of the sitters had increased.

Thirty-five minutes later, all experiments were finished. A glance at the lab tables verified that each group cleaned up its own mess as the last instruction on the handout directed. Only a trace of meal is visible on the black lab tables as well as the lingering scent of vinegar and alcohol.

Closure to the lesson came when Mrs. Z. led a quick review of what they had learned along with a brief overview of tomorrow's lesson. At 3:18pm, students heard the afternoon announcements. At 3:20pm, the final bell. Mrs. Z. and her fourth period have survived another day.

From my observations, I knew that many elements of contextual learning had been implemented. Students were not seated at their desks listening to a lecture but were given the chance to move to the lab area for a hands-on small group activity. Given the freedom to design their own experiment, each group was to reach a consensus on the form the experiment would follow.

Once that had been determined, the element of ownership of the experiment should have been present. In this activity, the teacher's role as facilitator became apparent because of the myriad of experiments. However, the element of real learning seemed to be missing.

With the exception of one group who planned, observed, and recorded results together, the other groups argued, sat, and wasted time. Those groups could not determine their roles. Those who performed the experiment seemed to do so because the activity was required, not because of any interest or enthusiasm for the topic. Most in the groups were watchers while only one or two students were actively engaged. Most were intent on simply filling in the answers. Cooperative groups were used in the lesson but no cooperative learning was evident except in one group.

The most obvious enthusiasm came at the beginning of the lesson when students received bonus points. This part of the lesson was teacher dominated, students were in their desks and answered the questions individually. There was a relentless competition for points even though the mealworm lab counted far more points.

The hands-on component was also present but the minds-on element was missing. In a

follow-up interview, Mrs. Z. reflected on the lesson and the student lab reports the following day.

I think one experiment was really, really well done. A data table was also beautifully done by a group that got so into it. It was where they were seeing if they (mealworms) responded like going over a paper towel that had alcohol or benadryl on it, also a combination of alcohol and benadryl on it in order to get to the cornmeal and then a wet paper towel going to the cornmeal. That was neat. It was well thought out and was also beautifully conducted. I never saw so much intensity on doing an experiment and then when I walked by, I had to listen to every little detail that was told to me. Then the next time I stopped, they would repeat it all. Two days later when I let them present this to the class, I told the class that I saved this for last, because they had an excellent experiment and that I wanted them to hear all about it. The rest of them kinda summarized theirs and then these guys, they went into every little single tiny detail, every inch that this little mealworm would go.

A Conflict: Contextual Beliefs and Mrs. Z.'s Actual Practice

Even though Mrs. Z. was a facilitator in this lesson, her role as a facilitator shifted throughout the school year as a result of the Standards of Learning tests and the behavior of her second semester class. As a result, the class became more teacher directed even though Mrs. Z. did not believe in this practice.

Before the course began and after her training at Clemson, Mrs. Z. believed that the new book with its inquiry-based approach would change her role to a guide that would facilitate student learning. That visualization was not a reality when classes began. As early as September 20, 1997, the teacher believed that the inquiry-based approach would be a challenge.

They are too familiar and comfortable with the use of lecture and some have learned to count on it as a means of tuning out their teachers and becoming passive learners. Inquiry-based learning takes many of them out of their comfort zone. Possibly a combination of smaller tasks from the new textbook and the activities I have had great success with in the past will better meet their needs and interests.

During second semester, the class became more teacher-directed because of the maturity level of the class.

I think to start with that in most cases this semester, I have had a teacher-oriented classroom because of the behavior. I had to stay on them quite a bit. I had situations at times where I let certain kids do labs that were able or had the maturity to conduct the lab without tearing up the room or throwing water on each other, that type thing. The course was originally designed so that it would be totally contextual and it would be inquiry-based, but with the maturity level of

some of the students I've got, that's not always possible. They can sometimes work with other kids of their maturity level pretty well, even the ones who were the most immature, sometimes work best with the ones who were also immature. The ones that are the most mature don't want to work with those kids anyway. The ones that are able to do it, they can do most any activity I give them, but I have to design the classroom activities where they are all pretty much on the same topic, anyway. Some of them might be doing a little bit different approach. What I try to do is to do extra credit or additional or enrichment activities for the ones who are mature enough to handle it, who are really self-directed, who can do the material, and have time left over to do something besides what the rest of them who aren't able to handle it emotionally or are still in their seats or running around trying to get them to do what everybody else has done.

Even though the biology class is lab oriented and lent itself more than other academic classes to hands-on participation, an undisciplined group of students made the approach difficult. To counteract the problem, Mrs. Z. then moved into her own comfort zone which included more worksheets and drill. Until the discipline problems were corrected, any learning was minimal and the majority of the teacher's time focused on discipline and not on learning activities.

Particularly during second semester, most students were not willing to take ownership of their own learning and allow the teacher to assume a facilitator role even though Mrs. Z. had arranged the room so that students could locate what they needed. She described her efforts and her frustrations in an April 24, 1998 interview.

I rearranged the whole room. I came over here on Saturday before school started, and my brother came with me. We took everything out of every cabinet, we rearranged it so that everything was organized, so the student would be able to find pencils, colored pencils, paper of different sizes, scissors, and then on the other side we had all the glassware that was readily accessible. They could open up a drawer and would be able to find the beakers if they needed them, test tubes, flasks, hot plates and all the dissection equipment - everything was perfectly organized. I'd been having a hard time, because people had been sharing my room, and I wanted to get it where I knew where everything was, so the kids, it would make sense to them where the lab equipment was on the lab side of the room. That would have been the ideal situation, but in reality you can't always have the ideal situation. You've got students who go through your drawers and steal things, tear up things, and who don't want to clean up their messes, and put dirty stuff back. So you have to kinda monitor them, sometimes you have to lock your cabinets again to make sure they don't get into \$140 electronic balances that they have stolen before. Even though it would sound great in the textbooks, with this class I've got right now, it doesn't work.

Mrs. Z.'s Beliefs

Throughout the year, Mrs. Z. remained a steadfast believer in integrating research into her practice, quality instructional time, failure is not an option, teamed activities, developing positive student attitudes and defining student success. These beliefs and her strategies for implementing them are described in this section.

Integrating Research into Practice

In order to corroborate her own data, Mrs. Z. read a number of educational articles and books to help her to understand the needs of her students. She explained what she read and how she implemented the ideas into her classroom.

I have read, I guess, a lot of books that have collections from different people. I did read some William Glasser and came up with a kind of an adaptation of his idea. A student just doesn't turn in a piece of work and get a grade, if it's not satisfactory you give it back to them so their E grades will change and extend the time. Make the student complete the work to where it's acceptable instead of it being according to their standards done. They are usually failing at this point so I have made them come in at lunch and complete assignments as E grades and I have heard this summer about Lynn Cannaday and his ideas about block scheduling and, of course, mastery learning. A lot of people emphasize that and I do that with my students as well. Basically I don't let my kids go to lunch until they've done what they need to for my course. They have to pass everything that we do or they know that they have to stay.

Not only does Mrs. Z. interview, collect data, reflect on her practice, and read educational research, she also has a sense of humor that could be easily overlooked by those who don't know her. After a particularly frustrating week with her fourth period class where every carefully planned lesson was thwarted, she exclaimed in frustration, "I could go in that class buck-naked and stand on my head and it wouldn't make any difference to these kids." As a no-nonsense person who dresses conservatively, the mental picture of her description caused us both to collapse with laughter.

Quality Instructional Time

Mrs. Z. is also a firm believer in the importance of staying in her classroom so that instructional time will not be lost. Given the opportunity to attend a conference on mentoring that could have had school-wide impact, she rejected the idea because she was needed in the classroom. Most other teachers would have jumped at the chance to get away. She even came

back to school early after an illness because she was embarrassed by the behavior of her fourth period class. Students were lectured about their behavior, parents contacted, and stricter rules implemented as a result of student actions.

The question arises: “How good should we in education be to ourselves?” Why shouldn’t we take time off to attend conferences that can not only broaden our outlook and allow us to network with other professionals but also give a needed respite from the stress and routine of school life? Are we so very important to our students that we can’t even be sick? Won’t we be there in our room and building after the current group of students have moved on? We need to realize that in being good to ourselves, we can refresh, rejuvenate, and bring fresh ideas into the classroom. There is a real need to take better care of ourselves, quit thinking that we are indispensable, and realizing our students can get along without our presence for a few days without serious consequences.

Failure Is Not an Option

Even though students did not accept their ownership role, Mrs. Z. still maintained high expectations. It was apparent that she expected all her students to meet her high standards whether they were enrolled in the traditional academic pathway or in career technology classes. Her firm belief that failure was not an option never wavered throughout the school year. Accountability was important to her, and she enforced the policy through a variety of methods. “I will torment them until they do what is expected” was one part of her strategy.

During first semester, the contextual class met during second period and ended at lunch time. If students did not complete the required work in the classroom, they stayed with Mrs. Z. during lunch until they had finished. She described how this approach worked.

They know that I am very stubborn and I have told them that failure is not an option in my class that they will pass and with some students I have to take different avenues to make sure they realize that. Of course grade contracts not so much that but contracts with students where administrators tell them that indeed Mrs. Z. has every right to make you stay and do your work. So I have parental backing and administrative backing as well.

Adapting the work of William Glasser was another part of her method. She described this procedure and its effectiveness with Jason whom she described as one of her success stories.

I showed him that it is important for him to pass in my class and that I was going to show him that he was going to be held responsible for doing the work and I knew he could do it and it was appropriate and it was on his level and there was no reason except for his wanting to be lazy for him not to do it and I was not going to tolerate that. And he pretty much did everything. He, at first, was made to and then I think later he did what he knew he had to make sure he kept a good grade.

Mrs. Z. firmly believed that teachers in his other classes didn't set high enough expectations or "push" Jason enough. She referred to Jason as a student who had "enough ability to have passed any of the classes he went to" but that in her class he became "hooked on success as he realized I wasn't going to let him off the hook."

Even during second semester when the contextual class met during fourth period and students were not able to stay after class, her expectations for students remained high and her "failure is not an option" policy remained.

I made it very clear the first day in big bold print, that failure was not an option, that they would pass, and they would be expected to do the work or would have to spend time in tutoring to do the work. That I was expecting them to make 75% on everything they do.

Teamed Activities

Along with Mrs. Z.'s "failure is not an option" policy was her belief in the value of teamed activities although she grappled with teaming throughout the school year with mixed success. Some groups wasted time while groups frequently changed often as a result of conflicts. Even with these problems, Mrs. Z. used the method not only for labs but also for other instructional activities including test review.

The 4 x 4 block schedule with ninety minute periods provided many opportunities for cooperative activities. Mrs. Z. described one way she grouped to help those students who were struggling.

Sometimes in little segments of topics that they can understand by reading the text, I'll have them teach me the topic, and I'll pretend like I'm the student. Sometimes they will work in groups, and sometimes they will teach each other, then they'll take quizzes. It's kind of like on their own individual pace with a series of activities. It's usually a unit that consists of directives. Sometimes they'll go through these activities as a class, and sometimes I just let the group off on their own and let them do in their own speed. I kinda try to get, depending on which

group or unit we're on, how hard it is, sometimes I put some of the brighter kids together that can do it by themselves, and then I'll work with the kids in the groups that have a harder time of understanding, so I'll sit with them.

In order to make the teaming even more productive, Mrs. Z. grouped in creative ways with a hidden twist. She described the effectiveness of her strategy with grouping by height.

Then I arranged them into groups by heights, because I noticed after the first couple of days that most of the big guys were the noisiest ones and they were kinda in the back of the class, so I thought that if I could arrange kids by height, tall/small, and then have them number 1 through 6, it would kinda split up the tall kids and also what appeared at the time, to be the best kids were shorter, and they were girls. So we kinda spread out and gave us more energy in each group. That worked for awhile, as some of them goofed off in that group, so then I put them in pairs. I thought if I narrowed it down to smaller groups of two's, there wouldn't be as great a chance for default. That was a problem with some kids because they weren't working with the same ability as some kids they were paired up with. So then I put them in 4 groups, thinking if I had four groups, I could get to each group easier.

For those students who wasted time in class, Mrs. Z. found that pairing students was effective especially when they were not at the same ability level. She based this on her experiences with groups of four where "often two students in the group are not participating so two may be the best number."

Students also seemed to prefer team activities. In a survey given to students at the end of each semester, most students reported that they like the hands-on lab activities best, especially when they worked in groups. In response to the question "What types of activities best help you to learn?" One student answered "working with a partner" while another responded "hands-on with partners." In response to the question "What changes do you think need to be made in the course," one student indicated "more group work."

The most popular activity for students who responded to the survey was dissection, which was always a teamed activity. Mrs. Z. assigned individual roles in the group based on students interests and abilities. Those who wished to dissect became the surgeons, those who were squeamish were secretaries who recorded the information and others served as readers who read the procedure and explained to the surgeons how the cuts were to be made. Dissections were the only time that students were allowed to choose their groups because of the complexity and length

of the assignment.

Developing Positive Student Attitudes

Student attitudes were another factor in her classes. Contextual learning scholars such as Dewey (1899), Edling (1993), and Reed (1996) affirmed that student attitudes would change in a positive way as a result of experiencing success with contextual methodology. While student attitudes did improve dramatically during first semester, the improvement centered on Mrs. Z.'s own determination to show students why a positive attitude was important and her commitment to creating a positive learning climate.

Mrs. Z.'s class during first semester was extremely negative:

Everything was awful. It wasn't just class work, it was school, it was the family, it was just everything. Picking on each other, just very negative about everything in life and I guess when I told them that I didn't know why they were so negative and I figured that they had seen a lot of negativity and they needed to see some positive aspects, they started thinking about it.

When Mrs. Z. told them she would be promoting positive attitudes, she focused on helping the students develop job skills and not just their attitude in her class. Students she believed saw her in a different light.

When I told them that I was going to work on them keeping jobs and going to work on their attitude and they were going to express positive thoughts that turned a lot of kids around and they seemed to realize that this is not just a woman in here teaching biology, she is trying to get us to change some bad aspects of our personality so they were entirely different in the way they behaved towards me and towards each other at that point and time.

The students soon became so attuned to positive attitudes that Mrs. Z. had to only look at them as soon as they were negative and one student responded "I know Mrs. Z. and then they would switch around." Another aspect of changed attitudes resulted from a presentation by a substance abuse counselor about the importance of a positive attitude at school and at work. These activities were so successful that they were instituted during second semester at the beginning of the nine weeks rather than at the beginning of the second nine weeks which had occurred during first semester.

Promoting Student Success

Another critical aspect of contextual learning involved the issue of student achievement. Successful completion of the course was achieved by Mrs. Z.'s students both semesters through combinations of her "failure is not an option" policy, mandatory tutoring during lunch, frequent contact with parents, and grade contracts. She described one contract developed with the student and his aunt:

Another time, in this particular semester, I had a parent that I called on a Friday evening, and she called me back ½ hour later and said she couldn't do anything with her son, but her sister would call me. So the sister called me, and met with me on the following Tuesday in the afternoon with the student, and we set up a contract. This one was pretty much designed by her, whereby we talked about it, then I typed it up, and we all signed what she said. I thought it was pretty harsh, she was going to...if he disrupted my class she would come over to the school and she would make him apologize to me in front of the class. I thought well, that is pretty harsh, but if that is what it takes to get his attention, it would be okay, because what I was doing wasn't working. And the other thing was if he did not do his assignment, he would be given a report over the weekend to do, and the report I could determine the length and the topic, and we decided it would be related to what we were doing, and he would have it in on Monday. Well, when that became a problem and I called her on a Thursday to tell her how he was not responding really to that, and I had to sit him in the hall because our contract didn't say anything about a time out, and we needed to talk about that. He said that she would probably talk to him that night and she called me the next day and she got my home number, but she never called back. So she's broken the contract at this point, and I really don't know what to do except he has been so much better I don't think that I will probably work through her. I don't think that's going to be as effective as maybe sending her a note when he doesn't do well. He comes to class - he came to class the other day and he had been in the office, oh, a half of a period. He came in, after he had been there about 10 minutes, he says "well, Mrs. Z. I'm doing better on everything, aren't I?" I said "well, you have only been here 10 minutes. You haven't disrupted class but one time in 10 minutes, I guess that's better, isn't it?" The next day he had been in the office again for something and he wanted to know how he had done. I said "you are doing better," and that was the day they took the test, so he did better on the test and he focused on that more than what he had. And then today I could tell he had done better because, I think, he really only interrupted the class about one time, which for him is a miracle. Because we're talking about a kid who had twenty-two interruptions in six days. He was the lead interrupter, when I put the tally on the screen that day. He knew he had lots of tallies. Nothing phased him. That's why we went to the contract, because that didn't seem to get to him, besides he was failing.

Overall of the twenty-three students enrolled during first semester, one student moved to the GED preparation program and one student dropped out because of emotional problems. All the remaining students passed the course.

During second semester, twenty students were enrolled. Those who made failing grades were given a second opportunity to retest and grades improved. At the end of second semester, only one student failed. Mrs. Z. described him as “too much of a struggle - all he wanted to do was talk about drugs. His failure is a lack of confidence.”

The contextual approach seemed to influence student achievement since most of the students in the end of the year surveys indicated they liked the hands-on approach. However, student achievement was more closely aligned to the efforts of the teacher who prodded, cajoled, encouraged and mandated that the students achieve. Class expectations from the teacher also affected achievement. Students knew the consequences if they failed to complete their work as failed a test.

Mrs. Z. exhibited all the attributes of a caring compassionate teacher who helped her students achieve success. She paid a heavy price in frustration and stress particularly at the end of the school year as evidenced by her remark.

It was really scary when I think about these classes until I started talking to other people and told them how frustrated I was in this class. I had those who absolutely didn't want to do anything, and they don't follow directions. I asked other teachers if they ever had a class like that, and they said, yes I had one last semester. I asked them what they did. They said they went home and took tranquilizers every night, cried on Sunday night thinking they had to come back to school on Monday morning. It just reinforces the belief in me that we have got to do something to change this. We are letting teachers' health be affected by kids and we're letting classrooms be run by youth. These are not all bad kids. Of the 21 I had, there are only about five that are really disruptive kids. They are disruptive in every class they've got, and they have been here...some of them for a long time. They're 15 and 16 years old and some of them are still in the 9th grade, and some are 17 and in the 10th. They're going to be here for awhile and on every little sheet I get for the failure grade, their names re-appear. We're not supplying the solution for them or the teachers that have to teach them.

For school year 1998-99, Mrs. Z. has decided to place more responsibility on the student to achieve. Students must initiate make-up work better within 3 days. After that, parents will be

notified once only. The “failure is not an option” policy will continue but a student may choose to fail thus shifting the responsibility from the teacher to the student.

Defining Success

Even with the frustrations, Mrs. Z. was successful. Mrs. Z. most often defined success from the viewpoint of individual students either through a changed attitude or an improved grade. These were triumphs to be savored and her enthusiasm was obvious. She described an encounter with Terry who was a third time repeater in biology and his parents during a conference.

Something interesting happened. One little student that came to parent’s night is a student taking this course for the 3rd time, but this is the first time I’ve had him. His parents and brother came and I really didn’t have much time to talk much for the 12 minutes they were in there because he kept telling them everything he had learned in class that day, just going on and on and on. It started out with all the things he wanted to bring in for extra-credit, all these things. Maybe he’s taking this course because he loves it and is failing because he wants to stay in it, because I don’t see a problem with motivation with him. When they came in, his parents said he has been waiting to come into this class, as this was his favorite class. He wanted to get in to tell his parents all about it. I looked at him because I was rather surprised, due to the fact he was a double repeater. I asked him why this was his favorite class, and he said because of all this stuff we’re going to do in here.

Winning groups of students over through flexibility in assignments was another method used by Mrs. Z. to promote student success. She described the “jackass lesson” and the turnaround her approach made.

Since this class had a lot of failures, six kids were failing this course when they came, and a lot of them had an attitude when they came weren’t going to do it or they couldn’t do it and they were going to fight me every step of the way. At one point early in the first few weeks of school, we had an activity where I gave them a transparency and I asked them to draw a life cycle with organisms. These four or five boys weren’t going to participate so I decided that I was going to let them work together and they worked together and I could see them at the back table laughing and talking and saying “And she won’t let us do this and she’s gonna jump on us” so I thought they’re up to something. So I went back there and they were drawing a life cycle of a jackass. And I said “Hey this is really cool.” “What do you mean it’s cool? You don’t mind us using a jackass?” And I said, “that is fine, using a jackass is fine with me. I love the way you have the jackass drawing, you’ve got the skeleton and the feces and all this” and it overwhelmed them that the teacher was letting them do something that they thought was out of character

and unacceptable and at that point they thought “well, maybe she is cool, because she let us do the jackass.” And then they got to go to the overhead with the transparency and explained the jackass to the entire class and they thought that this is so awesome. And at that point I think I won several kids over.

Winning students over one by one and group by group was a recurring theme. Structuring assignments to meet individual needs and foster student success was another part of Mrs. Z.’s strategy. She described one student who was so overwhelmed by the number of tasks he had to make up that he had given up. Mrs. Z. altered the assignments by breaking them up into smaller more manageable parts. She suggested this method to his other teachers without success.

Referring to the specific student, she described his predicament:

At first he was so overwhelmed that he was going to get behind that he wasn’t going to do this and I think that is what is happening in other teachers’ classes that hasn’t been helping. They let the students get so far behind that it is not a small task that they need to do here and there and that it is a lot of tasks that they are trying to catch up on and I mentioned to his English teacher that if she would break down tasks into small units, small little tiny 30 minute or 40 minute items that he would do them. It’s just a matter of putting a deadline on each little item and breaking it down into something he needed to do.

Success also came when students began to dissect. Mrs. Z. identified dissection as the reason why students take the class. A natural curiosity, familiarity with hunting, butchering animals on the family farm, and an avid interest in “road kill” led to excitement and success.

Dissection began with a simple earthworm and ended with a cat. Mrs. Z. described her procedure for getting students involved through a demonstration of her own with a dead cat.

The cat is wet from the preservative, and it’s in two plastic bags. So we got it out of the box. I said, “Since we’ve got this thing out, why don’t we just go ahead and take this eyeball out?” I thought for sure that the little fellow that wanted to dissect it, would just jump up and down with glee to get to do it. And he said, “yeah, let’s do it!” I handed him scissors, and he said “I’m not going to take it out.” And I said, “I thought you wanted to do this”. And he said, ‘no’. I said “well, what are you going to do?” And he responded with “you take it out - I’ll clean up.” So that’s what we did, after he got his work done. We took the eyeball out and they were totally amazed that I wasn’t using gloves, and I would do this. I guess I won their respect if there is such a thing to be won, by taking an eyeball out. I had their full attention except one kid who was totally grossed out. We saved it in a plastic bag, and we are going to compare it to a cow’s eyeballs.

Modeling by Mrs. Z. provided students with the confidence they needed to succeed. Even with the successes, there were lessons that failed. One that didn't work particularly well bothered Mrs. Z. because she thought it contained all the elements of success: students used the school grounds for their laboratory, the lesson was totally hands-on and structure was provided through a handout that outlined specific procedures. Mrs. Z. described the class that resulted with her first semester second period class:

I wanted to make this activity more relevant than the textbook. They had done a Tennessee story about a copper basin that was destroying the environment and the kids could care less about what happened in Tennessee. I designed an experiment where I took the kids on the high school campus to plot the areas where vegetation was not growing and to analyze the pH - I thought that would be relevant. When I took them outside, they went bonkers: one climbed a tree, one yelled obscenities at his English teacher, none of them would stay together - 20% were totally out of control. When they got around the corner, they could see other places to migrate so they were picking up speed. They just didn't handle it. They're more used to the regimen of a classroom.

As a result of that experience and because of the more severe discipline problems in her fourth period second semester class, students remained in the classroom and were not allowed outside opportunities. Mrs. Z. believed the risk was too great and that students should earn the privilege.

Struggling With the Text

Perhaps most unsettling to Mrs. Z. throughout the school year was the new textbook. While she was convinced that this was the most appropriate text after her training at Clemson, she began to have doubts about its relevance.

I do know I'm not even sure I'll even issue the textbook second semester. I think what I'm going to do, I have two shelves on the front of my desk, and I'm going to take all the resources - various types of biology books, etc., - down, and have one shelf with the old textbook from last year, and one shelf with these and just from day-to-day, or in one period have them use these books, and hit the best points in each book. Because the new book is more of a lab manual. It's on their reading level but there are a lot of things that they told us, they cut the curriculum, so there are a lot of things that they could get from the old books.

The reason for purchasing the new text involved many factors: the text engaged the students, there were more hands-on activities and the approach was interdisciplinary. A video

preceded each of the eight units. One video described a trash barge that couldn't find a community who would let it dump the contents. After viewing the video, students were to design questions they wanted to ask throughout the unit. Mrs. Z. made it relevant through a demonstration of throwing her own garbage in the middle of a table to make the problem relevant.

There was also a review section that allowed students not only to review but also to brainstorm further topics for exploration. The final activity was a role play where students were to go to a simulated town council meeting and present their findings related to a particular topic. The intent was to engage the students in some type of community aspect.

Mrs. Z. never felt comfortable with the role playing. She remarked that "the students never showed enough interest and that students lacked the expertise to handle that role." It was her intent to "go back and design my own. Maybe not use any in the book because the book relied on them being experts on itty-bitty topics and I'm not sure they could do that."

After the trash barge problem in Unit One, Mrs. Z. determined that the students didn't find the content relevant. Realizing there were seven more units to complete, she grouped students and had them examine units two - seven and to choose the activities they wanted to do since they would not have time to complete them all. Of seventy-eight possible activities, the students picked eleven, but they chose the activities with little enthusiasm. Mrs. Z. described it this way:

I told them that there was no way we were going to be able to cover all this material, so pick out the ones you really want to do. They acted like "well, we'll put it down for her but they really didn't care!" Next semester, I'll scratch Unit One because that is probably the worst unit for the kids, the least relevant to their lives.

Another problem with the text was the resource book for teachers that provided background information and activity directions. Mrs. Z. read the resource book "religiously when I started the course but soon found that most of the material was on a level that most everybody would know if they were in science."

When asked to describe the major weakness of the text, Mrs. Z. responded:

That's a hard question to answer, because the book is a nice size, it's not huge like the college-prep book is. It's very interesting to flip through, it's very colorful, the activities are pretty good. There are a few activities that we couldn't get to work too well - I would scratch them. I think it wasn't field-tested enough to maybe weed out some of the things that were not relevant to the students. I think the

teachers who wrote the book were college professors and didn't realize how 10th graders think, as well as we 10th grade teachers realize. I think they made a lot of assumptions about what was relevant to the students, and we assumed that they really were knowledgeable about what students found relevant, and they weren't. So I think it's more of a relevant issue as opposed to content for approach. There's got to be more of an approach to get students to get involved in the text, it has to be changed in some way. It seemed great when you look at it, but after you tried it - perhaps the second time around with a different bunch of kids, it would work better. But I still think there are units that I know I wasn't real sure that they'd be as relevant as the teachers who wrote the book were. Indeed it didn't prove to be relevant, but I assumed they knew what they were doing.

Follow-up about the book in the classroom setting was supposed to be an extended part of the Clemson training, but Mrs. Z. chose not to participate again with the best interests of her students in mind.

I was told I could participate in a study, but I would have to teach two classes at this level, and I would have to teach one with the old method, and with one the new method. When I saw this textbook, probably brainwashed is a bad word, but I was so convinced that this was so much better, that I was not going to, so to speak, sell another class down the river with a book that I didn't think worked. As it turned out I have more or less combined the two. I didn't want to have restrictions of making the class do something that I didn't think would work.

Mrs. Z. also talked to the publisher about the text and brought in students to meet with him. Students told him they didn't like all the long words and suggested that on each page there should be side definitions of hard words. Mrs. Z. echoed the students' suggestions and remarked: "Let's face it, they know better what would help them than we do."

Students also told the publisher they liked the activities especially the mystery bag. Mrs. Z. described the activity:

There were just simple little things like mixing up different combinations, variable in control and having one variable---it was a mystery bag. They had to design their experiment and take one aspect of sugar, temperature, a concentration of yeast or something. They had to vary it and watch it in different bags. They put these bags in hot water and watch the bags blow up, well not blow up, but swell up. Little practical hands-on things to make it simple.

By second semester 1998, major changes had occurred with the text. Mrs. Z. chose not to even issue the new text but rather to use all the resources that included the old text and the new text

so that she could “hit the best points in each book.” The contextual biology book became primarily a lab book. A second reason for the change came from a reduction in content in the new text, so to teach more content she moved to the old text.

I decided that one of the things that the students liked the least about the course last semester and they had the hardest time relating to was the ecological approach that the textbook took. I looked at what the students needed, their personal needs, and some of their habits and interests and I thought we would be better off to approach it from the stand point of a person, as opposed to an eco-system. So what I decided to do was to start the course with students in terms of their personality, some of their behavioral problems, the consequences, and things like that - we’d tried to do it from a behavioral aspect. I started an introduction basically what is biology, why is it important in your life, and had the students look at the table of contents and start through the textbook, the old standard textbook. So my approach in this semester is to approach the personality of the student as well as some behavior and some attitudes that we needed to change.

Preparing for Second Semester: Mrs. Z. Makes Changes

Besides the text, Mrs. Z.’s second semester class took a different focus based on her first semester experiences. Mrs. Z. described the shift:

I tried to change the negativity, we are trying to be very, very positive in the way we approach everything, giving the students options wherever possible. The content is based on introduction to biology and then looking at you as a person, and what are the different ways in which you as a person learn, what are the ways in which you perceive the environment. I’m going into the nervous system and I’m doing a lot of activities that are kinda neat to get them to learn about what makes them tick. We’re doing a unit on the eye, optical illusions, and have cow eyeballs from cows that were slaughtered this week.

Videos provided with the new text that had not previously been used were interwoven with the content from the old text with good results. At year’s end, Mrs. Z. was convinced that the combination of resources worked best and that this would be her approach in school year 1998-1999.

Mrs. Z. Reflects On Her Experiences

Throughout the summer, Mrs. Z. analyzed the reasons for the difficulties she had faced in the 1997-98 school year. She attributed many of her frustrations to her Type A personality that caused her to be too determined to change the world. She read books on modifying her

personality, practiced relaxation techniques, and immersed herself in completing a pond right outside her kitchen window. She also determined she was too time dominated and stopped wearing a watch in June, a practice she continued when this school year began.

Part of her changed attitude resulted from her belief that neither site-based management nor the administration had responded with concern to a report she had written and presented at the June site-based management meeting. The report resulted from a school-wide concern about discipline that disrupted the learning environment in the classroom. The report presented recommendations for many of the discipline problems that included after school detention that focused on teaching students specific skills such as listening and following directions, working cooperatively, being prepared for class and how to demonstrate respect and courtesy to others.

Other suggestions included the formation of a disciplinary review team that would meet with the parents and the student who had repeated disciplinary referrals. The student would be held accountable for his behavior and the team would follow-up and review a student's case after a specified period of time. Also included in the report was the issue of teacher consistency in enforcing school and classroom rules and the need for staff development sessions that focused on successful discipline practices.

The report was wide-ranging and because of its depth could not have been decided within a thirty-minute time frame allotted to its presentation and discussion. However, Mrs. Z. felt that she had been "shot down" during the meeting and the bitterness lingered. She was absent from the August site-based team meeting where the report was again discussed but no definitive action taken.

As a result of her frustrations, she resigned from the site-based management team, resigned as chair of the Career Technology Committee and agreed only to serve as a member of the Mentorship Committee in September, 1998. As Mrs. Z. stated, "I'm going to mind my own business for a change and work on some little trees and not a whole forest of problems." She retreated into the more comfortable role of a classroom teacher and left the more exacting demands of teacher leader and change agent to others. She stated that "I took myself too far out of my comfort zone -- I'm here to teach biology and that's the only world I want to change."

Mrs. Z. also concluded that her problems with the contextual classes last school year were

not her fault. She reflected that the kids didn't have previous experience with the inquiry approach and that "inquiry can only occur when thinking skills have been taught." Her first thrust this year with all her classes is to accommodate students' learning styles. She has read books about multiple intelligences, brain-based learning and learning styles and has incorporated these ideas into her classroom. She also reached the conclusion that "what I teach is not as important as how I teach it."

Mrs. Z. also believed that many of her discipline problems last year resulted from too many repeaters in the course, more boys than girls, and the tiredness factor that had a negative impact when the class was scheduled during fourth period. She described her efforts to reach last year's classes: "I waved carrots until they dryrotted" without positive results and came to the conclusion that "some kids are impossible to reach."

Mrs. Z. this school year has two contextual biology classes. The rates of boys to girls is more even and there is only one repeater in each class. Mrs. Z. stated "the older the kid, the harder it is to get them focused."

Discipline was stressed at the beginning of this school year and the class role played a "good class" and a "bad class," a quiz was given on the syllabus, and high expectations as well as the failure is not an option policy remained firmly in place. Most importantly, Mrs. Z. is "having fun teaching again and I'm not so distracted by other things."

The contextual biology book purchased last year continues as a resource book, its videos interwoven with the previous traditional text especially in the topics relating to waste and chemistry in a format that makes sense to the students.

Mrs. Z. now believes that she was railroaded by the book's publisher and the Clemson experience into believing that the book was wonderful when reality told her that "the book was not relevant, assumed skills the students didn't have - they just couldn't hack it." She now believes the "book we bought is junk." She chose the book as a "last resort to meet the needs of these kids; it never dawned on me that my own method of combining resources might work."

There is a "new" Mrs. Z. in the classroom this year confident in her own abilities and not relying on a single text to make a difference. In a sense, the failure of the new text convinced her that she made the difference in the classroom. While she still believes in many aspects of

contextual learning, teaming, teacher as facilitator, and a student-centered classroom, she knows her teaching instincts and meeting the needs of her students come from her power as a teacher and her determination that students will not fail. Mrs. Z. is now in charge and not the text.

Themes That Emerged

Throughout our association, a number of unifying themes emerged that were not apparent at the beginning of my study. While my initial inquiry dealt with issues identified in contextual learning such as the role of the teacher and the students, the active “hands-on” concept in learning, as well as teacher expectations and student achievement, many peripheral issues also surfaced that sometimes overpowered the teacher and made any form of teaching difficult. The themes that emerged and their effect on Mrs. Z. and her students are identified and analyzed both by my own observations and the reflections from Mrs. Z.

Through our association, I realized an interesting paradox: the power as well as the powerlessness of teaching. The power from Mrs. Z. came from her determination to make her students realize that failure is not an option, her close association with the administration (mandating lunch time tutoring, and writing and adhering to behavioral contracts), and her constant contacts with parents, which included phone calls, letters, and face-to-face conferences that often lasted until 6:00pm.

The powerlessness of a teacher was also readily apparent as a result of my study. Student conduct was a constant problem during both semesters and often left the teacher feeling frustrated, angry, and alone. Mrs. Z. described the problem this way:

My frustrations have grown as my students have become more apathetic for the topic of unit one and have shown more immature behaviors. My present efforts are to revise the content of the course to prevent any further problems with motivation and to focus more carefully on the relevancy of the subject matter to our students. You simply can't swallow a new idea whole! The challenge of teaching students who lack necessary skills is compounded by the behavior of several students in each class. My attention is often focused on the few who have given up before they get to me and who subsequently don't want to attempt anything -- even labs! It is very disheartening to deal with angry, impatient, apathetic nonparticipants whose main goal in class seems to be to destroy your supplies and lab, curse, show disrespect for themselves and others, and never accept responsibility or blame for anything they've done. The number of repeaters and class size add greatly to my problems.

Number of Students

An additional factor also outside Mrs. Z.'s control were the number of students assigned to her career technology classes. Class enrollment should not have exceeded twenty, but during first semester twenty-three students were enrolled, some with severe emotional problems. Second semester's enrollment was 20 with 3 of these repeaters in the course. She described her problem this way:

I felt like an expectant mother about to give birth to the perfect child that would delight everyone and be problem-free. Then reality hit. I gave birth to triplets! One was a normal baby who seemed to not need much attention, the second baby rejected my attentions and cried and fussed all day and all night, and the third baby was slow to respond to any of my attempts to teach it. But I decided not to let these problems drag me down and I read every book I could find on coping with their individual needs. And I talked to every person I could find who had experienced similar problems. But in the end it doesn't take an expert to figure out which child got most of my attention. And it doesn't take a genius to figure out which child slowly became more distant because of my pre-occupation with the more pressing needs of the others.

As the year continued and the discipline problems escalated, it was apparent that Mrs. Z.'s energy level had dropped, her enthusiasm had plummeted and many of our interviews changed from the focus of contextual methodology to her repeated attempts to maintain order and counter the negativity of her students.

Time Schedule of Classes

An additional problem with scheduling occurred during second semester. The class met during fourth period and proved more difficult for a number of reasons. Students were tired at the end of the day and so was the teacher, making teaching and learning difficult. When the class was taught during first semester and scheduled during second period, students knew that the teacher would make them stay during lunch to discuss their behavior but during fourth period, this threat of 'staying after' did not apply. The teacher described her dilemma:

Second period was a different type of approach than what fourth period was because you can keep them at lunch. In second period, I had basically a system that they knew and expected. If they were out of their seat, they'd stay five minutes at lunch, and if they didn't do their work, they knew they had to stay to finish it. I don't have that luxury in 4th period. They also knew if they cursed, they stayed five minutes, and if they had to go to the bathroom, absolutely had to

go, they could go, but had to stay five minutes, so that curtailed anyone asking to go to the restroom. They were not going to give up their lunch. I think they would have wet their pants first. If they interrupted class, they had to stay on the second offense, one minute and two minutes for every subsequent one. So they were very good about curtailing their interruptions. I didn't have that "edge" with fourth period.

Impact of State Standards of Learning

Another factor beyond the control of the teacher were the State Standards of Learning tests. Throughout the school year, the teacher referred to these tests and the consequences they held for her and her students. Referring to the Standards of Learning as an 'albatross around her neck' and her students, she expressed her concern in this interview on November 20, 1997.

The test is going to be taken by all the kids and it's the same test regardless of what level they're in so we have to teach to the college prep kids as far as that particular test. You can't leave out a lot of the components of the course if you are the student that is going to be asked that on a test.

On December 18, 1997, she explained that the contextual approach did not work this week because the Standards of Learning interfered. She also made this statement about the tests.

They (SOL tests) will always be an albatross until the state refines them to meet the needs of students that are career oriented. I will cover the SOL's. It may not be to the depth which I should. There are still topics that I feel like we still have to cover, but I'll do it more relevantly. It's not going to be easy to do, and the kids aren't going to like it.

The fear of the State Standards of Learning tests even influenced the learning activities during second semester. Mrs. Z. wanted the students to understand what they needed to learn for the test and why they needed to know it. Her attempt to get them involved in their own learning met with limited success. Mrs. Z. described the approach she used and the attitude of the students who wanted to be passive learners and have the teacher determine how the course would be taught.

I ran six copies of SOL's in biology. They didn't work as well as I thought, because I had them finishing one activity, and I was trying to catch up some kids who were coming in as new students, etc. so I was letting them finish up two activities that they had done and then getting into groups to look at the SOL's, and also had all the biological supply catalogues out so they could go through and look at the SOL's and see which types of things we were to cover, and also look through the catalog to see all the exciting things, because kids like to look at catalogues. I

had hoped the activities were going to be in groups. There were several little groups that did more writing, but there weren't small enough groups. They didn't get anything done and they kinda goofed off a little bit more than I thought they should. Actually what happened when I got them all finished with the activities that had to be done, we sat down as a group and we had a couple students go to the board and list any ideas that the students had. They really didn't have any ideas and I kept telling them that this was an opportunity for them to have some power on what we could do. I could teach this course in many different ways, but I wanted to concentrate on what they really want to do. I think probably the reason that did not succeed is that the SOL's are kinda intimidating and there is a lot to read, and these kids don't like to read. So what we did, we went through the first SOL, which was on the scientific method. I asked them can you think of anything that we could get data from, what experiments we could do so we listed a couple ideas that we could work on. I didn't get the sense that they really fully wanted to be a part in the course. They wanted me to pretty much do everything, that whatever I did was okay, because they didn't care enough at that point to help plan it. I think they are so passive and are so willing for somebody else to control everything, and the teacher is the authority figure. She's suppose to do everything that is going to be done exactly the way she wants to do it, and they didn't really know how to handle anything different.

Furthermore, she believed that some items on the SOL tests were not applicable for her students and described her method of teaching that material in the following way:

DNA is on the test. They have to be able to take a chart, decode it, and take the sequence of the DNA and track it, describe it, translate it, and figure out the amino acids, etc. It is difficult to have a child look at a diagram of a cell and see the DNA and all these little a's, t's, c's, g's, these little faces and all realize or determine the sequence of amino acid, proteins, or whatever they do in the body. All that stuff is very complex for them, for that isn't something that is tangible to them. So what I do is try to make that relevant in a couple of ways. These kids are not going to college, so they don't really think in terms of transcripts, and things like my academic kids, so what I talk about, the nucleus is like an architect's office, and in that architect's office, you have the architect and he's making out a blueprint and that blueprint then leaves his office and it's mailed somewhere to a contractor out in the field, so we're taking the DNA at that point, out of the nucleus into the cytoplasm. Then that blueprint is used to build a house and then it's read again by another architect, maybe to make another house. This messenger RNA then is a molecule that can be translated and read just like different contractors and different people, who sell their house plans to their friends. It's read by a lot of people, and you get a lot of copies of this protein made from that one blueprint. We talk about different aspects of that, how the blueprint could be whatever, the fact that you have to give the blueprint to the contractor, but you also have to give it to the brick mason, the plumber or maybe the electrician, or whoever is involved in making the

house. Just by that analogy it helps them to realize that these things do take place in real life, so maybe they take place in the cell, too. I even have them draw little houses with roofs on them and then we have a housing development just like the proteins being assembled.

When the Standards are taught but the teacher feels the material is not applicable or relevant for students, how much enthusiasm for teaching that material can be generated? More importantly, when a teaching veteran of twenty-six years questions the importance of the test items especially for lower-ability students, who could doubt her statement? Mrs. Z. described one portion of the test items and how she handled that material.

They are not interested in DNA. I cut that down from first semester, because that was a real chore the first time I taught it. I gave up on how to try to teach them how to synthesize proteins because maybe the state thinks that is important but it's not worth the agony of trying to teach it.

Finally, I have observed first-hand how this teacher moved from an active learning environment to structured worksheets that required rote memorization and drill in order to teach to the prescribed standards--a fact frequently lamented, but implemented, by other creative teachers.

One readily apparent problem with the tests is how to define success. Is success the "magical percentage" required by the state in each core area measured by numbers or is success better defined as the ability of a teacher to motivate students to learn, to work cooperatively with peers, to attend school, and to accept responsibility for their own learning and the consequences of their choices? Even though Mrs. Z. believes the students and not the numbers are her first priority, she changed her learning environment and taught facts she thought extraneous in order to improve the scores. This approach moved Mrs. Z. away from contextual practice and back into a teacher-directed classroom.

Chapter 5

Reflections on Findings

This chapter focuses not only on the effectiveness of contextual learning in a biology classroom but also the journey that Mrs. Z. and I embarked on in August, 1997, that continued through second semester 1997-98, the summer follow-up and the changes that resulted in her class in fall semester of 1998 as a result of her experiences with contextual learning. Of paramount importance was Mrs. Z., whose role as a teacher, a leader, and a researcher, often overshadowed contextual issues during our weekly interviews. Students' experiences also were of major importance as their stories were told by Mrs. Z., sometimes with heartache and frustration and occasionally with joy as she witnessed the improvement of their grades and their attitudes. Their cooperation and interest influenced Mrs. Z.'s classroom and their apathy and inappropriate behavior and responses motivated her to create many carefully planned lessons that still resulted in failure. While the original intent of the study was describing the implementation of contextual learning, many other factors also emerged particularly my role as a researcher in a collaborative process and what I learned not only about myself but also about teaching and learning.

This chapter also focuses on all these participants with information gathered from weekly interviews with Mrs. Z., classroom observations, Mrs. Z.'s written reports and our collaborations outside the classroom, which initiated a successful school wide mentorship program and a preventive discipline policy recommendation report that resulted in some changes in our school wide discipline policy. Principles of contextual learning and their implementation in Mrs. Z.'s biology class were also examined and analyzed through this process. Additional recommendations for others who undertake this type of study are included as well as changes a study of this type made in the lives and outlook of the researcher, the teacher, and her students.

A Changing Perspective: Discovering Collaborative Research

This section of my inquiry examines my past successful experience with contextual learning in my own classroom and my present observation of contextual learning as a vocational

administrator. In addition, I will explore the contextual learning process with Mrs. Z. and what I learned from the collaboration.

My Perceptions of Contextual Learning: Then and Now

My role as a researcher in this study shifted dramatically from my original intent. I began the study with personal knowledge of contextual learning based on my teaching practices which were successful. I attributed this success to my changeover from lecture, textbook dependence, and the standard quizzes and tests to “hands-on active” projects for my students that engaged them through cooperative learning and a change in my role that moved me from the dominant presence in the classroom to a facilitator in the learning process. I provided help to students but not “the” answers. As a result, students learned to depend on each other and their success came from making their own decisions and the pride generated through a successful completion of a project. Throughout my teaching career, I used more and more of these techniques with students who were labeled “bad” but who exceeded my expectations in the quality of their work.

Later as vocational administrator whose chief function was to observe and evaluate teachers in eight different vocational areas, I saw students actively engaged in teamed learning, a teacher at the front of the classroom only to take roll, and students who showed me with considerable pride their products produced by working together. These observations further confirmed these practices were applicable for all students in both academic and vocational classes. Finally through my research, my beliefs were corroborated by scholars who attested to the value of implementing contextual practices in all classrooms whether academic or vocational in order to engage students and affect achievement.

When I first began working with Mrs. Z., my preconceived belief was that her contextual practices would produce positive results based on her determination to make significant changes in her teaching, a new text designed to promote active learning and collaborative thinking and her students who would respond enthusiastically to the contextual approach. As we began our weekly interviews, I learned quickly there were factors that made contextual learning practices difficult if not impossible. Chief among these were the number of students in her classes, the number of repeaters, the impact of the State Standards of Learning, and the time schedule of the classes

which are examined later.

Even knowing these factors and seeing the impact they had on her classes, I still believed that all obstacles could be overcome. As I look back on our collaboration, I realized there were times I walked ahead of Mrs. Z., looking back at her and believing she was the vehicle that would prove me and the scholars right. At the beginning of my inquiry, I was certain that Mrs. Z. would be successful through her use of contextual practices. As my inquiry continued and it was obvious that not all contextual practices were successful even with Mrs. Z.'s best efforts, I slowed down in my quest to "prove" my theory and paced myself to walk alongside Mrs. Z. to find out what happened in her classes and why it happened. We became partners in research.

Furthermore, as I reflected I realized many factors that contributed to my own earlier success with contextual learning. Perhaps I was in the right place at the right time to implement contextual learning. I was surrounded by a small supportive atmosphere. We had an enrollment of two-hundred students, twenty-five staff, and a supportive principal who wanted me to succeed, unlike Mrs. Z., who had to write reports and go through many administrative layers to institute change. Our large enrollment and the two-hundred person staff made finding a supportive environment with positive reinforcement very difficult in our learning community.

Reflection also helped me see that being an inexperienced teacher when I implemented contextual learning was in my favor. I didn't have a history of past success or failure, and I was willing to try anything that worked without fear. As a twenty-six year teaching veteran, Mrs. Z. had tried other methods in her classroom and judged her present contextual practices with her past approaches. She had history; I did not.

Lessons Learned from Our Collaboration

My collaboration with Mrs. Z. taught me the value of being a good listener. When we began taping our interviews, my weekly focus centered on different aspects of contextual learning. I talked more than I listened as the length of the transcriptions of her comments and mine will clearly show. If she veered from the topic, I immediately steered it back to my focus. I could actually visualize each topic neatly packaged in its own separate section of my study, corroborating my own experience and the research. Sometimes I heard only what I wanted to hear and often asked questions that would affirm my beliefs.

As the interviews progressed, I talked less and listened more and asked questions only for clarification. I also realized that interviewing was not “tidy” and easily arranged but rather issues and situations that developed during the taping often had more far-reaching implications than my focus. After all, it was Mrs. Z. who was in the classroom every day, it was she who had implemented contextual practices and knew their results. I was only the conduit who could tell her story. As a result, Mrs. Z. became the focus and not my previous successes or the research. As a result of our collaboration, we moved from interviews/interviewer asking and answering predetermined questions to partners in her contextual classroom.

Another valuable lesson I learned early in our association is that tapes don’t tell the full story. Tape transcriptions can’t capture the tears, the smile of triumph or the exhaustion and bewilderment. The best I could do to make her story real was to judiciously use Mrs. Z.’s quotes and try to explain the circumstances surrounding her statements. Sadder still is that so much that was good in our interviews could not be included and were shared only by me and Mrs. Z., but the passages unused have not been forgotten and have had an effect on my own beliefs and practice as a school leader.

In the beginning of our collaboration, I had no intention of becoming personally involved with Mrs. Z., based on my own introverted personality and my honest belief that “real” researchers interviewed, observed, and impartially reported the facts. While those facts are important and included throughout my study, the human side of Mrs. Z. cannot be overlooked -- to do so would be to omit the real story of one teacher who made a difference.

Even though the interviews were weekly, I never left Mrs. Z. As I listened to and transcribed the tapes, I relived our conversations, the tone of her voice, the problems she faced, and her reflections. The tapes haunted me. What could I have said to encourage her? Why did I say anything when obviously words were unnecessary? Why didn’t I praise her more when she had successes? I constantly evaluated my own responses to each interview. As I became more attuned to Mrs. Z., I knew when to talk and when to listen, a valuable lesson for me when I work with teachers in my building. I also knew early in our collaboration that I could not be a dispassionate observer. Mrs. Z.’s frustrations and joys affected me, her problems and successes became my own.

Our association also allowed me to observe Mrs. Z. as a teacher leader when we co-chaired a committee whose specific purpose was to improve the achievement of Career Technology students. It was a role that Mrs. Z. did not enjoy because she was disappointed with the contributions and commitment of some of the committee members. When the recommendations from the committee were not immediately endorsed by site-based management, she was personally affronted.

During the summer, she decided not to become involved in a leadership role in any initiatives outside her own classroom. She believed that larger school issues distracted her from her students which were always her primary concern. Perhaps Mrs. Z. moved too far too fast into school-wide concerns that made her feel that she had “more expectations than achievements.” I was surprised at her decision because she had many attributes of a good leader, including a clear cut agenda, the passion to help students, and superior organizational skills. Along with these skills was a sensitive personality rather easily hurt and a person who found it difficult to function in a group that sometimes did not give 100%. Her decision, however, came rather easily as Mrs. Z. realized at the end of last school year that her stress levels were high. She decided that part of her frustration came from out of class involvement, and she resigned from these obligations. In addition, Mrs. Z. coped with other stresses including a new approach to teaching, using a new text and being actively involved in my study.

Mrs. Z. is now back in her comfortable classroom niche, making decisions that do not require group consensus. It is good that all of us have a school leadership role, some in the classroom, others as decision makers in site-based management, a few at the forefront of school initiatives while others choose only to follow. It is the responsibility of each learning community to make the most of each individual’s strengths for the good of all the learning community, another lesson I learned from our collaboration.

Finally, our association brought me additional renewed respect for the individual teacher in the classroom. At best, teaching is an isolated profession with few opportunities to interact with other professionals other than a hurried and harried hello in the morning and a quick goodby at the end of the day. Mrs. Z. remained even more isolated because she spent all her lunch time every day tutoring students. Her entire school day revolved around her classroom and her

students with no one to talk to about her problems or successes -- teachers generally tough it out alone.

That isolation was apparent at the beginning of our collaboration as we both struggled to talk to each other, since neither teachers or administrators have the luxury of communication regarding experiences within their classrooms. It was a luxury to be savored on both our parts -- with the office door closed, we were able to immerse ourselves into our topic and real reflection took place.

How wonderful it would be if teachers could have an opportunity to share ideas, brainstorm solutions, and discuss educational theory within the school day. It would end the isolation, spark creative thought, and make a real difference for them and their students. We now provide professional development after school, and we ask teachers after they have been in the classroom all day to come up with ideas that will motivate students. A teacher's greatest motivation at 4:00 p.m. is to stop thinking and enjoy some private time before beginning another day. In the case of Mrs. Z., she almost always stayed late at school and went home to plan lessons, call parents, and read educational articles. On weekends, particularly on Sunday, she again immersed herself in school.

Our collaboration influenced me even more to search for funding sources that would release our teachers during the school day to plan, look forward, and most importantly to interact with each other outside the school setting. I made sure the meetings started later than the beginning of school, that we provided one hour for lunch and that the meeting agenda was productive but relaxed. During three of these days involving different technical faculty, I was amazed at the appreciation expressed by our teachers for this one day opportunity, how much they were energized, and the enthusiastic way they communicated the outcome of the meetings to their colleagues. Mrs. Z. and other teachers desperately need and should be provided that kind of creative exchange.

Furthermore, my collaboration with Mrs. Z. caused me to re-examine how we reward our teaching professionals. When I became involved with Mrs. Z. and witnessed firsthand her hard work and her dedication, I knew that she represented a large number of teachers on our campus who give their all and yet receive in return no extra salary, no trophies of acknowledgment, no

Christmas bonus, just the expectation that they will continue working with diligence. Their “reward” is frequently more work and more responsibility because we know, that, if a task is assigned to them, it will be completed flawlessly and without direct supervision.

Meanwhile, there are other teachers who are paid on the same salary scale, who work only their class hours and who do not become involved with committees after school because “they really don’t have the time.” Often these same teachers will complain that a few teachers made decisions for them and that nobody asked them what they wanted to do. In our profession, we do not reward excellence, while mediocrity and less is often tolerated. We must do better for our teaching professionals deserve better. Mrs. Z. often told me that her gratification came from her students, but she and many others deserve more.

In line with the recognition of quality teachers is the importance of positive reinforcement. We tell teachers how important it is for them to recognize student achievement through verbal praise, positive notes sent to parents and intercom announcements, recognizing individual and group achievements. Yet so often we forget that teachers also need positive reinforcement for the very same reasons that their students do: affirmation of their accomplishments, the fact that someone took the time to notice and compliment, and the belief that they as individuals are important. Too often, I assume teachers know I appreciate them even though I do not tell them, and too often written communication is not positive but instead deals with an item they have overlooked.

Through working so closely with Mrs. Z., I noticed how much a simple statement on my part such as “good job” or “I would never have thought of that” could bring a smile to her face and a visible relaxation of her features. Keeping the tone light and spending a few minutes of conversation before the taping provided a positive atmosphere. With increasing frequency, I use this technique when conferencing after an observation, always beginning with a positive comment before leading into recommendations. I make sure each conference ends on a positive note and that our initiatives are proactive and not reactive. Sometimes we get so caught up in the events of the school day that we forget what a few words of praise and encouragement can accomplish.

After careful reflection and a year and a half of collaboration with Mrs. Z., I can say without equivocation that this was the most in-depth experience I have had in thirty years in

education. At times, the up-close and personal encounters were extremely tiring; truthfully there were times I did not want to be involved anymore; I just wanted to rest and observe contextual learning in our technical center where I knew it worked. Sometimes I thought we belabored points to an excessive level, but always I knew this experience was extraordinary -- one teacher and I focused on contextual learning practices, on teaching as a profession, and our sorrows entwined in our personal lives that shape us into who we are and how we react in our classrooms. Mrs. Z.'s dialogue corroborated and strengthened some of my beliefs, changed others but most of all it changed me. Mrs. Z. brought clearly into focus what hard work and dedication can accomplish in the lives of students sometimes at the teacher's expense. This experience also humbled me in that Mrs. Z. and so many others give so much, receive so little and yet they move forward with innovation and determination that this year will be their best. How many other professions can boast the same performance?

Factors that Affected Contextual Practices in Mrs. Z.'s Classroom

Three key factors that influenced contextual practices in Mrs. Z.'s classroom were discipline, administrative decisions, and curriculum issues especially the State Standards of Learning. While each of these factors are treated separately, they are intertwined and all had a major impact on Mrs. Z.'s classroom.

Discipline

Instead of enthusiastic co-operative learners who embraced the new class concept, Mrs. Z. met with resistance. Students constantly picked on each other and refused to co-operate with other students and with Mrs. Z. Their behavior and attitude moved Mrs. Z. away from contextual practices back to more structured worksheets and drill. Behavior also changed Mrs. Z.'s plans to provide more opportunities to move away from the classroom for laboratory experiments. In one case during first semester, students taken outdoors were out of control so the outdoor classroom was discontinued. During second semester, the immaturity and behavior of her students convinced Mrs. Z. that students did not deserve an out-of-class opportunity, and these students remained in the classroom all semester.

The number of repeaters in the class also posed a major problem. Turned off by biology because some had failed the same course twice before coming to Mrs. Z., they were apathetic,

passive, and bored; and they were not impressed by a new teaching method -- they were still enrolled in biology, which they hated.

Compounding the problem were the number of students assigned to her classes. Twenty-three students were too many. Mrs. Z. believed that removing two or three students would have had a significant positive influence on the classroom because she spent a great amount of time trying to focus, motivate and discipline these students at the expense of the other students.

Schedule of Classes

Scheduling of her contextual classes also were a concern. During second period, students were required to stay during their lunch period if they misbehaved. This policy caused them to moderate their behavior because lunch time was primarily their socializing time. During second semester, the contextual class was at the end of the day; therefore, staying after school was not possible. Mrs. Z. believed that the scheduling issue had a direct impact on her ability to discipline students and affected her ability to implement contextual practices.

State Standards of Learning

Another major impact were the State Standards of Learning tests. While Mrs. Z. knew about the Standards, she did not realize the shift in teaching practice that was required to prepare students for the tests. With teacher accountability a concern and with overall department scores a major concern, Mrs. Z. succumbed to the pressure and tried to teach the Standards even though she believed that many were not applicable to her contextual students. Teaching the Standards moved her away from contextual practices to more worksheets and drill. Many times contextual lessons were changed to meet the expectations of the Standards test.

Textbook Issues

Along with these factors was the textbook issue which affected instruction. Mrs. Z. believed the new text would change her classroom through its emphasis on relevant community biology issues, its emphasis on cooperative activities, relevant videos, and 70% of the class centered on lab activities. Mrs. Z. soon realized that students had trouble relating to the relevancy of the issues, the videos dealt with problems in communities our students did not identify with and that the labs did not meet her students' needs. Throughout the year, the textbook was first the primary book, then a lab resource book, and finally only a reference source, while the previous

textbook (which had been discarded) again became the primary book. Through the textbook issue, Mrs. Z. realized that changing a text will not solve every learning problem and that a text is only one part of the learning process. Through her constant evaluation of the text and her students' reactions to the activities, she knew that inquiry-based learning did not depend simply upon the purchase of a new text.

Successful Contextual Practices in Mrs. Z.'s Classroom

One of the successful contextual practices frequently used by Mrs. Z. was cooperative learning. Even though she modified her grouping frequently, she remained a firm believer in its value. Students were paired in all lab assignments and were given the freedom to design their own experiments and reach their own conclusions. Through cooperative learning Mrs. Z. became a facilitator to learning actively engaged with small groups of students rather than lecturing to the whole class. This stance gave her the opportunity to work with individual groups that were struggling and increase individual attention.

An interesting aspect of cooperative learning groups was the insecurity of students in their new role in the classroom. They are attuned to being passive through reading, taking notes, and teacher lecture. As Mrs. Z. forced them to become more active participants, they wanted to move back into a teacher dominated classroom where Mrs. Z. gave the answers and decided what they were to learn. She moved students away from that passive role, and frequent changes in grouping provided students opportunities for leadership and collaboration with different class members.

Another successful practice came from Mrs. Z.'s attention to student attitudes. She moved students from negative attitudes to positive thinking through constant reminders when they exhibited negative behavior, praise when they achieved success and an emphasis on the importance of a positive attitude in life, and not just in her class.

High expectations for students is another element in contextual learning and implemented with considerable success by Mrs. Z. Her "failure is not an option" policy was constant, students were told they would not fail. They must do the assignments, attend lunch tutoring, retake tests until they passed and make up any work they missed. This policy increased student achievement since only one student failed during both semesters. Some of the students liked their success and became self-motivated while others met Mrs. Z.'s expectations but achieved because she

demanded it. It was a grueling and time consuming process for Mrs. Z., but she felt the results were worth it.

Mrs. Z.: What Our Collaboration Meant

For Mrs. Z. our association in our study of contextual practices provided a unique opportunity to reflect on her practice in a sustained way. Since our collaboration extended a year and a half, she had time to reflect, to analyze and to ponder successes and failures. This differed from conferences and staff development occasions where an expert presents techniques and strategies and then leaves the teacher to their implementation in the classroom. In most cases, the teacher is alone and has no one who bolsters her successes or commiserates when they fail.

Furthermore, Mrs. Z. knew that I had a deep interest in contextual practices from a practitioner standpoint and not a theoretical viewpoint. Our efforts were always to provide quality learning and improve student success. Mrs. Z. knew that I valued her opinions and believed in her approach.

Our collaboration was also built on trust. The lives of teacher and administrator working together seemed very unusual to Mrs. Z., but the lines soon blurred as Mrs. Z. realized she was the contextual expert and I was there to discover what she learned. My office was also a safe haven for Mrs. Z. Because I did not serve as her evaluator, our relationship encouraged candor and many issues we discussed would not have been disclosed to her evaluator. Our trust factor was high and never betrayed throughout our collaboration.

Our investigation also provided Mrs. Z. with an opportunity to free herself from the rigorous job of teaching and immerse herself in reflection. She tended to be very serious and always berated herself for not accomplishing more. I helped her to see that there were many factors outside her environment that came into her classroom over which she had no control. Gradually, Mrs. Z. came to the conclusion that she could not change other teachers' commitment, that she preferred her classroom over school-wide concerns, and that one cannot reach all students all the time.

Besides time to reflect, a trusting environment, and a shared interest, Mrs. Z. knew that her voice would be heard and would be a contributing factor to contextual practices and further

research. Since her major concern was students, she wanted her voice and her experiences to be heard. Mrs. Z. knew I would carefully and thoughtfully tell her story through my study.

My only wish is that other educators could have the same opportunity to participate in this kind of enriching experience. I believe that Mrs. Z. and I are better at what we do because of our association, more reflective in our practice, better researchers, more attuned to students' needs and more perceptive practitioners. Everyone in education needs a Mrs. Z.

Contextual Learning: Theory Meets Practice

As I examined contextual practices in Mrs. Z.'s classroom, I also considered the issue of the future of contextual learning especially in academic disciplines. The outlook seems doubtful at best. One primary reason is the State Standards of Learning. Even though Mrs. Z. believed that contextual learning was the right approach and best served her students' needs, she felt compelled to include more memorization, worksheets and drill to prepare her students for the test. As the consequences of the Standards echoed around the State, Mrs. Z.'s classroom became increasingly more teacher directed as she struggled to "teach" the knowledge the Standards dictated.

When I look beyond Mrs. Z.'s classroom, I believe there are many teachers who will concentrate more and more on the Standards and abandon contextual practices because of the pressure of the tests. This phenomenon encourages teachers to return to the front of the room, directing students' learning and focusing on the Standards, even though many, including Mrs. Z. do not believe that everything the Standards require are applicable or necessary for students to know. More research is needed to determine how teacher's instructional practices have changed because of the Standards and the appropriateness of the content required by the Standards.

An additional factor regarding the future of contextual learning practices in our division are the number of students and repeaters assigned to Mrs. Z.'s classes. More administrative care is needed to provide a teacher with the support needed to succeed especially when beginning a totally new approach to learning. Class caps need to be followed and the administrative philosophy of believing that adding one or two more students will not make a difference should be re-examined. One or two more students can make a tremendous difference in the classroom as evidenced by Mrs. Z.'s experience.

Even though hand scheduling of students is time consuming, it would eliminate students

who have failed the same course more than once from being scheduled into the same classroom. Mrs. Z. struggled both semesters with those repeating students who were apathetic, discipline problems and negative toward the subject. Their behavior and attitude forced Mrs. Z. to spend endless hours disciplining and contacting parents when she could have been planning for her contextual class. These repeaters also caused her classroom to become less contextual and more teacher directed as the discipline problems escalated. If the number of repeaters assigned to her classes had been fewer, her contextual lessons may have been more successful.

Mrs. Z.'s attempts to make learning more relevant for students through contextual learning practices were hampered by state mandates and administrative decisions. I am convinced that teachers in other school divisions face the same problems. Because of these factors, I believe the number of "Mrs. Z.'s" who will attempt to implement contextual learning practices will diminish. Further research studies can probe these factors as they affect contextual learning.

Epilogue

Conditions changed for Mrs. Z. in the 1998 school year. During first semester, Mrs. Z. had two contextual biology classes. She continued her "failure is not an option policy," maintained her high expectations and shifted more responsibility for learning to the student. The factors which had hampered her efforts to implement contextual learning the previous year especially class size, the number of repeaters and the best use of the text were no longer primary issues. She had only one repeater in each class, discipline was far better as a result of Mrs. Z.'s beginning emphasis on class rules and skits which involved students in "good class" vs. "bad class" scenarios. Furthermore, her time was no longer spent agonizing over the text which became a resource along with other resources that Mrs. Z. had used successfully in the past.

Most importantly, Mrs. Z. was far more successful with the contextual approach as her students responded positively to the lessons. No students failed at the end of first semester and Mrs. Z. remained convinced that the contextual approach worked best with her Career Technology students.

Additionally, Mrs. Z. has assumed more of a leadership role outside the classroom. She was actively involved in the school mentorship program and matched students and teachers in that endeavor. She was also responsible for collecting motivation strategies used by her faculty.

Twenty-four teachers contributed their successes and Mrs. Z. prepared them for inclusion in the daily bulletin. Teachers were positive about the articles and Mrs. Z. followed up the faculty stories with recent research that focused on motivating students.

The success of contextual learning is greater for Mrs. Z. in the second iteration and the future of implementing contextual learning in other classrooms burns brighter than before.

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APPENDIX

MEETING THE NEEDS OF CAREER-BOUND STUDENTS

MEETING THE NEEDS OF CAREER-BOUND STUDENTS

1. SCHEDULING

Class size may have more of a bearing on what happens in the classroom than any other factor besides the teacher. Large class sizes increase the chance of poor behavior and teacher liability and decrease the amount of individual attention each student can receive. Class size can also be a determining factor in what strategies a teacher uses with a class. For these reasons, class caps need to be adhered to.

Class enrollment in 4th period core classes should be reduced.

Students who have been targeted as problem students or who have failed a class need to be counted as two students when scheduling them in that class again.

Students who have failed a core class need to be enrolled in that class during the morning, preferably second period so tutoring is more likely to occur.

The ratio of boys to girls is also a factor that affects many C/T core classes.

2. MAKING CONTENT RELEVANT

The SOL's are academic in nature and are not meeting the needs of our C/T students.

Teachers need to re-examine the relevancy of what they teach. If *we* can't find any relevance between a topic and the students' lives, how can we expect students to want to learn it? One thing that might help with this would be to know the cluster choices of your students and integrate them into the curriculum whenever possible. By beginning to use the concept of clusters now when grouping students for cooperative learning, two purposes might be served. Grouping by clusters can help to establish a sense of belonging among people who share common interests and it enables students to develop analogies between the areas in which they are/want to be more proficient and the content of their courses.

The use of problem-solving, decision-making, investigating, and inquiry strategies can also make learning more meaningful and relevant as well as give students an opportunity to express their feelings and opinions.

3. EMPLOYING THE USE OF DISCIPLINE CONTRACTS

Students need to take a more responsible role in the correction of their discipline problems. After the second referral from a class, a discipline contract should be developed by the student, the

teacher, and the administrator in which the students' behavior and the necessary conditions for its correction are stated. A follow-up meeting could be scheduled at the request of the teacher. A mentor should also be assigned to the student at this point from a list of faculty and staff members who have volunteered for this role. The mentor's main responsibility would be to actively listen to the student, monitor their behavioral changes, and provide emotional support.

4. INCREASED EXPECTATIONS

Some students thrive on being mediocre. We need to provide a greater challenge to these students while at the same time creating a supportive environment in which they feel they can accomplish more challenging tasks.

Teachers within a specific discipline or subject area could work together to develop greater consistency with regard to their expectations for classroom management, homework, group work, and assessment of students.

Teachers are encouraged to use their departmental lunch period in order to share the teaching strategies that work best with their students.

5. FOLLOW-UP OF DROP-OUTS

An extensive effort needs to be made to prevent students from dropping out of school. A referral system, similar to that used by the Student Advisory Committee, could be initiated to target those students who we think are planning to end their high school careers. Follow-up sessions with a mentor and guidance personnel might help to encourage the student to remain in school. Something as simple as knowing someone cares might make a big difference to the student.

A follow-up study of all drop-outs needs to be completed.

6. ASSESSMENT OF STUDENT WORK

More variety in teaching strategies will inevitably bring about more variety in our methods of assessment. The use of rubrics should be used to encourage students to develop quality work.

Students could also be given incomplete grades for work that they have not mastered and assigned tutoring to get help from the teacher or a peer. A deadline should also be used.

An emphasis on quality work and how students can improve their work should be used in conjunction with portfolios to display the quality work that students produce.

Everyone needs to teach and assess students on the skills they need for lifelong learning.

These include writing, reading for comprehension, communicating effectively, and thinking creatively and critically.

7. ACTIVELY ENGAGING THE STUDENTS IN THEIR LEARNING

Teachers not only need to instruct students in the study techniques that work best in learning their content, but they also need to provide time to practice these strategies in the class period. Writing-to-learn and reading-to-learn activities should be used more extensively in all classrooms as well as ‘learning for doing’ strategies that use a hands-on and/or minds-on approach.

8. USE OF MENTORS

As previously suggested, mentors could be used to monitor students in the correction of their behavior and to help reduce the potential of a student dropping out of school. A third use of mentors would be to monitor a student’s academic progress once it is determined that the student is in danger of failing a class. The mentor might even participate in the tutoring of the student.

9. CURRICULUM INTEGRATION

Continued efforts should be made to make links with the curricula of other disciplines as well as reinforce the prior knowledge obtained in each discipline. Opportunities should be provided for the various disciplines to not only discuss content but also share the strategies that work best with their students.

BIOGRAPHICAL SKETCH

I was born in Roanoke, Virginia, graduated from William Fleming High School in 1965, received my Bachelor's in English from Radford University in 1968 and my Master's in English at Radford University in 1975.

I began my career at Arnold R. Burton Technology Center in Roanoke County, teaching English 11 and 12 to vocational students. This school provided a nurturing environment for innovative teaching practices. It was at Burton that my interests in contextual learning, curriculum integration and teamed projects were developed and implemented. Articles about my successes were published in a number of educational journals including School Shop, Family Circle and the VEA Journal. I taught and thrived at Burton for twenty-two years.

In 1990, I was given the opportunity to serve as coordinator of the Roanoke Area Tech Prep Consortium which served seven school divisions and Virginia Western Community College. Tech Prep's purpose is to prepare students for further education and the workplace. My job encompassed many facets but I was closely involved with forming curriculum writing teams from secondary and post secondary faculties to produce curriculum guides. It was a rewarding experience that taught me not only about curriculum but also about leadership, patience, and organization. During my tenure at Tech Prep, four curriculum guides were published by the state in such diverse areas as Automated Manufacturing Technology, Early Childhood Development, Graphic Arts, and Radio and Television Production. As a result of my success in producing these curriculum guides, I spoke at many state and national conferences about the process of curriculum development and how to form successful writing teams.

In 1995, I was offered the opportunity to serve as the Technical Administrator at Franklin County High School. In my job, I help form business and education partnerships, observe and evaluate thirty teachers, plan special seminars and events for our students and serve on various committees.

My previous background has allowed me to be successful in my administrative position. My English skills have produced studies that highlight the importance of technical education in our school division, the role of technical education in reinforcing the Virginia Standards of Learning and in recognizing individual student and teacher accomplishments. My skills learned at

Tech Prep have also been utilized. I learned there the importance of proactive leadership, how to plan and organize productive meetings and how to develop teacher leaders.

On a personal level, I am married to Barry Akers, who is employed by Roanoke City Schools as an administrator. My interests are travel, gardening, and reading. Barry and I are owned by our Siamese cat, Violet. We live with her in Roanoke County.

Julia B. Akers