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Classroom Organizational Structures as Related to Student Achievement in Upper  
Elementary Grades in Northeast Tennessee Public Schools

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A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor in Education

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by

Darrell W. Moore

August 2008

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Keywords: Annual Yearly Progress, Classroom Structure, Student Learning, Tennessee

Comprehensive Assessment Program

## ABSTRACT

### Classroom Organizational Structures as Related to Student Achievement in Upper Elementary Grades in Northeast Tennessee Public Schools

by

Darrell W. Moore

School systems throughout the United States are obligated to meet requirements established by federal law and benchmarks established by state governments in student achievement. Therefore, understanding how children learn and the impact of learning environments may be factors in obtaining annual yearly progress (AYP) and improving student achievement. This study contributes to current research identifying teacher perceptions of learning practices and organizational structures needed to improve student achievement in upper elementary grades in public schools.

The purpose of this study was to identify if associations exist between classroom organizational structures and student achievement (CRT/TCAP) scores. Quantitative data were used to distinguish grade organization in relation to student achievement using standardized test data. Demographic data were collected from 67 returned surveys representing six school systems in Northeast Tennessee.

The statistical analysis revealed no significant differences in fourth and fifth grade student achievement scores in language arts, science, and social studies between students in self-contained and departmentalized classrooms. Although fourth grade students revealed no differences in math, fifth grade students had significant differences in

achievement math scores between those students in self-contained and departmentalized classrooms favoring departmentalized classrooms. Further analysis revealed no differences in student achievement scores for fourth and fifth grade students between teachers who favor and those who do not favor departmentalized or self-contained classrooms. The recommendations from this study include the use of a similar study to incorporate more school systems with a larger sample of teachers.

## DEDICATION

This work is dedicated to the people who are most dear to me. My wife, Janice, my best friend who gave me unconditional love, support, and inspiration during this time. My sons, Chris, Mark, and Matthew who have encouraged me to be my best. My entire family and friends for their faith and love. This work is devoted to all those who desire to be lifelong learners.

## ACKNOWLEDGEMENTS

I would like to thank the faculty of East Tennessee State University for the opportunity to complete my bachelors, masters, and doctorate degrees at a great institution. Special thanks to the faculty and staff with ELPA (Education Leadership and Policy Analysis). Without your help, I would not have succeeded in this dissertation endeavor. My chair, Dr. Mackay, has been a wonderful and inspiring mentor throughout this process. I appreciate Dr. Glover, Dr. Lampley, and Dr. Ralston for committing time to serve on my graduate committee. Their wisdom, guidance, and encouragement helped me through the doctoral process. Special thanks to Dr. Dishner (who was on my committee prior to her retirement) for challenging me to be my best.

To my fellow SREB Cohort I students, thank you for your friendship, help, guidance, sharing, and caring. Without your support, this program would have been very difficult to complete. I hope we always stay in touch.

To the Sullivan County Tennessee school system, thank you Mr. Arwood (Director), Mrs. Briggs (retired Elementary Supervisor), and Mrs. Sells (Principal, now Supervisor for Student Services) for allowing me to pursue my dream to complete my doctorate. Your recommendations and encouragement were appreciated.

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## CHAPTER 1

### INTRODUCTION

Many instructional arrangements seem "contrived," but there is nothing wrong with that. It is the teacher's function to contrive conditions under which students learn. It has always been the task of formal education to set up behavior which would prove useful or enjoyable later in a student's life. -B.F. Skinner

*(Quotations on Teaching, Learning, and Education, 2006)*

Since the passage of the No Child Left Behind Act (NCLB) that was enacted in 2002, Annual Yearly Progress (AYP) and student achievement have become critical keywords for all elementary and secondary educators. NCLB was designed to improve student achievement and close learning gaps. The law reportedly was built on four common-sense pillars: accountability for results, an emphasis on doing what works based on scientific research, expanded parental options, and expanded local control and flexibility (U.S. Department of Education, 2006).

Hasirci (1999), author of *Development of Children and Elementary School Environments: A Commentary Bibliography*, stated that "the elementary education of a child was a very important stage in interacting and developing relationships with others, adopting new reference groups, and developing new standards by which to judge themselves. The school environment was equally important in influencing attitudes and behaviors" (p. 17). Hasirci further reported that care must be given to the design and organization of classrooms. These factors can affect learning and contribute to the overall development of the student. Therefore, understanding how children learn, and the impact of learning environments may be factors in obtaining AYP and improving student achievement (p. 8-12).

### *Statement of the Problem*

With school systems throughout the United States obligated to meet NCLB requirements established by federal law and benchmarks established by state governments, the responsibilities of local districts to support teaching and learning have increased significantly in recent years. Further federal subgroup accountability for English language learners, students with disabilities, economically disadvantaged youths, as well as race and ethnicity to obtain AYP-100 percent proficiency for all students and each subgroup by the end of the 2013-14 school years has created added pressure on states and local school systems (U.S. Department of Education, 2006).

Educating our youth will require increased research on student learning, best practices, classroom structures, and teacher preparation. The purpose of this study was to identify if associations exist between classroom organizational structures and student achievement (CRT/TCAP) scores with information obtained from a cluster sample of public schools in Northeast Tennessee. Quantitative data were used to distinguish grade organization (self-contained, departmentalized, or other) in relation to student achievement using standardized test data. A survey to identify such school and teacher characteristics as number of students, current grade structures, licensures of teachers, teachers' experiences, class sizes, and gender was administered. An assessment was conducted to explore the perceptions teachers have about the association of student achievement to organizational structure in upper elementary grades.

### *Research Questions*

Through quantitative analysis, six school systems located in Upper East Tennessee were selected to provide fourth and fifth grade classroom teachers' perspectives of the most effective classroom organizational structures for student achievement in grades four and five. There were three questions used in this quantitative research.

1. Are there differences in fourth and fifth grade achievement scores (CRT/TCAP) in language arts, math, science, and social studies between students in self-contained and departmentalized classrooms?
2. Among teachers who teach in departmentalized classrooms, are there differences in student achievement scores (CRT/TCAP) in language arts, math, science, and social studies of fourth and fifth grade students between teachers who favor and those who do not favor departmentalized classrooms?
3. Among teachers who teach in self-contained classrooms, are there differences in student achievement scores (CRT/TCAP) in language arts, math, science, and social studies of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms?

### *Significance of the Study*

Because of NCLB compliance requirements throughout the United States, schools must continuously seek ways to improve student achievement and obtain AYP for all children. In recent years, however, a number of attempts have been made to revolutionize the delivery of elementary education. For years, elementary schools have used limited organizational structures and operated with “instructional monotony” and



“academic limitations” (Chan & Jarman, 2004, p. 70). Arrangements including: grade-level teams, cross-grade teams, non-graded structure, partial departmentalization, and departmentalization have been employed with varying degrees of success and have provided the basis for the variety of successful organizational structures in elementary education (Bondi & Wiles, 2001, pp. 286-287). This study contributed to the current research identifying the teacher perceptions of learning practices and organizational structures needed to improve student achievement in elementary schools. Change in organizational structures may provide schools with options to increase student learning and obtain higher achievement results.

#### *Limitations*

1. The limitations of this study included the limited number of schools identified and teachers surveyed.
2. Obtaining equitable demographics was difficult from the given population of schools.
3. A cluster sample of classes was selected; no generalizations should be made to other populations.
4. Individual socioeconomic status of students was federally protected, which limits sample choice based on school socioeconomic status similarities.
5. My own bias based upon currently teaching in a fifth grade departmentalized setting may skew my objectivity.

### *Definition of Terms*

The following terms are defined for the purposes of this study.

1. *Criterion-Referenced Tests (CRT)*. “Criterion referenced tests measure an individual student’s performance against a predetermined set of standards which are established based on the curriculum” (Tennessee Department of Education, 2007, ¶ 3).
2. *(CRT/TCAP) Summary Report*. The (CRT) Summary Report reveals the percentage of students at or above “Proficient” and “Advanced” category (Tennessee Department of Education, 2007, ¶ 5).
3. *Departmentalized classroom*. For the purpose of this study, Parkay and Stanford (1995, 2007) defined departmentalized classrooms when “students typically study four or five academic subjects taught by teachers who specialize in them. In this organizational arrangement, students move from classroom to classroom for their lessons” (p. 134).
4. *No Child Left Behind (NCLB)*. “No Child Left Behind Act of 2001 is a landmark in education reform designed to improve student achievement and change the culture of America’s schools” (U.S. Department of Education, 2006, ¶ 1).
5. *Self-contained classroom*.

For the purpose of this study, Parkay and Stanford (1995, 2007) defined the self-contained classroom as the most traditional and prevalent organizational structure in elementary schools. In this type of classroom, one teacher teaches all or nearly all subjects to a group of about twenty-five children, with teacher and students remaining in the same classroom for the entire day. Students may go to other classes for related arts subjects. Students may also

attend special classes for remedial or advanced instruction (p. 133).

6. *Team teaching.*

Parkay and Stanford (1995, 2007) define team teaching as an elementary school arrangement in which teachers share the responsibility for two or more classes (or group of students), dividing up the subject areas between them, with one preparing lessons in mathematics, science, and health, for instance, while the other plans instruction in reading and language arts. The division of responsibility may also be based on the performance levels of the children, so that, for example, one teacher may teach the lowest-and highest-ability reading groups and middle math group, while the other teaches the middle ability reading groups and the lowest and highest mathematics groups (p. 133).

7. *Tennessee Comprehensive Assessment Program (TCAP).* “Students in Grades 3-8 take the *TCAP* Achievement Test each spring. The achievement test is a timed, multiple-choice assessment that measures skill in reading, language arts, mathematics, science, and social studies” (Tennessee Department of Education, 2007).

*Overview of the Study*

The quantitative study was organized as follows: Chapter 1 included an introduction, statement of the problem, research questions, significance of the study, limitations, definitions, and overview of the study. In Chapter 2, a review of the literature is presented that includes (a) background and theoretical perspectives, (b) student learning, and (c) classroom structures. Chapter 3 contains descriptions of the methodology and steps taken to address the research questions. Chapter 4 presents the findings of the study. Chapter 5 contains discussions of the results, conclusions, recommendations for practice, and future considerations.

## CHAPTER 2

### REVIEW OF THE LITERATURE

The sweetest path of life leads through the avenues of learning, and whoever can open up the way for another, ought, so far, to be esteemed a benefactor to mankind. – David Hume  
(*Quotations on Teaching, Learning, and Education*, 2006)

#### *Rationale*

The purpose of the study was to determine if associations exist between classroom organizational structures and student achievement. This study was undertaken to determine if the use of departmentalized, self-contained, or other classroom structures could lead to increased student achievement successes with respect to the Criterion Referenced Tests (CRT) and Tennessee Comprehensive Assessment Program (TCAP) scores. These scores were reported by the Tennessee State Department of Education. A quantitative analysis was used and included surveys and test scores for a purposeful sample of fourth and fifth grade classrooms from six school systems in Upper East Tennessee.

The main focus was on teachers using departmentalized or self-contained organizational structures in upper elementary classrooms. The choice of fourth and fifth grades was deliberate. Multiple types of classroom structures were identified in grades four and five in public schools. Research (which will be discussed later) also indicated that very few studies have been presented in recent years on this particular topic. Renchler (2000) reported a few studies have attempted to gauge the influence of various configurations on academic achievement of students at the state and local levels, but most reports were “anecdotal or qualitative in nature and describe the perceived benefits and drawbacks of various grade configurations” (p. 1). This review addressed theoretical

perceptions, student learning, classroom structures, and their associations to student achievement. Most notably, the review of research, which discussed many studies of traditional self-contained classrooms, presented many possibilities and combinations of structures that could be used to improve student achievement. The results should assist colleges (teacher preparation programs), school districts (to improve decisions concerning grade and classroom organizational restructuring or address future building configuration needs for best practices classroom structures implementation), and elementary classroom teachers (providing best grade level organizational classroom structures for optimum student achievement).

### *Background in Learning and Theoretical Perceptions*

Many trends in educational theory and practice date back to contingent teaching and a constructivist view of learning. Contingent teaching is sometimes regarded as scaffolding. Scaffolding is a technique whereby the teacher demonstrates the desired learning strategy or task, then eventually shifts the duty to the students. The constructivist view of learning may be contrasted to a more direct approach to teaching.

Teachers who use contingent teaching modify the assistance they give to children based on what the students already know. Vygotsky (1962, 1978), a leading contingent learning theorist, coined the phrase-zone of proximal development to give educators a reference point at which students need help (p. 86, p. 187). According to educational psychologist Wood (1988), “contingent teaching (was) an effective means of increasing students’ abilities to process information in more complex ways” (p. 81). Wood (1988) eloquently states his reasoning as follows:

Contingent teaching helps children to construct local expertise. This expertise is connected with that particular task or group of tasks-by forcing their attention on

relevant and timely aspects of the task, and by highlighting things they need to take account of. It also breaks the task down into a sequence of smaller tasks which children can manage to perform, and orchestrates this sequence so that they eventually manage to construct the completed assembly (p. 81).

Vygotsky had eight views of educational theory and tried to identify a unifying theme. Theory of Value, Theory of Knowledge, Theory of Human Nature, Theory of Learning, Theory of Transmission, Theory of Society, Theory of Opportunity, and Theory of Consensus were used to integrate multiple disciplines (Goldfarb & Rozycki, 2000, p. 2-3; Vygotsky, 1962, p. 94-96). Vygotsky had a central question representing his educational theory, “How do humans, in their short life trajectory, advance so far beyond their initial biological endowment and in such diverse directions” (Goldfarb & Rozycki, p. 1; Vygotsky, 1962, p. 102-103)? Goldfarb (2000) restated Vygotsky’s Educational Theory with the following questions:

1. What knowledge and skills are worthwhile learning?
2. What is knowledge?
3. What are limits of human potential?
4. Who is to teach?
5. What is learning?
6. What is society?
7. Who is to be educated?
8. How is consensus achieved? (p. 1-5)

Vygotsky said that knowledge was important, but students should be encouraged to go beyond and use past occurrences to solve new problems and opportunities. Vygotsky (1962) viewed, “intellectual development rather than knowledge in the pursuit of thought and language” (p. 29). The human mind distinguishes us from other species. Humans are not limited to their current surroundings and therefore continue to develop intelligence. Vygotsky states that learning is a “constructivist activity” (p. 68-69). Language is a significant tool we use to learn how to think. Vygotsky continued to

develop what he referred to as a Zone of Proximal Development (ZPD). Vygotsky (1978) also reports that “cognitive development is limited to a certain range at any given age,” full cognitive development requires social interaction, and mediation (scaffolding) intervention may be needed to master the function or activity (p. 84). Vygotsky referred the ZPD as “the difference between the child’s capacity to solve problems on their own, and their capacity to solve problems with help. Higher and lower mental functions are basic to learning theory. Lower functions are inherited and higher mental functions develop through social interaction” (p.84). Vygotsky further states that “the teacher must provide educational materials that go beyond the child’s current knowledge base” (p. 88). The instructor’s role is to take the learner to a higher level of understanding. Vygotsky suggested cognitive development is rooted in social interaction and has major implications for the educational system. Vygotsky remained consistent in his statement that people do not develop in isolation (Goldfarb, 2000, pp. 1-5).

Constructivism is an approach to teaching and learning based on the premise that learning is the result of prior knowledge. Students learn by fitting new information together with what they already know. Constructivists contend that learning is affected by the context in which an idea is taught as well as by students' beliefs and attitudes. In Woolfolk’s article she stated the following about the constructivist view of learning:

Students actively construct their own knowledge; the mind of the student mediates inputs from the outside world to determine what the student will learn. Learning is active mental work, not passive reception of teaching. In this work, other people play an important role by providing support, challenging thinking, and serving as coaches or models, but the student is the key to learning (2004, p. 159).

Leading theorists in constructivism include Jean Piaget, Jerome Bruner, and John Dewey. Piaget, known as the “Father of Developmental Psychology,” became famous

for his theories about the development of intelligence in children (Kearsley, 1999, pp.1-2). Bruner developed a basic framework for instruction based upon the study of cognition (Smith, 2002, p. 2). Dewey, the foremost philosopher of his time, had a definite impact on schools in the United States with his student-centered focus (Neil, 2005, pp. 1-2). All three became important contributors to constructivism.

Piaget conducted a program of naturalistic research that has deeply affected our understanding of child development. Piaget called his general theoretical framework "genetic epistemology" because he was primarily interested in how knowledge developed in human organisms (Kearsley, 1999, p. 24; Piaget, 1968, p. 1). Kearsley said that "Piaget explored the implications of cognition, intelligence, and moral development to teaching practices and curriculum design in elementary education" (p. 24). Kearsley (1999) summarized the principles of Piaget's "genetic epistemology" as:

1. Children will provide different explanations of reality at different stages of cognitive development.
  2. Cognitive development is facilitated by providing activities or situations that engage learners and require adaptation
  3. Learning materials and activities should involve the appropriate level of motor or mental operations for a child of given age.
  4. Use teaching methods that actively involve students and present challenges.
- (p. 24)

Bruner said that learning was an "active process in which learners construct new ideas or concepts based upon their current/past knowledge" and used this idea as a major focus of his constructivist theory (Bruner, 1960, p. 97; Smith, 2002, p. 4). Bruner was instrumental in the development of cognitive understanding especially in the field of education. In 1960, Bruner developed a theory of cognitive growth. Bruner took a different approach to that of Piaget and viewed intellectual development proceeding in stages as influenced by environmental and experimental factors (Smith, 2002, p. 4).



Bruner wrote *The Process of Education* in 1966 and it became a landmark publication and influence on educators. Bruner said that children were active problem solvers and eager to explore more difficult material (Bruner, 1960, p. 32; Smith, 2002, p. 1-5). Four themes were cited from this book: “the role of structure in learning and how it may be central in teaching, readiness for learning, intuitive and analytical thinking, and motives for learning” (Bruner, 1961, p. 26). Bruner emphasized teaching and learning structure rather than mastery of facts, “don’t delay teaching difficult material, encourage intuitive problem solving, stimulate the desire to learn, and culture shapes the mind” (Smith, 2002, pp. 5-7). Bruner was very influential in education and on the work of researchers such as Howard Gardner. Gardner (2001) stated that “Bruner was not merely one of the foremost educational thinkers of the era, but also an inspired learner and teacher” (p. 3). Bruner’s constructivist theory was a general framework for instruction based upon the study of cognition and was linked to” child development research” (Bruner, 1961, pp. 33-36; Smith, 2002, pp. 8-10) and therefore focused on self-discovery.

Dewey sometimes referred to as the founder of constructivism, was another major contributor to the theory. Dewey initiated the progressive laboratory school at the University of Chicago where his reforms in methods of education could be put into practice. He stated that “learning was active and schooling unnecessarily long and restrictive” (Dewey, 1910, p. 220). His idea was that children go to school to do things and lived in a community which provided them with “genuine guided experiences” which promoted their ability to contribute to society (Dewey, 1938, p. 2-3; Neil, 2005, pp. 1-2). Dewey (1916) said that “an educator must take into account the unique differences between each student” (p. 228). Each person was different genetically and in terms of

past experiences. Student experiences were dependent on the individual. Thus, teaching and curriculum must be designed in ways that allow for such individual differences (Neil, 2005, pp. 1-2). Dewey (1916) suggested that “education be designed around student experiences that involve continuity and interaction” (pp. 22-23). Dewey (1916) said that “in humans, education was critical for providing people with the skills to live in society” (pp. 22-23). Dewey argued that “we learn something from every experience, whether positive or negative and one’s accumulated learned experience influences the nature of one’s future experiences” (Dewey, 1916, pp. 22-23; Neil, 2005, pp. 1-2). Thus our interactions with events are greatly affected by our past experiences.

Many trends in education continue today influenced by Vygotsky (Contingency Theory), Piaget (Constructivist – referred to as the Father of Developmental Psychology), Bruner (Constructivist-author of *The Process of Education*), and Dewey (Constructivist – referred to as the Father of Constructivism). Their collective research, findings, and insight have impacted and redirected educational theory and practice.

### *Student Learning*

#### *Background in Learning*

Learning can be defined as the information processing, sense making, and comprehensive or mastery advances that occur while one is acquiring knowledge or skill (Kohl, 1967). Research continues to broaden our understanding of how students think and learn. Trends in educational theory and practice include contingent teaching and constructivist views of learning. Today, educators are going beyond traditional methods and using authentic approaches to access what students know and have mastered. Much

research has been devoted to learning theory. The basic learning theories include behaviorism, cognitivism, and constructivism.

Behaviorism in education has multiple definitions, but Parkay and Stanford's explanation of behaviorism seems most appropriate for this study. Parkay and Stanford (1995, 2007) said "behaviorism is based on the principle that desirable human behavior can be the product of design, rather than accident" (pp. 241-242). In addition, "behaviorists believe that people do not have a free will, behavior instead is determined by the environment" (Parkay & Stanford, 1995, 2007, pp. 241-242). Founders of behaviorism include John B. Watson, B. F. Skinner, and Ivan Pavlov. Teachers who have a clear sense of purpose and manage by design would most likely employ behaviorism. A behaviorist approach to teaching would include systematic instruction with measurable outcomes.

Cognitivism in education goes beyond behaviorism and recognizes learning through thinking processes and repetition. Brophy and Good (1990) define cognitivism as follows:

Cognitive theorists recognize that much learning involves associations established through contiguity and repetition. They also acknowledge the importance, although they stress its role in providing feedback about the correctness of responses over its role as a motivator. However, even while accepting such behaviorists concepts, cognitive theorists view learning as involving the acquisition or reorganization of the cognitive structures through which humans process and store information (pp. 3-4).

Cognitivism has historical roots in Plato and Aristotle. Jean Piaget has been credited with a more current version of cognitivism (Mergel, 1998, pp. 6-7). Key concepts of cognitive theory include: "schema, three stage informational processing mode, meaningful effects, serial position effects, practice effects, transfer effects,

interference effects, organizational effects, levels of processing effects, state dependent effects, mnemonic effects, schema effects, and advance organizers” (Mergel, 1998, pp. 6-

7). Brophy and Good (1990) described the key concepts as follows:

Schema compares existing knowledge to new acquired knowledge. Three state informational processing involves sensory registry, input into short term memory, and placing short term memory into long term use. A meaningful effect implies that meaningful information is easier to learn and retain. Serial position effect refers to retention of items in a list from the beginning to the end. Practicing and rehearsing improves retention in practice effects. A transfer effect refers to prior learning new tasks or material. Interference effect occurs when prior learning influences with learning new materials. When a learner organizes material into a list it is referred to as an organization effect. A level of processing effects in cognitive theory refers to low level sensory to a higher level of understanding of meaning. Learning in certain contexts is easier to learn than in different contexts is a state dependent effect. Mnemonic effects are strategies used by learners to organize meaningless symbols or images into meaningful contexts as music. Schema effects memories may be influenced by prior schema. Materials that enable students to make sense out of the lesson are known as advance organizers. Much student learning involves associations established through contiguity and repetition (p. 187).

Constructivism is based on the premise that we all create our own perspective of the world through individual experiences and schema. Learners are focused on problem solving. Jonasson (1991) said that “what someone knows is grounded in perception of the physical and social experiences which are comprehended by the mind” (p. 5). In constructivism educators first consider the knowledge and experiences students bring with them to the learning task, then design the curriculum to cultivate, extend, unite, and develop student learning (Huitt, 2003, pp. 5-6).

### *Family Influences*

According to Parkay and Stanford (1995, 2007) the composition of families has changed dramatically over the years. Family compositions include: “single-parent, blended, extended, nuclear, and families headed by unmarried couples, lesbians,

homosexuals, older siblings, or grandparents” (p. 329). Each of these structures and economic arrangements places different demands and expectations on students. Parkay and Stanford said that “these structures could also affect behaviors and attitudes toward school” (p. 329). Divorce, re-marriage, and death may greatly influence student attitudes at home and at school. Today, composition and diversity in family styles allows students fewer choices and less supervision at home. Many women have entered the work force. A large number of families today have ended in divorce. A current phenomenon, often referred to as latchkey children, leaves many children unsupervised. These family structures and compositions may make school attendance and achievement irrelevant. Comer (1989) suggested in his book, *Children Can? In Children Can: An Address on School Improvement*, that as a result of dramatic changes that have occurred in today’s families, the “natural transfer of authority from home to school” was not as strong as it has been in the past, and schools and teachers are being called upon to play an increased role in the socialization of young people (p. 5). According to a 1992 survey conducted by the National PTA and the American Academy of Pediatrics, an alarming number of elementary age children go to school sick, disturbed, or abused. Parkay and Stanford reported that “changes in a student’s family structure, beliefs system, sibling position within the family, and how well a child’s needs are provided for, influence attitude and achievement for students in schools” (pp. 330-331).

### *Gender*

Does gender affect student learning? Traditionally, males have been expected to achieve more. Studies suggest that schools have tended to socialize girls to become dependent and passive, and boys to become competitive and to assume leadership roles

(Klein, 1990, pp. 10-23). By portraying males in more dominant, assertive ways and females in ways that suggest that they are passive and helpless, stereotyped roles have been reinforced and promoted in schools. Parkay and Stanford (1995, 2007) state that “Title IX of the Educational Amendments of 1972 guaranteed equality of educational opportunities to both males and females, but inequities still exist in schools today” (p. 333). Education must be free of gender bias and fair to all students in order that they may develop their abilities.

### *Intelligence*

Many definitions exist for the word intelligence. For this study, intelligence is considered to be the ability to learn. Wechsler (1949), the inventor of the Wechsler Intelligence Scales for Children and Adults, defined intelligence as “the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment (p. 477). Other definitions by Parkay and Stanford (1995, 2007) include: “goal directed adaptive behavior, ability to solve novel problems, ability to acquire and think with new conceptual systems, problem-solving ability, planning and other metacognitive skills, memory access speed, what people think intelligence is, and what IQ tests measure” (pp.333-334). Tests designed by Alfred Binet and Theodore Simon are used today in the fields of psychology and special education in diagnosing strengths and weaknesses of students (Wolf, 1979, p. 190). Group intelligence tests however have received much criticism. Wolf suggest that “tests can be skewed by cultural bias, timing, test anxiety, and other emotional factors that may influence outcomes and do not measure a student’s actual ability” (p. 190).

“Multiple intelligences”, as coined by Gardner (2001), include: “logical-mathematical, linguistic, musical, spatial, bodily-kinesthetic, interpersonal, and intrapersonal” (p. 8). Most intelligence tests focus on logical-mathematical or linguistic. Gardner (2001) wanted educators to understand that there are “other intelligences of importance to the learning process in students” (p. 8). For student intellectual growth, educators must recognize and promote all forms of intelligence.

### *Abilities and Disabilities*

It is important to recognize that students learn in different ways. Children have special needs and talents and differ in their stages of development. The Individuals with Disabilities Education Act (IDEA), passed by the United States Congress in 1997, focuses specifically on how best to help students with disabilities meet academic goals. Other federal laws including Education for All Handicapped Children Act of 1975, the Education Consolidation and Improvement Act of 1981, and the Gifted and Talented Children’s Act of 1988 have been initiated on behalf of students with special needs or talents. IDEA requires the following:

Schools must provide special education and related services to meet the individual needs of each student with a disability. To provide these services, a team of educators and parents develop a plan (referred to as an Individualized Education Program, or IEP) for each student with a disability that maps out what achievement is expected and what services are needed to help the student meet these expectations. With the appropriate supports and services, students with disabilities can and should be held to high standards (U.S. Department of Education, 2006).

Various assessment strategies are used to identify students who need special services for very low achievement (sometimes referred to as handicapped or disabled) and exceptionally high achievers (gifted and talented). Hallahan and Kauffman (1991) in

their writing, *Exceptional Children: Introduction to Special Education*, distinguish between disability and handicap as:

A disability is an inability to do something, a diminished capacity to perform in a specific way. A handicap, on the other hand, is a disadvantage imposed on an individual. A disability may or may not be a handicap, depending on the circumstances. Likewise, a handicap may or may not be caused by a disability. (p. 6)

Teachers can best serve students who are affected by special abilities or disabilities by seeking a better understanding of the individual and regarding all students as unique individual learning opportunities.

### *Stages of Development*

Development refers to the predictable changes that all humans undergo as they progress through the life span from birth to death (Galloway & Woolfolk, pp. 80-81). There are different stages of human development. The models for the purpose of this study are cognitive, social, and moral development.

Piaget developed a cognitive model based on four stages: sensorimotor intelligence, preoperational, concrete operations, and formal operations. According to Piaget:

- (1) Sensorimotor intelligence (birth to 2 years) - behavior is primarily sensory and motor. The child does not think conceptually, however, cognitive development can be observed.
- (2) Preoperational thought (2-7 years) - development of language and rapid conceptual development are evident. Children begin to use symbols to think of objects and people outside of their immediate environment. Fantasy and imaginative play are natural modes of thinking.
- (3) Concrete operations (7-11 years) - children develop ability to use logical thought to solve concrete problems. Basic concepts of objects, number, time, space, and causality are explored and mastered. Through use of concrete objects to manipulate, children are able to draw conclusions.



- (4) Formal operations (11-15 years) - cognitive abilities reach their highest level of development. Children can make predictions, think about hypothetical situations, think about thinking and appreciate the structure of language as well as use it to communicate. Sarcasm, puns, argumentation, and slang are aspects of adolescents' speech that reflect their ability to think abstractly about language (Boeree, 1996, ¶ 20-30).

Piaget remarked that students move through all of the stages, but experience unique stages of development.

Erikson developed the model of psychosocial development which encompasses eight stages: infancy, early childhood, play age, adolescence, young adult, adulthood, and mature love. Specifically the eight stages are:

1. Learning Basic Trust Versus Basic Mistrust (Hope)
  2. Learning Autonomy Versus Shame (Will)
  3. Learning Initiative Versus Guilt (Purpose)
  4. Industry Versus Inferiority (Competence)
  5. Learning Identity Versus Identity Diffusion (Fidelity)
  6. Learning Intimacy Versus Isolation (Love)
  7. Learning Generativity Versus Self-Absorption (Care)
  8. Integrity Versus Despair (Wisdom)
- (Erikson, 1968, pp. 93, 95).

A psychosocial crisis is central in the individual's emotional and social growth (Parkway & Stanford, 1996). Swan (2006) states from her study, *Who was Erik Erikson?*, the following:

Each stage has its own unique crisis. Infants deal with trust issues, toddlers learn either to be autonomous or to doubt oneself, young children learn either to take initiative or feel inadequate, and grade school children experience either industry or inferiority. Adolescents, unsurprisingly, deal with identity issues, emerging from the period with either a strong sense of who they are or identity confusion. Adults, whom Freud's theories neglect, struggle first with intimacy, then with productivity, and finally with their reflections on their lives.

A wrong turn during any of these stages could produce any number of psychological problems. Therefore, Erik Erikson believed that psychoanalysis could help maladjusted adults to relearn the lessons that they'd struggled with in childhood. (p. 1)

Kohlberg's stages of moral reasoning focused on moral development. According to Kohlberg (1973), the reasoning process people use to decide what is right or wrong evolves through three levels of development. The three levels of Kohlberg's model are: preconventional level of moral reasoning, conventional level of moral reasoning, and postconventional, autonomous, or principled level of moral reasoning. Underneath the levels are stages 1-2, 3-4, and 5-6. Kohlberg's Theory of Moral Development states:

1. Preconventional level of moral reasoning-child is responsive to cultural rules and labels of good and bad, right or wrong, but interprets these in terms of consequences of action (punishment, reward, exchanges of favors). Stage 1-punishment and obedience orientation. Stage 2-the instrumental relativist orientation.
2. Conventional level of moral reasoning-maintaining the expectations of the individual's family, group, or nation is perceived as valuable, regardless of consequences. Stage 3-the interpersonal concordance or "good boy-nice girl" orientation. Stage 4-the "law and order" orientation.
3. Postconventional, autonomous, or principled level of moral reasoning-effort to define moral principles that have validity and application apart from the authority of groups. Stage 5-the social contract, legalistic orientation. Stage 6-the universal ethical principle orientation. (Kohlberg, 1973, p.19)

Other developmental stages for students include promoting character education through service learning. Teachers use service learning activities to promote good citizenship through such activities as writing letters to armed forces, tutoring younger students, helping with blood drives, assisting with food drives, and cleaning up the environment. As students progress through the many stages of development, they mature and learn to perform age appropriate tasks that become a part of daily life skills.

### *Classroom Organization*

Parkay and Stanford (1995, 2007) define classroom organization as "the way teachers and students are grouped for instruction and the way time is scheduled in the

classroom” (p. 362). Teachers and students may be grouped and configured in many ways such as: self-contained, team-teaching, open-space, and departmentalized. Parkay and Stanford distinguish classroom organizations as follows:

1. At the elementary school level, the self-contained classroom is the traditional arrangement. In this arrangement, the teacher and students remain in the same class for all core subjects such as math, science, social studies, and language arts. Students may be pulled out for related arts classes as art, guidance, library, music, and gym. The classroom teacher usually organizes the day’s activities around a central theme.
2. Another arrangement is the team-teaching configuration. In this arrangement, teachers divide the responsibility for two or more classes among two or more teachers. The teachers specialize in different subjects, skills, or ability groupings of students. Like the self-contained classroom, students are pulled out to attend related arts classes.
3. A third teaching arrangement is open-space classrooms. In the open-space classroom organization, students work independently with a number of teachers providing individual assistance. Typically these classrooms have no walls, hence the name “open-space.”
4. The last elementary level arrangement described is the departmentalized classroom. This arrangement is usually found in middle, junior, or high schools. In this setting, students study four or five academic subjects taught by teachers who specialize in those subjects. Students typically move from class to class for their subjects. Departmentalized arrangements require more structured schedule of time. (p. 362).

### *Classroom Environment*

The quality of the classroom environment is important to the school organization. Parkay and Stanford (1995, 2007) further state that “the physical environment of a classroom can enhance the quality of the teacher and student relationship” (p. 362). Acoustics, accessibility, electrical outlets, lighting, instructional media, and telecommunications are important common design needs for all types of classrooms. Seating arrangements and the placement of other classroom furniture can do much to enhance the classroom environment. Learn North Carolina (LNC), a web site that

features classroom environment arrangements, suggests that classroom lighting and temperature affect student achievement. Classrooms should be comfortable and conducive to student learning. LNC states that a “warm classroom tends to lead to students to be more sleepy, inattentive, and consequently bored and disruptive. In an exemplary elementary school, the classroom design encourages students to learn through discovery at learning centers located throughout the room” (Parkay & Stanford, 1995, 2007, pp. 362-364).

### *Classroom Climate*

Classroom climate as defined by Johnson and Johnson (1991), “the ways in which the people within the classroom interact with each other,” (p. 1) impacts the classroom environment. Parkay and Stanford (1995, 2007) write in their book, *Becoming a Teacher*, that there are eight dimensions used to describe classroom climate: (1) openness versus defensiveness, (2) confidence versus fear, (3) acceptance versus rejection, (4) belonging versus alienation, (5) trust versus suspicion, (6) high expectations versus low, (7) order versus chaos, and (8) control versus frustration. Teachers influence the quality of climate in a classroom by their style of communication, treatment of students, and by their instructional decisions (pp. 364).

### *Classroom Management*

Classroom management can be a key to a productive classroom environment. Problem prevention, effective problem solving, assertive discipline, the least approach, behavior modification strategies, the acceptance approach, and reality therapy are some tools that can be used by teachers for effective classroom management. The key to preventative discipline is excellent planning and an understanding of life in the classroom

(Brophy & Good, 1987). Assertive discipline requires teachers to make clear their expectations, instruct clearly, and plan consequences. The least approach by Carkhuff (1983), is an acronym for l-leave it alone, e-end the action, a-attend more fully, s-spell out directions, and t-track the behavior. Behavior modification strategies are based on the theories of B.F. Skinner and call for rewarding good behavior. The acceptance approach was developed by Rudolph Dreikurs. Dreikurs (1968) suggests that teachers should avoid power struggles with students. The acceptance approach is based on the following rationale: (a) students misbehave for different reasons, (b) teachers can use their own emotional reactions to help determine the student's motivation for the misbehavior, and (c) different corrective strategies need to be used for misbehavior caused by different motivations (p. 36), (Dreikurs, Grunwald, & Pepper, 1982). Reality therapy approach in the classroom was developed by William Glasser. According to Glasser (1965), "good discipline begins with teachers who create positive, caring relationships with students and encourage them to take responsibility for their behaviors" (pp. 656-662). Glasser suggests the following basic steps: (1) establish positive relationships with students, (2) have misbehaving students be accountable for their action, (3) have students develop a plan for acceptable behavior, (4) have student commit to plan, (5) don't accept excuses, (6) don't use punishment, and (7) don't give up on a student (pp. 656-662). Other methods, books, and videos exist for classroom management techniques. Listening, positive interactions, questioning, knowledge, and experience will promote effective classroom environments and management skills.

## *School Curriculum*

According to Tyler (1949), school curriculum or a plan of instruction is dependent upon four fundamental questions and therefore must be answered when developing school curriculum: (1) what educational purposes should the schools seek to attain, (2) what educational experiences can be provided that are likely to attain these purposes, (3) how can these educational experiences be effectively organized, (4) how can we determine whether these purposes are being attained (p. 1)? Tyler's underlying principle has been used in many school systems as a method of constancy in developing school curriculum. Target and time orientation are among two dimensions of the planning process. A target would be that set by the state or national educational decision or the school makers. Time orientation involves present or future applications. Parkay and Stanford (1995, 2007) stated that a key component of the school curriculum is student-centered versus subject-centered.

Subject-centered curriculum emphasizes on the order of the subject students are to study. The teacher becomes a subject matter expert and concerned mainly with students understanding facts, laws, and principles of the subject taught. This method is more typical of a high school education. Student-centered curriculum emphasizes greater concern for students and their needs. Teachers teach the content, but place greater weight on student growth and development. This approach is more typical in an elementary school setting. (p. 402).

An integrated curriculum brings together both subject and student curriculums and is used often in elementary education. The focus on themes using different subjects as suggested by Krogh (1990) is a "more natural approach" for curriculum design. Krogh said that "children learn better when immersed within integrated subjects" (p. 97).

The school curriculum has changed over the course of time. From the basics being taught with the Bible as a textbook in the 1600s to 1700s to school curriculum

reorganization in the early 1900s, schools have become increasingly more accountable for providing meaningful curricular experiences based on high standards (Parkay & Stanford., 1995, 2007, pp. 406-418). Today students' curricula includes: literacy, math, science, social studies, foreign languages, the arts, physical education, and vocational studies. The aim of curricula design continues to be to prepare students to solve tomorrow's opportunities. Teachers must continue to play an active role in the curriculum design process to achieve student preparation for society's future needs.

### *Classroom Structures Analysis*

In 1994, Montgomery and Rossi, editors of *American Institutes for Research*, stated in their article: *Education Reforms and Students at Risk: A Review of the Current State of the Art*, "the way in which schools and classrooms are organized has an immediate impact on students' educational experiences" (p. 1). An analysis of classroom organizational structures follows.

### *Self-Contained Assessment*

The self-contained classroom has been the most traditional and prevalent organizational structure in elementary schools. In this type of classroom, one teacher teaches all or nearly all subjects to a group of about 25 children, with teacher and students remaining in the same classroom for the entire day. Students may go to other classes for related arts subjects. Students may also attend special classes for remedial or advanced instruction (Parkay & Stanford., 1995, 2007, pp. 133, 362).

Bezeau (2006) said that a teacher in a self-contained classroom must be a "subject matter generalist, but that teacher develops a personal relationship with his or her pupils" (p. 7). This relationship was seen as a strong point for a self-contained classroom

organization. Dropsey (2004) stated that the self-contained classroom teacher was expected to “carry the responsibility of curriculum for the entire school day” (p. 3). This continues to support the “subject matter generalist” comment by Bezeau (2006, p.7). In the *Journal of Instructional Psychology*, McGrath and Rust (2002) presented a study that investigated the relationship between elementary classroom organizational structures, particularly self-contained and departmentalized, and gave some support for self-contained classrooms in the reduction of transition time in teaching subjects and increase in instruction time (pp. 1-4). The McGrath and Rust study also indicated higher achievement gains in language and science, but not in reading, mathematics, and social studies (pp. 1-4). Catledge-Howard, Dilworth, and Ward (2003) also researched the associations between classroom organizational structures and student achievement. This study (findings will be discussed later) tried to determine if there was a relationship between achievement, self-contained classrooms, and departmentalized classrooms.

Previous studies by Alspaugh and Harting (1995) concerned with transition effects, Harris (1996) focused on the effect of departmentalization on the reading achievement of sixth grade students, and McGrath and Rust (2002) analyzed academic achievement as well as class transition time for self-contained and departmental upper-elementary classrooms were used to gain insight on this issue (Catledge-Howard, Dilworth, & Ward, 2003, pp. 1-5). The Harris (1960) study reiterated the concerns for time-on-task that had been expressed. Self-contained classroom structures require little time for class transitions. The McGrath and Rust research further investigated transition time between classes and instructional time. This research reinforced that transition time was less in self-contained classrooms; however there was little difference in instructional



time, and no significant difference in the core subjects of math, reading, and social studies (p.1-4). The final study in the review was done by Alspaugh and Harting (1996) and determined the impact of transitional time for reading, mathematics, science, and social studies in achievement. The results of two schools in the study changing from self-contained to departmentalized classrooms showed achievement losses in core subjects in the years of transition from self-contained to departmentalized classrooms. The analysis from Catledge-Howard, Dilworth, and Ward (2003) supported the self-contained classroom organization structure over a departmentalized organization. They found student achievement was higher in some subject areas (language arts and science) in self-contained organizations and that schools should expect lower achievement scores during transitional years from fifth grade self-contained classrooms to sixth grade departmentalized classrooms (p. 1-5).

#### *Departmentalized Classroom Assessment*

In the departmentalized classroom, students typically study four or five academic subjects taught by teachers who specialize in those subjects. In this organizational arrangement, students move from classroom to classroom for their lessons (Parkay & Stanford., 1995, 2007). Research supports some of the instructional benefits of departmentalized staffing (Montgomery & Rossi, 1994). Bezeau (2006) describes departmentalization as follows:

In departmentalized schools, teachers become subject specialists and students receive instruction in different subjects from different teachers. Students, or less frequently teachers, move from classroom to classroom during the day in a series of periods. During each period, each group of students receives instruction in one subject. This type of organization permits the subject promotion of students and reduces the number of different class preparations required of each teacher. Students have contact with more teachers and teachers with more students than non-departmentalized schools (p. 7).

As stated by Bezeau (2006), subject promotion for students and reduced preparation by the teacher were benefits of departmentalization. Gess-Hewsone (1999), in her study: *Delivery Models for Elementary Science Instruction: A Call for Research*, stated that “25% of all elementary teachers do not teach science at all (in a self-contained classroom structure) and among those that do, less than 2 hours per week were engaged in instructional teaching of the subject” (p. 2). Gess-Hewsone suggested five models of delivery to improve science instruction. Classroom science specialists and departmentalization within grade levels were two of the options presented. Gess-Hewsone concluded that, “science specialists were found to have a greater understanding of the science content than self-contained classroom teachers” (p. 13-15). The departmentalized models guaranteed time for science instruction and allowed science resources to be centralized with each grade level. Gess-Hewsone stated that drawbacks to departmentalized models included decreased knowledge of students on a personal basis, less opportunity to integrate science with other subjects, and the expectation of all science content to a single team member (pp. 1-24).

In the Catledge-Howard, Dilworth, and Ward (2003) study, it was noted that departmentalization allowed students to become adjusted to the structure before entry into the structure at the middle and high schools levels. Teachers would be able to become “more knowledgeable in their subject area in way that might not be possible in a self-contained classroom structure” (p. 1-5).

Chan and Jarman (2004) addressed in their article, *Departmentalized Elementary Schools*, the advantages of departmentalization in elementary schools. The article

discussed specialization, instructional teams, teacher retention, transition, and flexibility as positives for departmentalization (p. 70).

In specialization, teachers focus in a particular discipline. Chan and Jarman (2004) suggested “instructional time was better utilized by concentrating on fewer subjects” (p.70). Instructional teams created at grade level can be formed to coordinate teaching efforts across the curriculum. Students are exposed to more than one teacher. Teacher retention improves with more satisfied teachers. By focusing on one discipline, teachers use less time in preparation and were happier with their jobs. Transitions in elementary schools allowed students to be better prepared for class changes in middle schools. According to Chan and Jarman, flexibility with departmentalization allowed students to move between grade levels according to ability, and from ability group to ability group within grade levels. Chan and Jarman concluded that departmentalization had changed. Grade-level teams, cross-grade teams, non-graded structure, and partial departmentalization have occurred. Chan and Jarman suggested that “schools should: initiate a pilot departmentalized program beginning with upper grades, limit participation to students whose parents request it, be willing to innovate and try various forms of departmentalization, drive decision with data” (p. 70).

#### *Other Structures Assessment*

In a team teaching arrangement in an elementary school, teachers may share the accountability for two or more classes. Classes may be divided up by subject areas between teachers, with one preparing lessons in mathematics and science, for instance, while the other plans instruction in social studies and language arts. “The division of responsibility may also be based on the performance levels of the children, so that, for

example, one teacher may teach the lowest-and highest-ability reading groups and middle math group, while the other teaches the middle ability reading groups and the lowest and highest mathematics groups” (Parkay & Stanford, 1995, 2007, pp. 133-134, 210, 362, 475).

Rossi and Montgomery (1994) suggested alternatives to departmentalization. Anderson and Powell (2002) discussed the organization of elementary classes in a pattern similar to departmentalization. Anderson and Powell stated “that teachers were responsible for one content area, such as math or social studies, but it was not until 1957 when there was a sudden burst of interest, nurtured by seventeen universities being funded by Ford Foundation grants to support teacher-teaming and related arrangements, and the merits began to be seriously questioned” (p. 8-10). Anderson and Powell concluded that even today, a great many elementary schools continue to provide “at least some space flexibility to accommodate teaming arrangements” (pp. 8-10).

A semi-departmentalized plan was evaluated in 1961 by Bishop. Semi-departmentalization was used as an alternative to the self-contained classroom at the elementary level and full departmentalization at the junior high level (Bezeau, 2006). The Dual Progress Plan provided grade-level grouping and advancement in the language art - social studies core and in physical education. A non-graded grouping and advancement included mathematics, science, art, and music. This plan assigned teachers of grades three-six a particular specialty (subject or related arts). Bishop (1961) reported that “after two plus years, the new elementary organization was viewed as a success” (pp. 344-348).

In 1979, Cohen, Meyer, Scott, and Deal affirm in their study, *Technology and Teaming in the Elementary School*, that the organization most commonly linked to newer

teaching technologies was teacher collaborative work groups or teams (pp. 20-33). This study was later supported by Davis (1993) in her book, *Collaborative Learning: Group Work and Study Teams* that students learn best when they are actively involved in group work. Davis further reported that studies from Beckman (1990), Chickering and Gamson (1991), Collier (1980), Cooper and Associates (1990), Goodsell, Maher, Tinto, and Associates (1992), Johnson and Johnson (1989), Johnson, Johnson, and Smith (1991), Kohn (1986), McKeachie, Pintrich, Lin, and Smith (1986), Slavin, (1980, 1983), and Whitman (1988) indicate that students working in small groups are more successful in learning and retention than when the same material is presented with different instructional methods. Baptiste, Waxman, Felix, and Anderson (1990) stated in their book, *Leadership, Equity, and School Effectiveness*, that cooperative learning at the elementary level has contributed to higher achievement when compared to whole-class instruction in heterogeneous classes (p. 166).

#### *Summary of the Literature*

Many trends in educational theory and practice resulted from contingent teaching influenced by Vygotsky, and constructivism predisposed by Piaget, Bruner, and Dewey. Aid to children through scaffolding (contingent teaching) or a more direct approach (constructivism), have provided teachers with greater understanding and insight in student learning. Wood (1988) imparted the value of contingent teaching as a “break down into sequences of tasks that children managed and built on until the learning objective was completed” (p. 81). Parkay and Stanford (1995, 2007) offered the constructivist belief and viewpoint that “learning was affected by the context in which an

idea was taught including students' beliefs and attitudes" (p. 362). Together, these theories have impacted education and classroom practice.

Kohl (1967) defined learning as "the information processing, sense making and comprehensive or mastery advances that occur while one is acquiring knowledge or skill" (p. 6-7). Teachers have used authentic approaches to access student knowledge and mastery through behaviorism, cognitivism, and constructivism. Learning influences include family, gender, intelligence, abilities, disabilities, and stages of development (p. 7).

The school curriculum or plan of instruction has changed over time. Parkay and Stanford (1995, 2007) described a key component of the school curriculum as student-centered (usually found in elementary settings) versus subject-centered (usually found in high schools). Student-centered curriculum content contains greater concern for students and their needs. Teachers teach content but often place more weight on student growth and development. Krogh (1990) discussed an integrated curriculum, a combination of student-subject centered curriculums. The focus was on themes which immersed and aided student learning across the curriculum.

In the analysis of classroom structures and organization, Rossi and Montgomery (1994) stated, "The way in which schools and classrooms were organized has an immediate impact on students' educational experiences" (p. 1). The benefits of self-contained, departmentalized, or other structures in the classroom have been researched over the years with mixed results.

The self-contained classroom was found to be the most traditional and prevalent organizational structure in elementary schools. Bezeau (2006) said teachers are "subject

matter generalists” but further emphasizes the personal relationships between teachers and students that develop as an attribute in this structure (p. 7). Dropsey (2004), McGrath and Rust (2002), Catledge-Howard, Dilworth, and Ward (2003), Alspaugh and Harting (1995), and Harris (1996) supported the self-contained classroom in schools. The McGrath and Rust study gave support for a reduction of transition time in teaching subjects and inversely an increase in instructional time. Higher achievement gains were noted in language and science in the relationship between self-contained classroom structures and student test achievement. The Catledge-Howard, Dilworth, and Ward study also supported the self-contained classroom organizational structure. They found higher student achievement in some subject areas. Another finding from this study was the expected lower achievement scores during transitional years from fifth grade self-contained classrooms to sixth grade departmentalized classrooms. The Harris (1996) study reiterated the discoveries of Alspaugh and Harting (1995) concerning time-on-task for which self-contained classroom structures allowed more time for instruction because no time was used for class transitions.

While the departmentalized classroom has been found in some elementary schools, it is typically found in middle and high schools. Research supports some instructional benefits of the departmentalized classroom (Montgomery, Robert, & Rossi, 1994). Studies by Bezeau (2006), Gess-Hewson (1999), Catledge-Howard, Dilworth, and Ward (2003), and Chan and Jarman (2004) support the departmentalized classroom in elementary schools. In the 2005 study by Bezeau, subject promotion for students and reduced preparation by teachers were advantages of this organizational structure. Gess-Hewson suggested departmentalization as an option to increase student achievement in

elementary school science. The departmentalized model guaranteed time for science instruction and allowed science resources to be centralized with each grade level according to Gess-Hewsone. The Catledge-Howard, Dilworth, and Ward study noted that departmentalized classrooms allowed students to become adjusted to the structure before entry into middle and high school levels and teachers would become more knowledgeable in their subject area. The strongest advocates for departmentalization in elementary schools were Chan and Jarman. Advantages Chan and Jarman noted included: teachers could specialize in a particular discipline, instructional teams would be created to coordinate teaching efforts across the curriculum, student exposure to more than one teacher, increased teacher retention due to greater satisfaction in areas of instruction, greater focus on one discipline, less time in teacher preparation, greater job satisfaction, and flexibility in creating grade-level teams, cross-graded teams, non-graded structures, or partial departmentalization.

According to Dropsey (2004), departmentalization increased the opportunity for teachers to be involved with more students, thus improving interpersonal skills through adapting to different teaching styles. Students were able to move more frequently during the day, which helped increase attention. Teachers were able to cover more of the state standards by specializing in one content area. Dropsey stated that in “self-contained classrooms, science and social studies often do not get the amount of time necessary to cover the standards that need to be covered. When grade levels are departmentalized, equal time is given to all subject areas, which is a more efficient use of time” (pp. 1-16).

Other classroom structures included team teaching, semi-departmentalization, dual progress plan, and non-graded grouping. Parkay and Stanford (1995, 2007),



Anderson and Powell (2002), Bishop (1961), and Bezeau (2006) described these organizational structures in elementary schools as patterns similar to departmentalization. Team arrangements were common in many elementary schools (Anderson & Powell, 2002). Bishop evaluated a semi-departmentalized structure as a “Dual Progress Plan” which provided grade level grouping and non-graded grouping (p. 344). The plan advocated teachers of upper elementary grades be assigned a particular subject and after 2 plus years, the plan was viewed as a success (pp. 344-348).

In this literature review, there is clearly a need for more empirical evidence for achievement outcomes related to organizational classroom structures, particularly the relationship between self-contained and departmentalized arrangements. Self-contained (traditional arrangement in elementary) and departmentalized (found usually in middle, junior, and high schools) organizations were highlighted by Parkay and Stanford. Parkay and Stanford (1995, 2007) further emphasized the “importance of the physical environment of a classroom, a possible influence on the quality of the teacher and student relationship. The quality of the classroom environment, the interaction of people within the classroom, and how teachers managed the classroom were key components to a productive classroom and teacher efficacy” (pp. 362-364).

## CHAPTER 3

### METHODOLOGY

The purpose of this study was to identify if associations exist between classroom organizational structures and student achievement (CRT/TCAP) scores with information obtained from a cluster sample of public schools in Northeast Tennessee. Attention was given particularly within self-contained and departmentalized classroom structures in fourth and fifth grades in selected systems. Consideration was given to school distinctiveness, teacher characteristics, and Criterion Reference Tests/Tennessee Comprehensive Assessment Program (CRT/TCAP) scores. Demographics included: number of students, current grade level structures, certification of teacher, teacher experience, class size, and gender. Surveys were used to explore teachers' perceptions in association to the relationship of student achievement and organizational structures in upper elementary grades. Student (CRT/TCAP) scores included achievement in language arts, math, science, and social studies.

Although previous research studies indicated positive academic results for self-contained and departmentalized classroom structures in upper elementary schools, many questions remain concerning which structures can be associated to student achievement. Variables in this study were directly or indirectly linked to student achievement. Every effort was made to select schools with similar socioeconomic composition. This chapter includes information on the research design, the target population and sample, instrumentation, procedures, and data analysis that were used in this research.

### *Research Design*

This study included descriptive and inferential methods for data analysis. A quantitative research design was used for this study to discover if an association exists between the variables. Quantitative methods involve the process of collecting, analyzing, interpreting, and writing the results of a study (Creswell, 2003). Choosing a quantitative research design allowed a statistical determination between means scores and practical significance.

### *Population and Sample*

The population consisted of fourth and fifth grade classroom teachers in six school systems located in East Tennessee. All of the participating schools were public schools composed of grades PreK through grade 4, PreK through grade 5, or PreK through grade 8. Fourth and fifth grade levels were chosen because the state of Tennessee requires testing of all fourth and fifth grade students, in selected school districts, to take the Tennessee Comprehensive Assessment Program (TCAP) exam. These scores were reported to the Tennessee State Department of Education and published on-line. According to Renchler (2000), multiple types of classroom structures have been “identified in grades four and five” in elementary environments (p. 2). Renchler (2002) further states, those previous studies were “qualitative in nature and therefore lacked quantitative information to identify beneficial grade level structures” (p. 3). This study addressed theoretical perceptions, student learning, classroom structures, and their associations to student achievement using a quantitative format.

This study used a cluster sample of fourth and fifth grade classroom teachers within six school systems located in Northeast Tennessee. Schools were selected with

similar socioeconomic characteristics. (CRT/TCAP) 2006-2007 scores were collected.

At no time were any names (teachers, systems, and students) attached to any part of the findings; therefore, complete anonymity was assured. Table 1 lists the participating schools and characteristics.

Table 1

*Characteristics of Participating Schools*

| School | Percentage of Economically Disadvantaged 2007(Rounded) | Total Student Population 2007 | NCLB Status   |
|--------|--|-------------------------------|---------------|
| A      | 42   | 454                           | Good Standing |
| B      | 30   | 377                           | Good Standing |
| C      | 62   | 632                           | Good Standing |
| D      | 56   | 463                           | Good Standing |
| E      | 74   | 510                           | Good Standing |
| F      | 66   | 582                           | Good Standing |
| G      | 68   | 925                           | Good Standing |
| H      | 38   | 665                           | Good Standing |
| I      | 42   | 656                           | Good Standing |
| J      | 65   | 348                           | Good Standing |
| K      | 56   | 503                           | Good Standing |
| L      | 64   | 321                           | Good Standing |
| M      | 50   | 199                           | Good Standing |
| N      | 68   | 316                           | Good Standing |
| M      | 68   | 225                           | Good Standing |
| O      | 84   | 525                           | Good Standing |
| P      | 44   | 530                           | Good Standing |
| Q      | 68   | 381                           | Good Standing |
| R      | 81   | 324                           | Good Standing |
| S      | 37   | 327                           | Good Standing |

Based on Report Card 2007 (TN Department of Education, 2007)

## *Instrumentation*

### *Tennessee Comprehensive Assessment Program*

Academic outcomes were measured using the TCAP achievement exams. Specifically, the tests for grades four and five included language arts, math, science, and social studies. The TCAP achievement exams provided criterion referenced information and reported students' levels of performance information using a semantic scale. These levels were: below proficient, proficient, and above proficient.

### *Demographic and Teacher Perception Survey*

A demographic and teacher's perception survey was designed to gain information about the teacher participants and their perceptions pertaining to classroom structures (Appendix E). The survey included general information about teacher characteristics. College major, degree earned, teacher certification (licensure), highly qualified status under NCLB, grade taught, the number of students in the classroom, current organizational structure, subjects taught, and preferences to organizational structures were among the factors of the survey.

### *Focus Group*

Prior to distribution of the *Demographic and Teacher Perception Survey*, a focus group consisting of fourth and fifth grade teachers piloted the instrument with four additional questions (Appendix D). The four additional questions were administered orally by the primary investigator. The focus group questions provided insight into teacher perceptions as associated with self-contained and departmentalized classroom structures in elementary schools. The pilot group made suggestions for modifications to the survey (Appendix E).

### *Procedures*

Prior to implementation of the survey, approval from the Institutional Review Board at East Tennessee State University was obtained (Appendix B). Upon approval, letters were sent to the director of schools requesting permission to access achievement scores and to conduct research in a cluster sample of classes of fourth and fifth grade classrooms within their systems (Appendix C). Schools within the systems were reviewed by socioeconomic data provided by the Tennessee Department of Education (Tennessee Department of Education, 2007). Afterward four schools from each system were identified. The schools were chosen based on location and similar socioeconomic makeup. A focus group was selected to review, amend, and respond to survey and focus questions. Revisions were made to survey upon completion of focus assessment. Upon receiving permission from the principals, letters were mailed or delivered to fourth and fifth grade teachers selected for the study (Appendix C). Surveys had self-addressed stamped envelopes for return to principal investigator. Surveys were coded for identification by system and school. All information collected was confidential. Teachers were asked to complete demographic survey (Appendix E). By using quantitative analysis, I desired to answer questions that would identify elements of classroom organizational structures that support student achievement in elementary schools.

### *Data Analysis*

This study analyzed fourth and fifth grade use of self-contained and departmentalized organizational structures in relation to student achievement (CRT/TCAP) scores. Descriptive and inferential analysis was used. The findings of the

study used SPSS-Statistical Package for the Social Sciences software program to analyze, interpret, and display data.

Research question 1 was the primary focal point of the investigation. Question 1 provided information on classroom organizations and student achievement. Questions 2 and 3 provided information on teacher perceptions concerning self-contained and departmentalized organizational structures in elementary schools. From research question 1, eight null hypotheses were developed. From research questions 2 and 3, eight additional null hypotheses were developed and analyzed.

*Hypothesis for Research Question 1*

Ho<sub>1</sub>: There are no differences in fourth grade achievement scores

(CRT/TCAP) in language arts between students in self-contained classroom and departmentalized classroom organizations.

Ho<sub>2</sub>: There are no differences in fourth grade achievement scores

(CRT/TCAP) in math between students in self-contained classroom and departmentalized classroom organizations.

Ho<sub>3</sub>: There are no differences in fourth grade achievement scores

(CRT/TCAP) in science between students in self-contained classroom and departmentalized classroom organizations.

Ho<sub>4</sub>: There are no differences in fourth grade achievement scores

(CRT/TCAP) in social studies for fourth grade students between students in self-contained classroom and departmentalized classroom organizations.

Ho1<sub>5</sub>: There are no differences in fifth grade achievement scores (CRT/TCAP) in language arts between students in self-contained classroom and departmentalized classroom organizations.

Ho1<sub>6</sub>: There are no differences in fifth grade achievement scores (CRT/TCAP) in math between students in self-contained classroom and departmentalized classroom organizations.

Ho1<sub>7</sub>: There are no differences in fifth grade achievement scores (CRT/TCAP) in science between students in self-contained classroom and departmentalized classroom organizations.

Ho1<sub>8</sub>: There are no differences in fifth grade achievement scores (CRT/TCAP) in social studies between students in self-contained classroom and departmentalized classroom organizations.

*Hypothesis for Research Question 2*

Ho2<sub>1</sub>: Among teachers who teach in departmentalized classrooms, there are no differences in student achievement scores (CRT/TCAP) in language arts of fourth and fifth grade students between teachers who favor and those who do not favor departmentalized classrooms.

Ho2<sub>2</sub>: Among teachers who teach in departmentalized classrooms, there are no differences in student achievement scores (CRT/TCAP) in math of fourth and fifth grade students between teachers who favor and those who do not favor departmentalized classrooms.

Ho2<sub>3</sub>: Among teachers who teach in departmentalized classrooms, there are no differences in student achievement scores (CRT/TCAP) in science



of fourth and fifth grade students between teachers who favor and those who do not favor departmentalized classrooms.

Ho2<sub>4</sub>: Among teachers who teach in departmentalized classrooms, there are no differences in student achievement scores (CRT/TCAP) in social studies of fourth and fifth grade students between teachers who favor and those who do not favor departmentalized classrooms.

*Hypothesis for Research Question 3*

Ho3<sub>1</sub>: Among teachers who teach in self-contained classrooms, there are no differences in student achievement scores (CRT/TCAP) in language arts of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms.

Ho3<sub>2</sub>: Among teachers who teach in self-contained classrooms, there are no differences in student achievement scores (CRT/TCAP) in math of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms.

Ho3<sub>3</sub>: Among teachers who teach in self-contained classrooms, there are no differences in student achievement scores (CRT/TCAP) in science of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms.

Ho3<sub>4</sub>: Among teachers who teach in self-contained classrooms, there are no differences in student achievement scores (CRT/TCAP) in social studies of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms.

A quantitative analysis was used to answer the research questions. Research question 1 was analyzed using an independent samples  $t$  test. Associations between the dependent variables (CRT/TCAP scores) and the independent variables (self-contained and departmentalized classroom organizations) were tested. Research questions 2 and 3 were analyzed by using independent sample  $t$  tests using associations between dependent variables (CRT/TCAP) student achievement scores and independent variables (teachers who favored or did not favor departmentalized classroom organizations or teachers who favored or did not favor self-contained classroom organizations) in fourth and fifth grade classrooms.

#### *Summary*

Chapter 3 presented the research design, population and sample, instrumentation, and statistical procedures that were used for data analysis. This study used quantitative procedures to analyze organizational classroom structures as associated with student achievement scores. This study used a cluster sample of fourth and fifth grade classroom teachers from public schools in Northeast Tennessee. Each participating teacher completed a demographic and teacher perception survey. Chapter 4 provides an analysis of data, and Chapter 5 includes implications, conclusions, recommendations, and practice for further research.

## CHAPTER 4

### ANALYSIS OF DATA

The purpose of this study was to identify if associations existed between classroom organizational structures and student achievement. Data were collected from six school systems in upper elementary grades four and five in Northeast Tennessee public schools using a 12-item survey (Appendix E). The Tennessee Comprehensive Assessment Program (TCAP) is used for assessment for students in grades 3-8. The (TCAP) data from 2007 were used to associate organizational structures to student achievement in the study. The achievement tests were timed, multiple-choice assessments that measure skills in reading, language arts, mathematics, science, and social studies (Tennessee Department of Education, 2007). The data of the study were analyzed using the Statistical Package for Social Sciences (SPSS) software program (v.16.0).

Three questions guided this research and 16 hypotheses were tested. Quantitative analyses were used to answer the research questions. Research questions 1, 2, and 3 were analyzed using independent samples *t* tests to determine associations between organizational structures and student achievements. Data were gathered from teachers' perceptions surveys and (CRT/TCAP) achievement scores (reported from the Tennessee Department of Education).

#### *Participating Teachers*

Sixty-seven teachers in six school systems voluntarily participated in the study. All schools had similar SES characteristics. Achievement data (CRT/TCAP) were unknown to participating teachers prior to the study. This was purposeful to help

maintain the integrity of the research. The 2007 CRT/TCAP scores were reported using demographic descriptive analysis.

### *Demographics*

In this study, 67 fourth and fifth grade teachers in East Tennessee completed demographic and teachers' perceptions surveys. Demographics including college major, highest degree obtained, and type of certification (licensure) are included in Table 2 for fourth grade teachers and Table 3 for fifth grade teachers. Fourth grade teachers reported that 3% majored in Early Childhood, 79% majored in Elementary Education, and 18% in other areas. For fifth grade teachers, 4% obtained a college major in Early Childhood Education, 72% in Elementary Education, and 24% in other areas. The majority (69%) of fourth grade teachers taught in a self-contained organizational structure, and the majority (62%) of fifth grade teachers taught in a departmentalized setting. The majority of fourth grade teachers (56%) and fifth grade teachers (72%) preferred to teach in a departmentalized classroom structure. Subjects taught in the fourth and fifth grades are reported in Table 4.

Table 2

*Demographic Profile of Fourth Grade Teachers*

| Demographic                         |                                  | <i>N</i>  | %         |
|-------------------------------------|----------------------------------|-----------|-----------|
| College Major:                      | Early Childhood                  | 1         | 3         |
|                                     | Elementary Education             | 30        | 79        |
|                                     | Other                            | <u>7</u>  | <u>18</u> |
|                                     | Total                            | 38        | 100       |
| Highest Degree<br>Obtained:         | Bachelor's Degree                | 16        | 42        |
|                                     | Master's Degree                  | 22        | 58        |
|                                     | Specialist's Degree              | 0         | 0         |
|                                     | Doctoral Degree                  | <u>0</u>  | <u>0</u>  |
|                                     | Total                            | 38        | 100       |
| Type of Teacher<br>Licensure:       | Early Childhood<br>(PreK-3 or 4) | 1         | 3         |
|                                     | Elementary Education<br>(K-8)    | 27        | 72        |
|                                     | Other                            | <u>10</u> | <u>25</u> |
|                                     | Total                            | 38        | 100       |
| Current Grade Level<br>Structure    | Self-Contained                   | 26        | 69        |
|                                     | Departmentalized                 | 12        | 31        |
|                                     | Other                            | <u>0</u>  | <u>0</u>  |
|                                     | Total                            | 38        | 100       |
| Grade Level Structure<br>Preference | Self-Contained                   | 17        | 44        |
|                                     | Departmentalized                 | 21        | 56        |
|                                     | Other                            | <u>0</u>  | <u>0</u>  |
|                                     | Total                            | 38        | 100       |

Table 3

*Demographic Profile of Fifth Grade Teachers*

| Demographic                         |                                  | <i>N</i> | %         |
|-------------------------------------|----------------------------------|----------|-----------|
| College Major:                      | Early Childhood                  | 1        | 4         |
|                                     | Elementary Education             | 21       | 72        |
|                                     | Other                            | <u>7</u> | <u>24</u> |
|                                     | Total                            | 29       | 100       |
| Highest Degree<br>Obtained:         | Bachelor's Degree                | 12       | 41        |
|                                     | Master's Degree                  | 15       | 52        |
|                                     | Specialist's Degree              | <u>2</u> | <u>7</u>  |
|                                     | Doctoral Degree                  | 29       | 100       |
|                                     | Total                            |          |           |
| Type of Teacher<br>Licensure:       | Early Childhood<br>(PreK-3 or 4) | 1        | 4         |
|                                     | Elementary Education<br>(K-8)    | 25       | 86        |
|                                     | Other                            | <u>3</u> | <u>10</u> |
|                                     | Total                            | 29       | 100       |
| Current Grade Level<br>Structure    | Self-Contained                   | 11       | 38        |
|                                     | Departmentalized                 | 18       | 62        |
|                                     | Other                            | <u>0</u> | <u>0</u>  |
|                                     | Total                            | 29       | 100       |
| Grade Level Structure<br>Preference | Self-Contained                   | 8        | 28        |
|                                     | Departmentalized                 | 21       | 72        |
|                                     | Other                            | <u>0</u> | <u>0</u>  |
|                                     | Total                            | 29       | 100       |

Table 4

*Subjects Taught by Sixty-Seven Fourth and Fifth Grade Teachers*

| Subjects       | <i>N</i> | %  |
|----------------|----------|----|
| Language Arts  | 59       | 88 |
| Math           | 39       | 58 |
| Science        | 41       | 61 |
| Social Studies | 39       | 58 |

Note: some teachers taught 2 or more subjects.

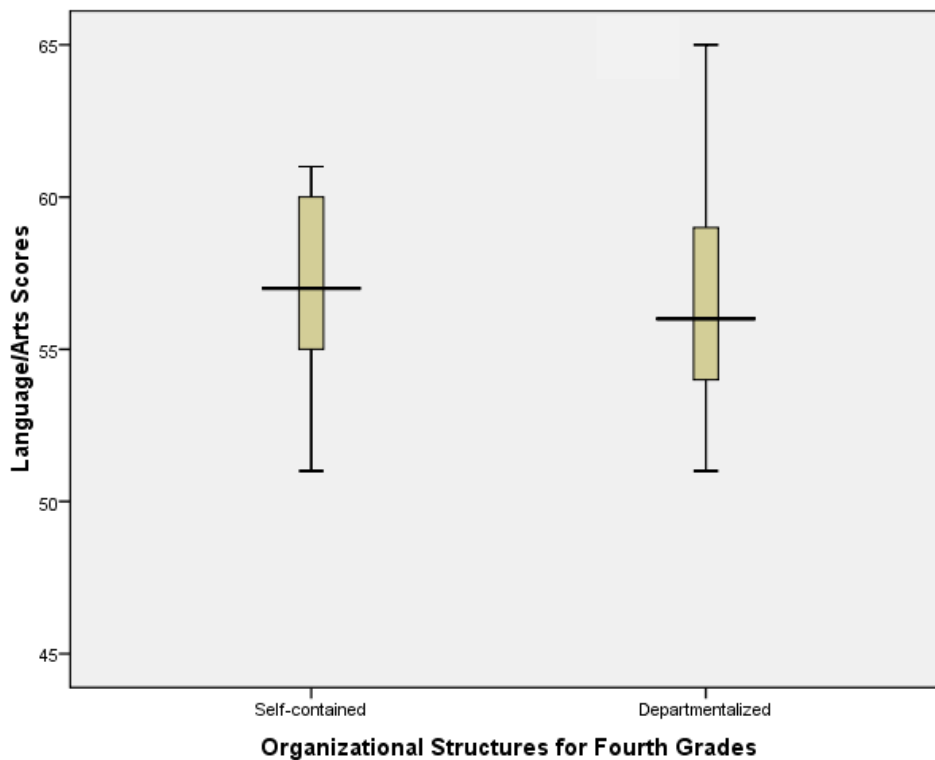
*Research Question 1*

Are there differences in fourth and fifth grade achievement scores (CRT/TCAP) in language arts, math, science, and social studies between students in self-contained and departmentalized classrooms? From research question 1, eight statistical hypotheses were developed and analyzed. An independent *t* test was conducted to assess the differences between of the two independent variables (self-contained and departmentalized classrooms) in fourth and fifth grades and the dependent variable (student achievement scores by subject).

The null hypotheses for research question 1 follow.

Ho<sub>1</sub>: There are no differences in fourth grade achievement scores (CRT/TCAP) in language arts between students in self-contained classroom and departmentalized classroom organizations. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth grade student achievement language arts (CRT/TCAP) scores between students in departmentalized and self-contained classroom organizations. Language arts (CRT/TCAP) achievement scores were the test variables

and the grouping variable had two levels, departmentalized and self-contained organizational structures. The test was not significant,  $t(36) = .14$ ,  $p = .19$ . Because the  $p$  value was greater than .05, the null hypothesis was retained. Therefore, there were no significant differences in language arts (CRT/TCAP) scores in regard to classroom organizational structures. However, students in the self-contained organizational classrooms ( $M = 57.24$ ,  $SD = 2.86$ ), on the average, scored slightly higher than students in the departmentalized organizational structure classrooms ( $M = 57.08$ ,  $SD = 4.48$ ). The 95% confidence interval for the differences in means was .57 to 1.2. The eta square index was less than .01 that suggested a low effect on language arts achievement scores and organizational structures. *Figure 1* reports results of the distribution of language arts scores.



*Figure 1.* Distribution of Language Arts CRT/TCAP 2007 Scores for Fourth Grade Organizational Structures.



Ho<sub>12</sub>: There are no differences in fourth grade achievement scores (CRT/TCAP) in math between students in self-contained classroom and departmentalized classroom organizations. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth grade student achievement math (CRT/TCAP) scores between students in departmentalized and self-contained classroom organizations. Math (CRT/TCAP) achievement scores were the test variables and the grouping variable had two levels, departmentalized and self-contained organizational structures. The test was not significant,  $t(36) = -.63$ ,  $p = .44$ . Because the *p* value was greater than .05, the null hypothesis was retained. Therefore, there were no significant differences in math (CRT/TCAP) scores in regard to classroom organizational structures. Students in the self-contained organizational classrooms ( $M = 60.68$ ,  $SD = 3.25$ ), on the average, scored slightly less than students in the departmentalized organizational structure classrooms ( $M = 61.46$ ,  $SD = 4.24$ ). The 95% confidence interval for the differences in means was .65 to 1.2. The eta square index of .01 suggested a low effect on math achievement scores and organizational structures. *Figure 2* reports results of the distribution of math scores.

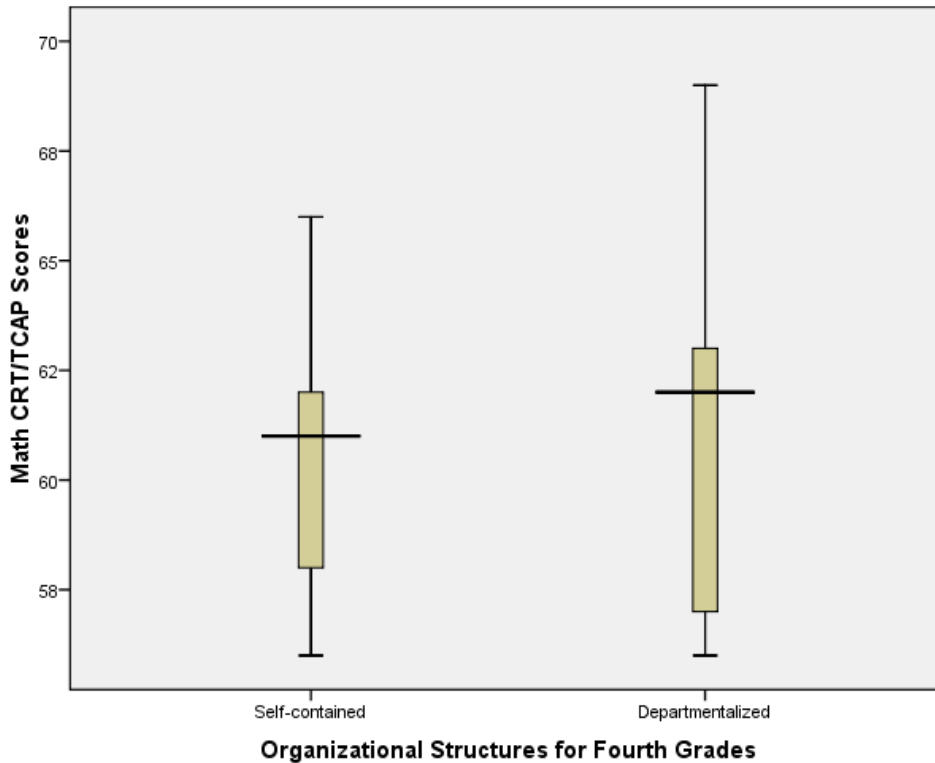
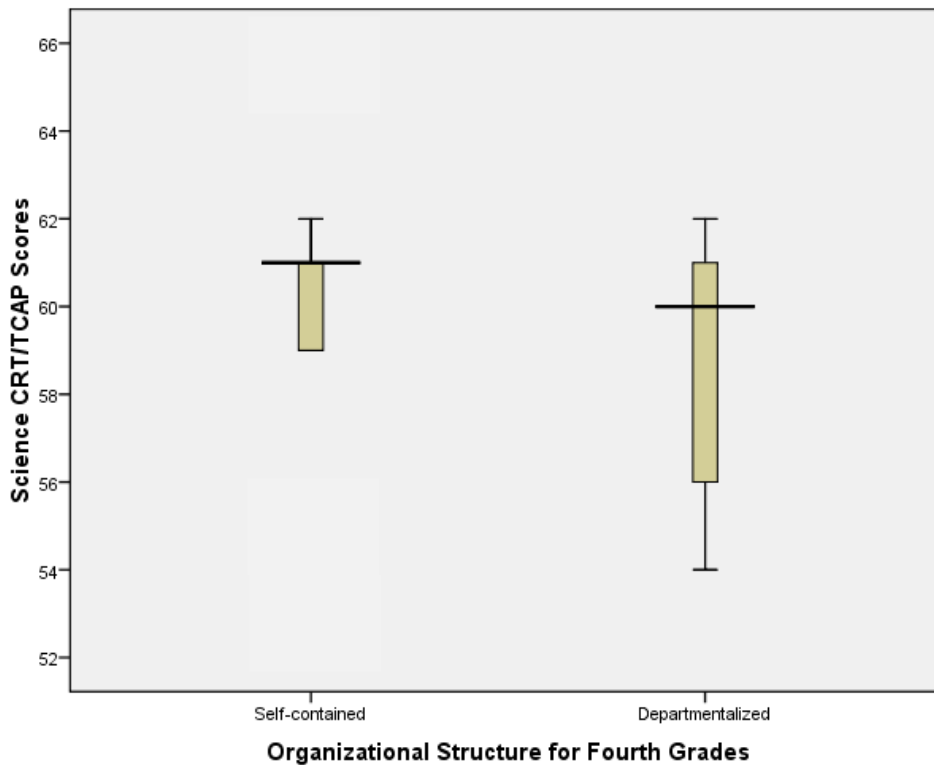


Figure 2. Distribution of Math (CRT/TCAP) 2007 Scores for Fourth Grade Organizational Structures.

Ho<sub>13</sub>: There are no differences in fourth grade achievement scores (CRT/TCAP) in Science between students in self-contained classroom and departmentalized classroom organizations. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth grade student achievement science (CRT/TCAP) scores between students in departmentalized and self-contained classroom organizations. Science (CRT/TCAP) achievement scores were the test variables and the grouping variable had two levels, departmentalized and self-contained organizational structures. The test was not significant,  $t(36) = 1.28$ ,  $p = .51$ . Because the *p* value was greater than .05, the null hypothesis was retained. Therefore, there were no significant differences in science (CRT/TCAP) scores in regard to classroom organizational structures. Students in the self-contained organizational classrooms ( $M = 61.04$ ,  $SD = 3.92$ ), generally scored

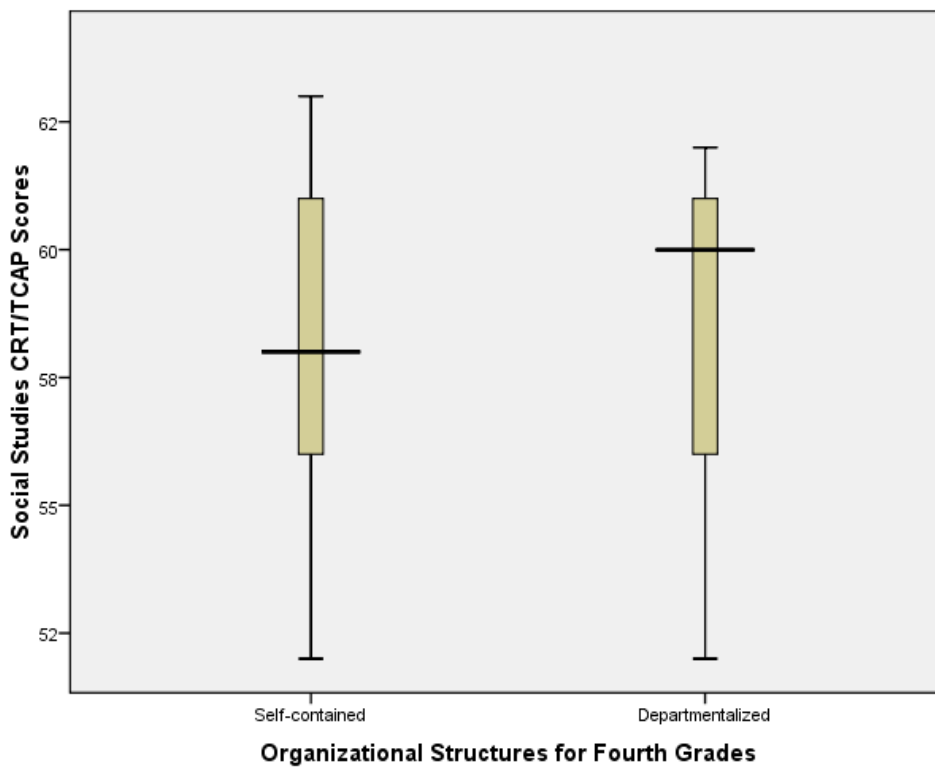
slightly higher than students in the departmentalized organizational structure classrooms (M = 60.46, SD = 2.70). The 95% confidence interval for the differences in means was .75 to .78. The eta square index of .04 suggested a low effect on science achievement scores and organizational structures. *Figure 3* reports results of the distribution of science scores.



*Figure 3.* Distribution of Science (CRT/TCAP) 2007 Scores for Fourth Grade Organizational Structures.

Ho<sub>14</sub>: There are no differences in fourth grade achievement scores (CRT/TCAP) in social studies between students in self-contained classroom and departmentalized classroom organizations. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth grade student achievement social studies (CRT/TCAP) scores between students in departmentalized and self-contained classroom organizations. Social studies (CRT/TCAP) achievement scores were the test variables

and the grouping variable had two levels, departmentalized and self-contained organizational structures. The test was not significant,  $t(36) = -.12, p = .72$ . Because the  $p$  value was greater than .05, the null hypothesis was retained. Therefore, there were no significant differences in social studies scores in regards to classroom organizational structures. However, students in the self-contained organizational classrooms ( $M = 58.32, SD = 3.34$ ), on the average, scored slightly lower than students in the departmentalized organizational structure classrooms ( $M = 60.46, SD = 3.66$ ). The 95% confidence interval for the differences in means was .67 to 1.0. The eta square index was less than .01 which suggested a low effect on social studies achievement scores and organizational structures. *Figure 4* reports results of the distribution of the social studies scores.



*Figure 4.* Distribution of Social Studies (CRT/TCAP) 2007 Scores for Fourth Grade Organizational Structures.

Ho1<sub>5</sub>: There are no differences in fifth grade achievement scores (CRT/TCAP) in language arts between students in self-contained classroom and departmentalized classroom organizations. An independent samples *t* test was conducted to evaluate the difference between the mean values of fifth grade student achievement language arts (CRT/TCAP) scores between students in departmentalized and self-contained classroom organizations. Language arts (CRT/TCAP) achievement scores were the test variables and the grouping variable had two levels, departmentalized and self-contained organizational structures. The test was not significant,  $t(27) = .43$ ,  $p = .15$ . Because the *p* value was greater than .05, the null hypothesis was retained. Therefore, there were no significant differences in language arts (CRT/TCAP) scores in regards to classroom organizational structures. However, students in the self-contained organizational classrooms ( $M = 57.00$ ,  $SD = 5.63$ ), on the average, scored slightly higher than students in the departmentalized organizational structure classrooms ( $M = 56.29$ ,  $SD = 3.10$ ). The 95% confidence interval for the differences in means was low, ranging from .75 to 1.6. The eta square index was less than .01 which suggested a low effect on language arts achievement scores and organizational structures. *Figure 5* reports results of the distribution of language arts scores.

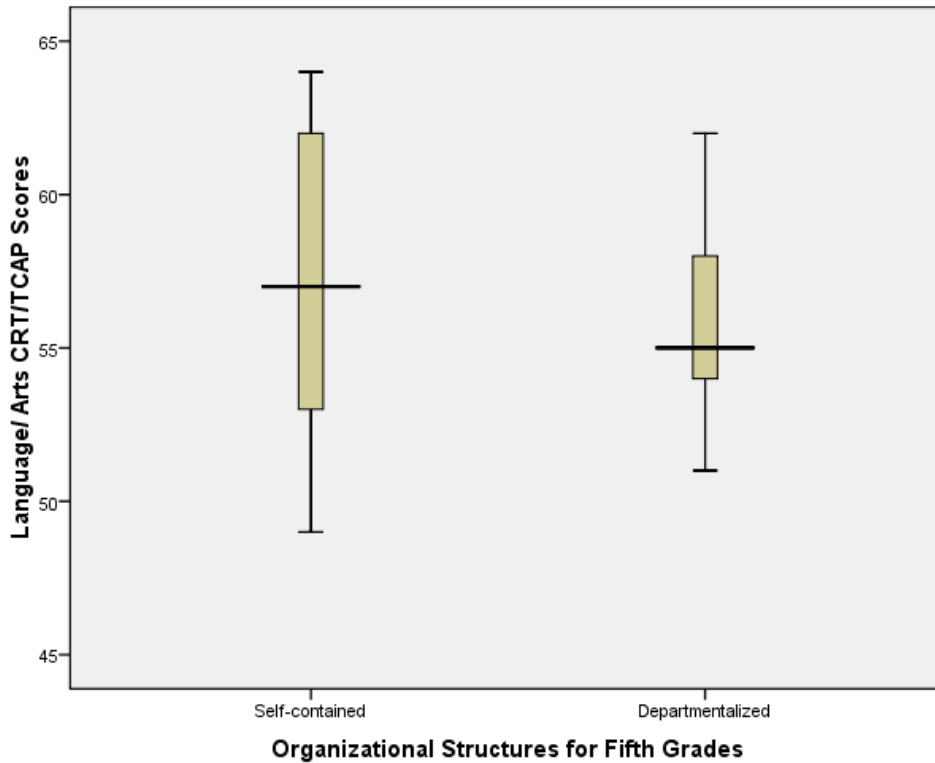
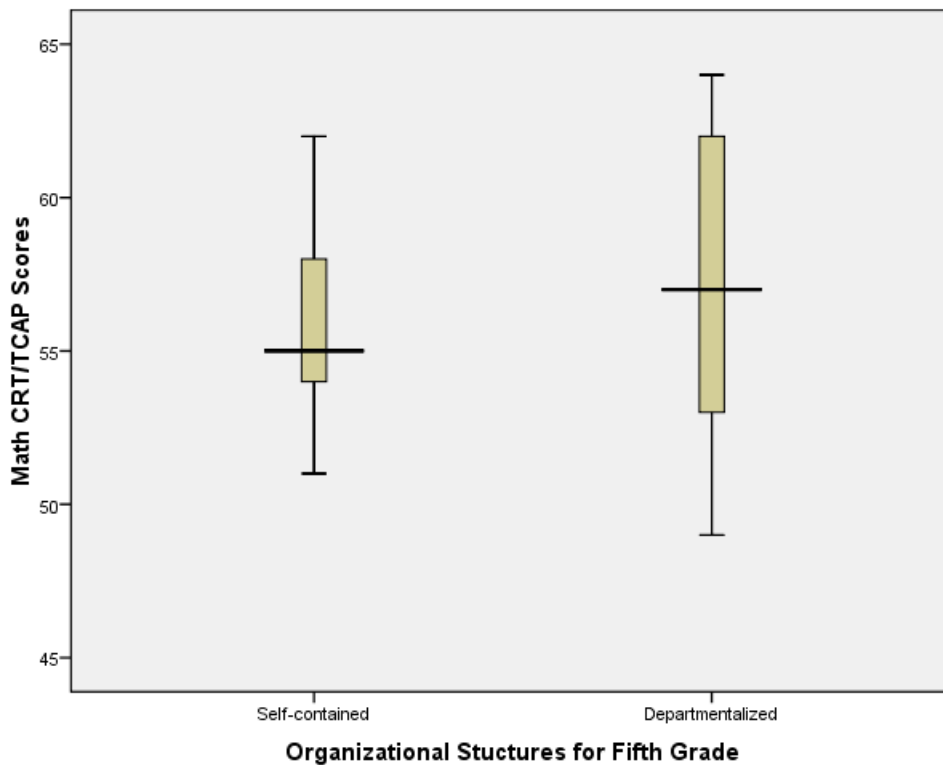


Figure 5. Distribution of Language Arts (CRT/TCAP) 2007 Scores for Fifth Grade Organizational Structures.

Ho<sub>16</sub>: There are no differences in fifth grade achievement scores (CRT/TCAP) in math between students in self-contained classroom and departmentalized classroom organizations. An independent samples *t* test was conducted to evaluate the difference between the mean values of fifth grade student achievement math (CRT/TCAP) scores between students in departmentalized and self-contained classroom organizations. Math (CRT/TCAP) achievement scores were the test variables and the grouping variable had two levels, departmentalized and self-contained organizational structures. The test was significant,  $t(27) = -1.37$ ,  $p = .02$ . Because the *p* value was less than .05, the null hypothesis was rejected. Therefore, there were significant differences in math (CRT/TCAP) scores in regards to classroom organizational structures. Students in the self-contained organizational classrooms ( $M = 55.83$ ,  $SD = 4.86$ ), on the average, scored

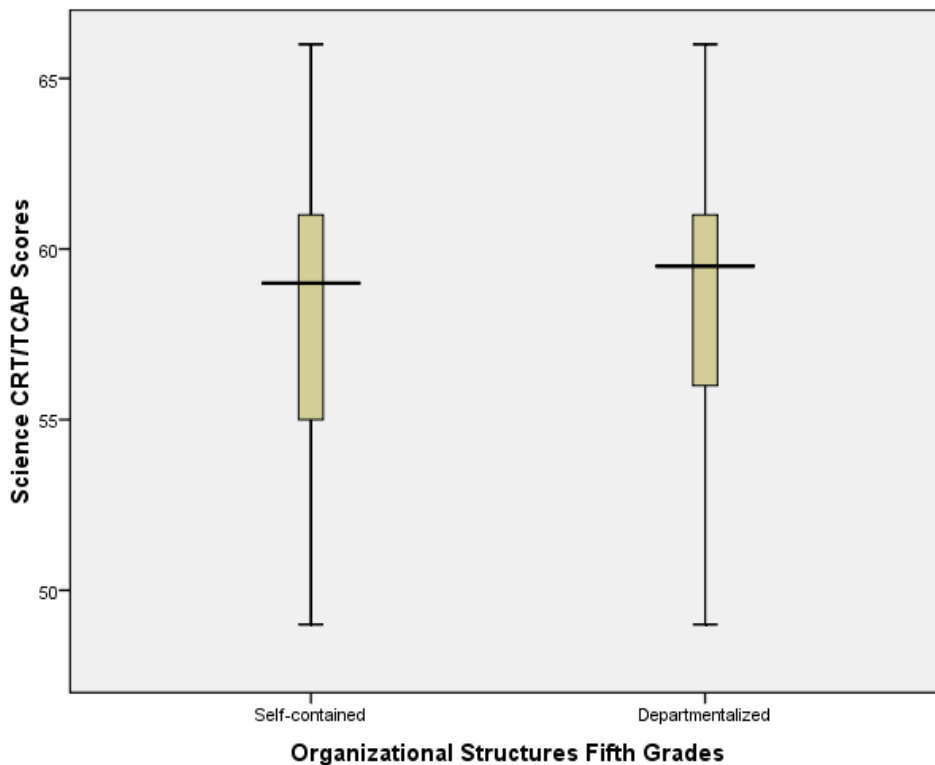
slightly lower than students in the departmentalized organizational structure classrooms (M = 57.76, SD = 2.70). The 95% confidence interval for the differences in means was .66 to 1.4. The eta square index of .06 suggested a low effect on math achievement scores and organizational structures. The analysis supported fifth grade departmental organizational structures for math. *Figure 6* reports results of the distribution of math scores.



*Figure 6.* Distribution of Math (CRT/TCAP) 2007 Scores for Fifth Grade Organizational Structures.

Ho1<sub>7</sub>: There are no differences in fifth grade achievement scores (CRT/TCAP) in science between students in self-contained classroom and departmentalized classroom organizations. An independent samples *t* test was conducted to evaluate the difference between the mean values of fifth grade student achievement science (CRT/TCAP) scores between students in departmentalized and self-contained classroom organizations. Science (CRT/TCAP) achievement scores were the test variables and the grouping

variable had two levels, departmentalized and self-contained organizational structures. The test was not significant,  $t(27) = -.11$ ,  $p = .15$ . Because the  $p$  value was greater than .05, the null hypothesis was retained. Therefore, there were no significant differences in science scores in regards to classroom organizational structures. Students in the self-contained organizational classrooms ( $M = 57.17$ ,  $SD = 5.22$ ), on the average, scored slightly lower than students in the departmentalized organizational structure classrooms ( $M = 57.35$ ,  $SD = 3.62$ ). The 95% confidence interval for the differences in means was .88 to 1.5. The eta square index was less than .01 which suggested a low effect on science achievement scores and organizational structures. *Figure 7* reports results of the distribution of science scores.



*Figure 7.* Distribution of Science (CRT/TCAP) 2007 Scores for Fifth Grade Organizational Structures.



Ho1<sub>8</sub>: There are no differences in fifth grade achievement scores (CRT/TCAP) in social studies between students in self-contained classroom and departmentalized classroom organizations. An independent samples *t* test was conducted to evaluate the difference between the mean values of fifth grade student achievement social studies (CRT/TCAP) scores between students in departmentalized and self-contained classroom organizations. Social studies (CRT/TCAP) achievement scores were the test variables and the grouping variable had two levels, departmentalized and self-contained organizational structures. The test was not significant,  $t(27) = 1.5, p = .06$ . Because the *p* value was greater than .05, the null hypothesis was retained. Therefore, there were no significant differences in social studies (CRT/TCAP) scores in regards to classroom organizational structures. Students in the self-contained organizational classrooms ( $M = 60.08, SD = 4.48$ ), on the average, scored slightly higher than students in the departmentalized organizational structure classrooms ( $M = 57.00, SD = 2.89$ ). The 95% confidence interval for the differences in means was from .70 to 1.29. The eta square index was less than .01 which suggested a low effect on social studies achievement scores and organizational structures. *Figure 8* reports results of the distribution of social studies scores.

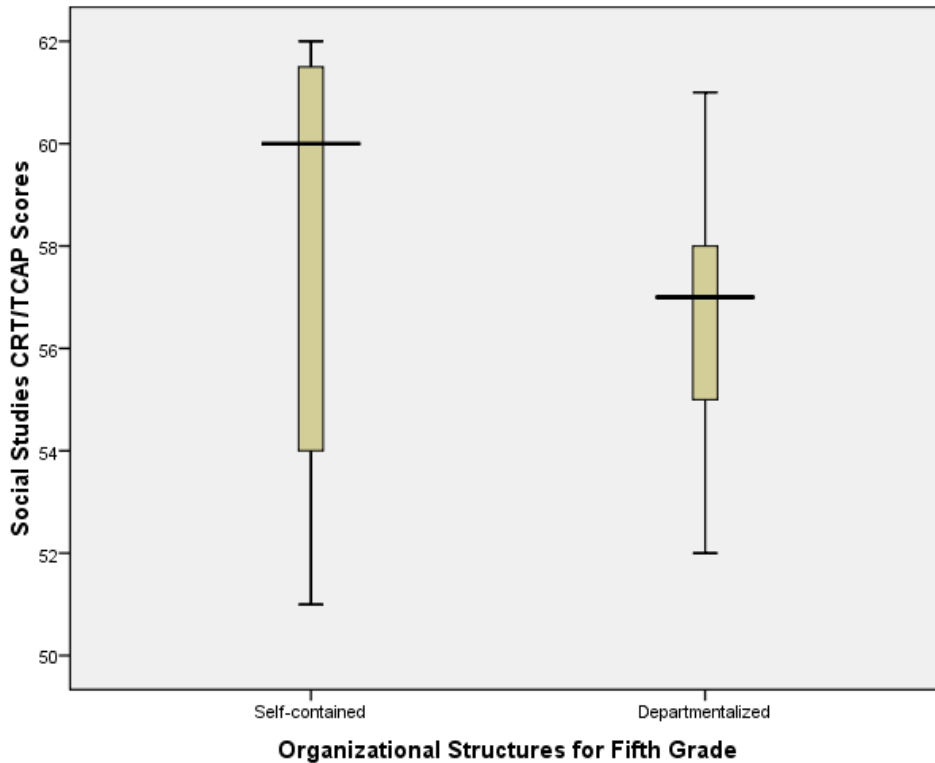


Figure 8. Distribution of Social Studies (CRT/TCAP) 2007 Scores for Fifth Grade Organizational Structures.

### *Research Question 2*

Among teachers who teach in departmentalized classrooms, are there differences in student achievement scores (CRT/TCAP) in language arts, math, science, and social studies of fourth and fifth grade students between teachers who favor and those who do not favor departmentalized classrooms?

The null hypotheses for research question 2 follow.

Ho<sub>2</sub><sub>1</sub>: Among teachers who teach in departmentalized classrooms, there are no differences in student achievement scores (CRT/TCAP) in language arts of fourth and fifth grade students between teachers who favor and those who do not favor departmentalized classrooms. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth and fifth grade student achievement

language arts (CRT/TCAP) scores between teachers who favor and those who do not favor departmentalized classrooms. Language arts (CRT/TCAP) achievement scores were the test variables and the grouping variables were teacher preferences in favor or not in favor of teaching in a departmentalized organizational structure. The test was not significant,  $t(65) = 1.84, p = .23$ . Because the  $p$  value was greater than .05, the null hypothesis was retained. Therefore, among teachers who taught in departmentalized classrooms, there were no significant differences in student achievement language arts (CRT/TCAP) scores for fourth and fifth grade students in regard to teachers who favored and those who did not favor departmentalized classrooms. However, teachers who favored the departmentalized organizational classrooms ( $M = 57.57, SD = 3.90$ ) on the average had language arts scores slightly higher than teachers who did not favor departmentalized organizational structure classrooms ( $M = 55.84, SD = 3.40$ ). The 95% confidence interval for the differences in means was .60 to .68. The eta square index of .05 suggested a low effect on language arts achievement scores and organizational structure preferences. *Figure 9* reports language arts scores by preference.

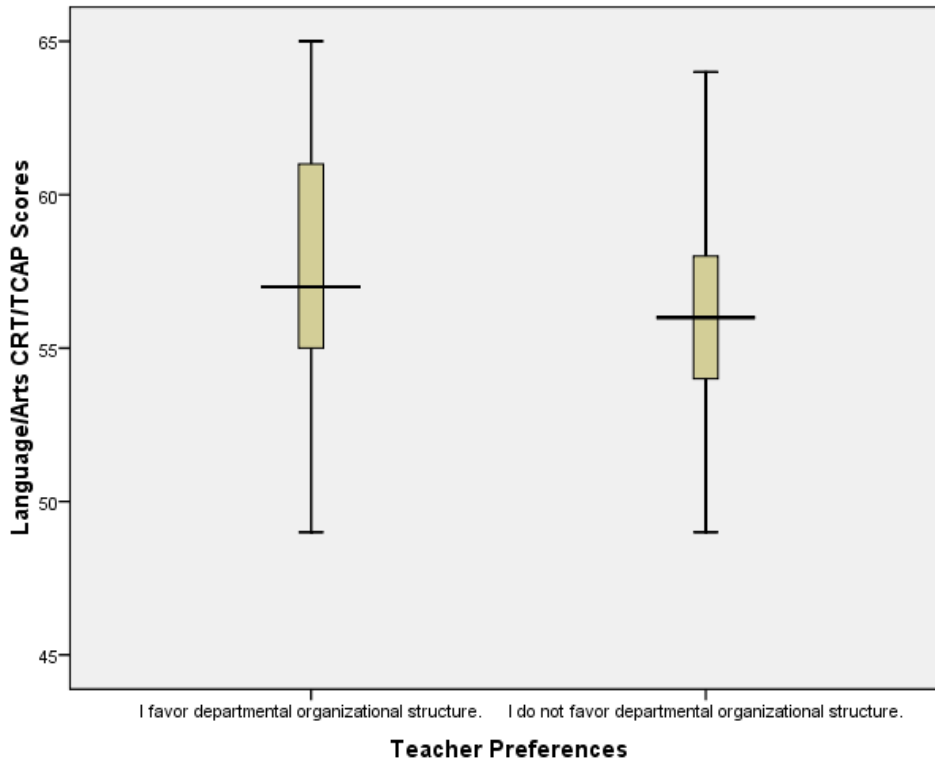
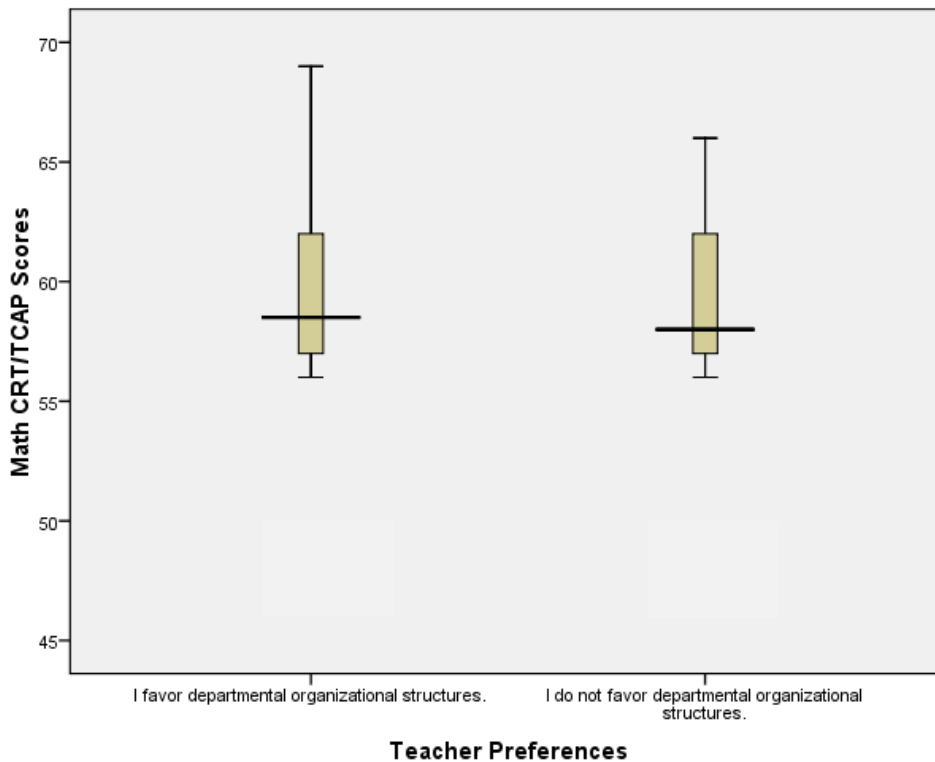


Figure 9. Departmental Classroom Distribution of Language Arts (CRT/TCAP) 2007 Scores for Fourth and Fifth Grade Teacher Preferences.

Ho<sub>2</sub>: Among teachers who teach in departmentalized classrooms, there are no differences in student achievement scores (CRT/TCAP) in math of fourth and fifth grade students between teachers who favor and those who do not favor departmentalized classrooms. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth and fifth grade student achievement math (CRT/TCAP) scores between teachers who favor and those who do not favor departmentalized classrooms. The math (CRT/TCAP) achievement scores were the test variables and the grouping variables were teacher preferences in favor or not in favor of teaching in a departmentalized organizational structure. The test was not significant, *t* (65) = 1.26, *p* = .75. Because the *p* value was greater than .05, the null hypothesis was retained. Therefore, among teachers who taught in departmentalized classrooms, there

were no significant differences in student achievement math (CRT/TCAP) scores for fourth and fifth grade students in regard to teachers who favored and those who did not favor departmentalized classrooms. However, teachers who favored the departmentalized organizational classrooms ( $M = 59.71$ ,  $SD = 4.11$ ) on the average had math scores slightly higher than teachers who did not favor departmentalized organizational structure classrooms ( $M = 58.40$ ,  $SD = 4.17$ ). The 95% confidence interval for the differences in means was .63 to .83. The eta square index of .02 suggested a low effect on math achievement scores and organizational structure preferences. *Figure 10* reports math scores by preference.



*Figure 10.* Departmental Classroom Distribution of Math (CRT/TCAP) 2007 Scores for Fourth and Fifth Grade Teacher Preferences.

Ho<sub>23</sub>: Among teachers who teach in departmentalized classrooms, there are no differences in student achievement scores (CRT/TCAP) in science of fourth and fifth

grade students between teachers who favor and those who do not favor departmentalized classrooms. An independent samples  $t$  test was conducted to evaluate the difference between the mean values of fourth and fifth grade student achievement science (CRT/TCAP) scores between teachers who favor and those who do not favor departmentalized classrooms. The science (CRT/TCAP) achievement scores were the test variables and the grouping variables were teacher preferences in favor or not in favor of teaching in a departmentalized organizational structure. The test was not significant,  $t(65) = .53$ ,  $p = .48$ . Because the  $p$  value was greater than .05, the null hypothesis was retained. Therefore, among teachers who taught in departmentalized classrooms, there were no significant differences in student achievement science (CRT/TCAP) scores for fourth and fifth grade students in regard to teachers who favored and those who did not favor departmentalized classrooms. However, teachers who favored the departmentalized organizational classrooms ( $M = 58.81$ ,  $SD = 3.87$ ) on the average had slightly higher Science scores than teachers who did not favor departmentalized organizational structure classrooms ( $M = 58.08$ ,  $SD = 4.31$ ). The 95% confidence interval for the differences in means was .60 to .86. The eta square index of .01 suggested a low effect on science achievement scores and organizational structure preferences. *Figure 11* reports science scores by preference.

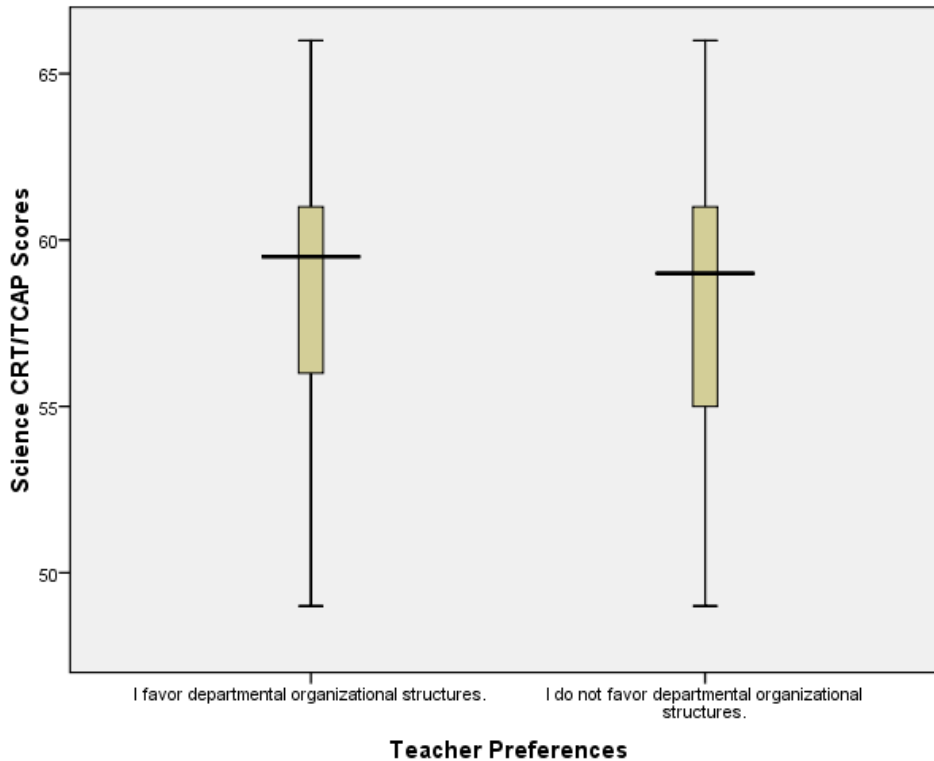
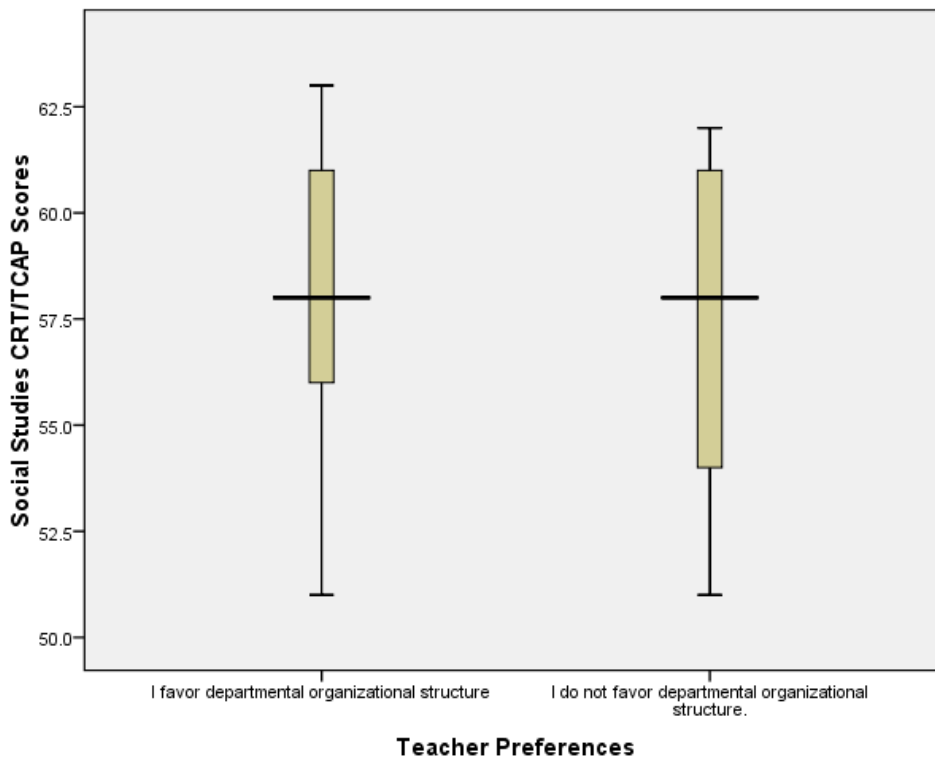


Figure 11. Departmental Classroom Distribution of Science (CRT/TCAP) 2007 Scores for Fourth and Fifth Grade Teacher Preferences.

Ho<sub>24</sub>: Among teachers who teach in departmentalized classrooms, there are no differences in student achievement scores (CRT/TCAP) in social studies of fourth and fifth grade students between teachers who favor and those who do not favor departmentalized classrooms. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth and fifth grade student achievement social studies (CRT/TCAP) scores between teachers who favor and those who do not favor departmentalized classrooms. The social studies (CRT/TCAP) achievement scores were the test variables and the grouping variables were teacher preferences in favor or not in favor of teaching in a departmentalized organizational structure. The test was not significant,  $t(65) = .48, p = .53$ . Because the *p* value was greater than .05, the null hypothesis was retained. Therefore, among teachers who taught in departmentalized

classrooms, there were no significant differences in social studies (CRT/TCAP) student achievement scores for fourth and fifth grade students in regard to teachers who favored and those who did not favor departmentalized classrooms. However, teachers who favored departmentalized organizational classrooms ( $M = 57.88$ ,  $SD = 3.52$ ) on the average had slightly higher social studies scores than teachers who did not favor the departmentalized organizational structure classrooms ( $M = 57.44$ ,  $SD = 3.76$ ). The 95% confidence interval for the differences in means was .54 to .75. The eta square index was less than .01 that suggested a low effect on social studies achievement scores and organizational structure preferences. *Figure 12* reports social studies scores by preference.



*Figure 12.* Departmental Classroom Distribution of Social Studies (CRT/TCAP) 2007 Scores for Fourth and Fifth Grade Teacher Preferences.



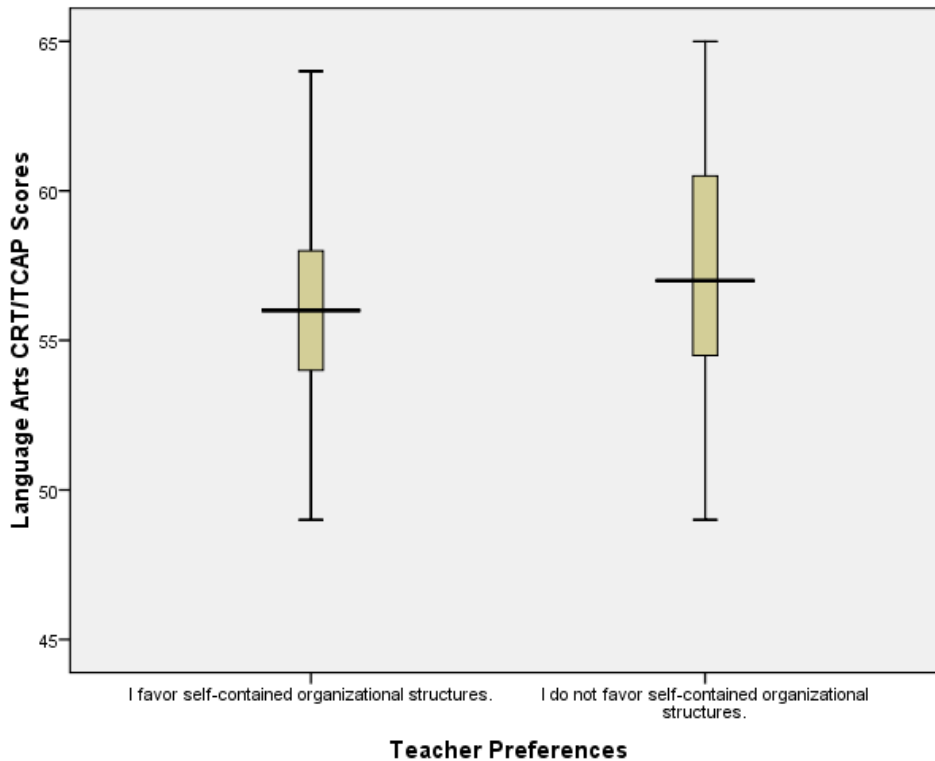
### *Research Question 3*

Among teachers who teach in self-contained classrooms, are there differences in student achievement scores (CRT/TCAP) in language arts, math, science, and social studies of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms?

The null hypotheses for research question 3 follow.

Ho<sub>3</sub><sub>1</sub>: Among teachers who teach in self-contained classrooms, there are no differences in student achievement scores (CRT/TCAP) in language arts of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth and fifth grade student achievement language arts (CRT/TCAP) scores between teachers who favor and those who do not favor self-contained classrooms. The language arts (CRT/TCAP) achievement scores were the test variables and the grouping variables were teacher preferences in favor or not in favor of teaching in a self-contained organizational structure. The test was not significant,  $t(65) = -1.60$ ,  $p = .43$ . Because the *p* value was greater than .05, the null hypothesis was retained. Therefore, among teachers who taught in self-contained classrooms, there were no significant differences in language arts (CRT/TCAP) student achievement scores for fourth and fifth grade students in regard to teachers who favored and those who did not favor self-contained classrooms. However, teachers who favored self-contained organizational classrooms ( $M = 55.91$ ,  $SD = 3.53$ ) on the average had slightly lower language arts scores than teachers who did not favor self-contained organizational structure classrooms ( $M = 57.45$ ,  $SD = 3.85$ ). The 95% confidence

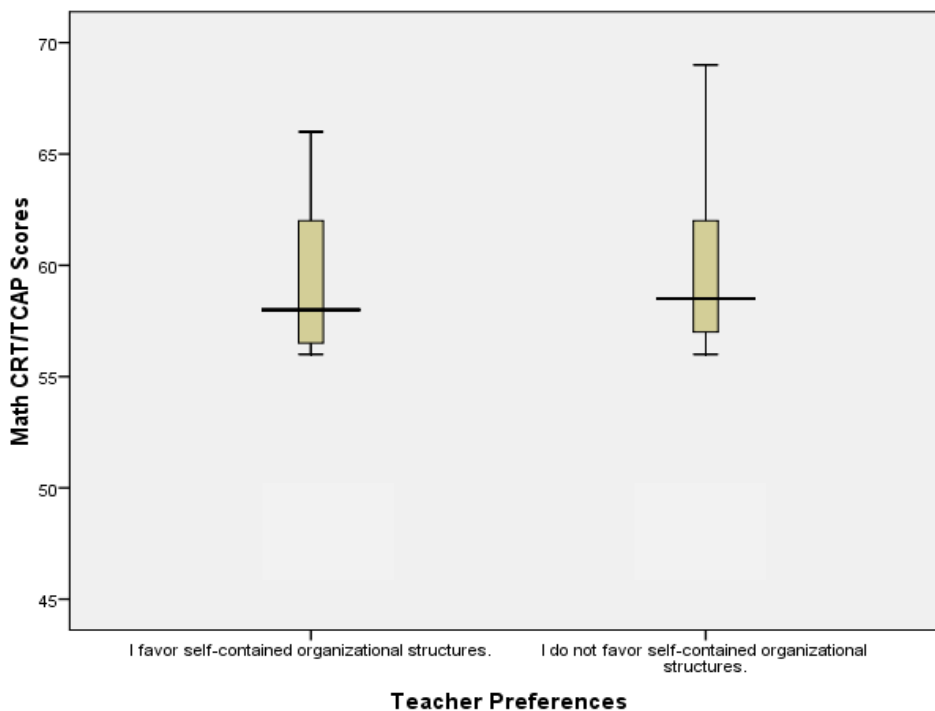
interval for the differences in means was .58 to .74. The eta square index of .04 suggested a low effect on language arts achievement scores and organizational structure preferences. *Figure 13* reports language arts scores by preference.



*Figure 13.* Self-Contained Classroom Distribution of Language Arts (CRT/TCAP) 2007 Scores for Fourth and Fifth Grade Teacher Preferences.

Ho<sub>32</sub>: Among teachers who teach in self-contained classrooms, there are no differences in student achievement scores (CRT/TCAP) in math of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth and fifth grade student achievement math (CRT/TCAP) scores between teachers who favor and those who do not favor self-contained classrooms. The math (CRT/TCAP) achievement scores were the test variables and the grouping variables were teacher preferences in favor or not in favor of

teaching in a self-contained organizational structure. The test was not significant,  $t(65) = -1.13$ ,  $p = .93$ . Because the  $p$  value was greater than .05, the null hypothesis was retained. Therefore, among teachers who taught in self-contained classrooms, there were no significant differences in math (CRT/TCAP) student achievement scores for fourth and fifth grade students in regard to teachers who favored and those who did not favor self-contained classrooms. However, teachers who favored self-contained organizational classrooms ( $M = 58.43$ ,  $SD = 4.35$ ) on the average had slightly lower math scores than teachers who did not favor of self-contained organizational structure classrooms ( $M = 59.64$ ,  $SD = 4.03$ ). The 95% confidence interval for the differences in means was .61 to .91. The eta square index of .02 suggested a low effect on math achievement scores and organizational structure preferences. *Figure 14* reports math scores by preference.



*Figure 14.* Self-Contained Classroom Distribution of Math (CRT/TCAP) 2007 Scores for Fourth and Fifth Grade Teacher Preferences.

Ho3<sub>3</sub>: Among teachers who teach in self-contained classrooms, there are no differences in student achievement scores (CRT/TCAP) in science of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth and fifth grade student achievement science (CRT\TCAP) scores between teachers who favor and those who do not favor self-contained classrooms. The science (CRT/TCAP) achievement scores were the test variables and the grouping variables were teacher preferences in favor or not in favor of teaching in a self-contained organizational structure. The test was not significant,  $t(65) = -.92$ ,  $p = .29$ . Because the  $p$  value was greater than .05, the null hypothesis was retained. Therefore, among teachers who taught in self-contained classrooms, there were no significant differences in science (CRT/TCAP) student achievement scores for fourth and fifth grade students in regard to teachers who favored and those who did not favor self-contained classrooms. However, teachers who favored the self-contained organizational classrooms ( $M = 57.91$ ,  $SD = 4.45$ ) on the average had slightly lower scores than the teachers who did not favor self-contained organizational structure classrooms ( $M = 58.86$ ,  $SD = 3.79$ ). The 95% confidence interval for the differences in means was .57 to .93. The eta square index of .01 suggested a low effect on science achievement scores and organizational structure preferences. *Figure 15* reports science scores by preference.

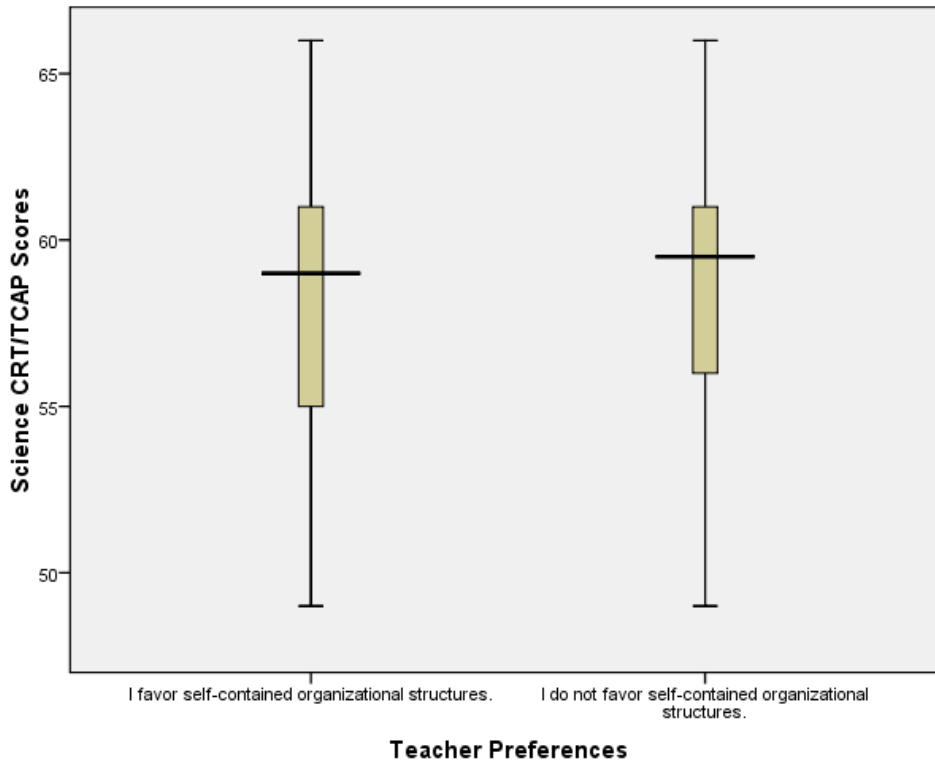
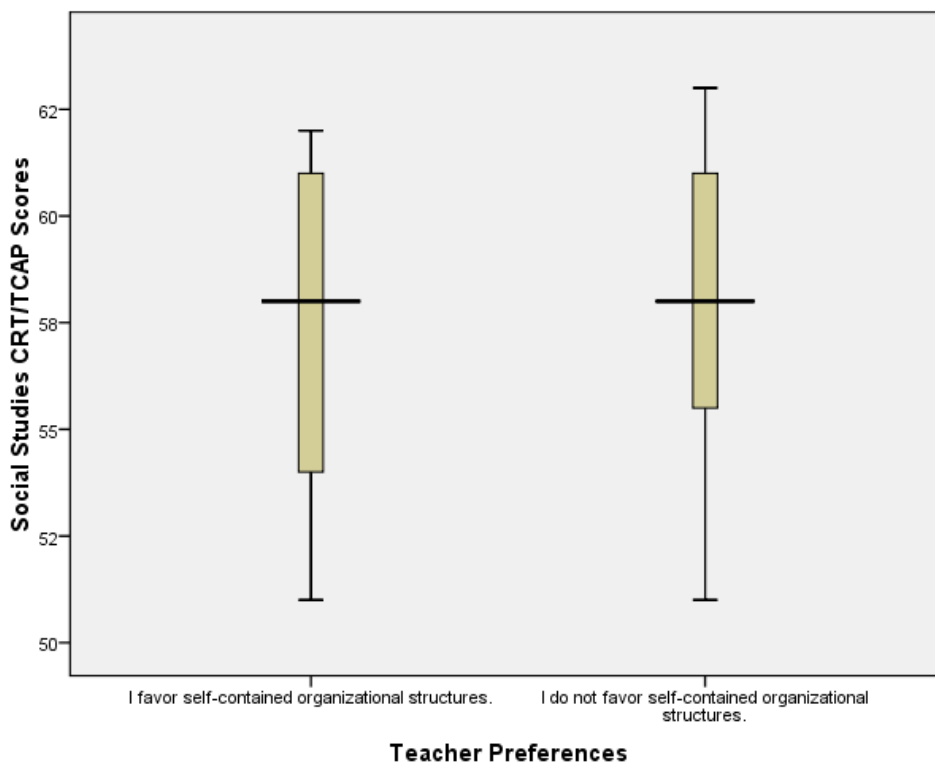


Figure 15. Self-Contained Classroom Distribution of Science (CRT/TCAP) 2007 Scores for Fourth and Fifth Grade Teacher Preferences.

Ho3<sub>4</sub>: Among teachers who teach in self-contained classrooms, there are no differences in student achievement scores (CRT/TCAP) in social studies of fourth and fifth grade students between teachers who favor and those who do not favor self-contained classrooms. An independent samples *t* test was conducted to evaluate the difference between the mean values of fourth and fifth grade student achievement social studies (CRT/TCAP) scores between teachers who favor and those who do not favor self-contained classrooms. The social studies (CRT/TCAP) achievement scores were the test variables and the grouping variables were teacher preferences in favor or not in favor to teach in a self-contained organizational structure. The test was not significant,  $t(65) = -.25, p = .23$ . Because the *p* value was greater than .05, the null hypothesis was retained. Therefore, among teachers who taught in self-contained classrooms, there were no

significant differences in social studies (CRT/TCAP) student achievement scores for fourth and fifth grade students in regard to teachers who favored and those who did not favor self-contained classrooms. However, teachers who favored self-contained organizational classrooms (M = 58.56, SD = 3.94) on the average had slightly lower social studies scores than teachers who did not favor self-contained organizational structure classrooms (M = 58.79, SD = 3.44). The 95% confidence interval for the differences in means was .52 to .82. The eta square index was less than .01 that suggested a low effect on Social Studies achievement scores and organizational structure preferences. *Figure 16* reports social studies scores by preference.



*Figure 16.* Self-Contained Classroom Distribution of Social Studies (CRT/TCAP) 2007 Scores for Fourth and Fifth Grade Teacher Preferences.

### *Summary*

Chapter 4 provided analyses of the data. Data were collected from six school systems in upper elementary grades four and five in Northeast Tennessee public schools using a 12-item survey. TCAP Achievement Test (Tennessee Comprehensive Assessment Program used for assessment for students in grades 3-8) data from 2007 was used to associate organizational structures to student achievement in the study. The data were analyzed using the Statistical Package for Social Sciences (SPSS) software program (v.16.0). Under NCLB guidelines, all teachers participating in the study were considered highly qualified.

The statistical analyses demonstrated that there were no significant differences in fourth grade achievement scores (CRT/TCAP) in language arts, math, science, and social studies between students in self-contained and departmentalized classrooms. The statistical analysis for fifth grade also demonstrated no significant differences in student achievement scores (CRT/TCAP) in language arts, science, and social studies. However, fifth grade student math achievement scores (CRT/TCAP) had significant differences in mean values in favor of departmentalized classrooms. Among teachers who taught in departmentalized or self-contained classrooms, the analysis showed no differences in student achievement scores (CRT/TCAP) in language arts, math, science, and social studies for fourth and fifth grade students between teachers who favored and those who did not favor departmentalized or self-contained classrooms. However, the teachers' preference survey indicated that 56% (Table 1) of fourth grade teachers and 72% (Table 2) of fifth grade teachers preferred the departmental classroom structure.

## CHAPTER 5

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to identify if associations existed between classroom organizational structures and student achievement (CRT/TCAP) scores with information obtained from a cluster of public schools in Northeast Tennessee. The study's sample consisted of fourth and fifth grade elementary teachers from six school systems. Demographic and teachers' preferences data from 67 returned surveys were analyzed reporting the following: major in college, highest educational degree earned, teacher licensure, highly qualified status, current grade, type of organizational structure, subjects taught, choice of organizational structure, favor or not favor departmentalized organizational structure, and favor or not favor self-contained organizational structure as reported in Chapter 3 (Table 1) and Chapter 4 (Tables 2-4).

TCAP Achievement Test data from 2007 were used to determine if a relationship existed between organizational structures and student achievement in the study. The achievement tests consisted of timed reading, language arts, mathematics, science, and social studies subject data that were retrieved from the Tennessee Department of Education web site (Tennessee Department of Education, 2007).

The data obtained from the Demographic and Teachers' Perceptions Survey were analyzed using frequency tables to identify characteristics and statistics of the population. The findings were descriptive. To answer the research questions, independent-samples *t* tests were used to examine the associations between the different variables identified by the survey information and TCAP student achievement scores.



### *Summary of Results*

One hundred forty-six fourth and fifth grade elementary school teachers in Northeast Tennessee were invited to participate in the study. The survey return rate was 50%. Three questions were developed for the study. Research question 1 was the primary focal point of the investigation which provided information regarding classroom organizations and student achievement. Questions 2 and 3 provided information on teacher perceptions concerning self-contained and departmentalized organizational structures in elementary schools. From research question 1, eight null hypotheses were developed. From research questions 2 and 3, eight additional null hypotheses were developed and analyzed. All null hypotheses were tested at the .05 level. The following are the results of the analyses.

The results of the independent samples *t* test from research question 1 revealed no significant relationships in the fourth grade student achievement scores (CRT/TCAP) for language arts, math, science, and social studies in regards to organizational structures. Although the McGrath and Rust (2002) study gave support for higher achievement gains in language arts and science, in the relationship between self-contained classroom structures and student test achievement in upper elementary grades, the findings in this study did not support this finding. The Catledge-Howard, Dilworth, and Ward (2003) study also supported achievement gains in science, in the relationship between self-contained classroom structures and student test achievement, the findings in this study, again, could not concur with this study. However, the mean (CRT/TCAP) language arts and science achievement scores were slightly higher in self-contained classrooms. In contrast, the mean (CRT/TCAP) math and social studies achievement scores were

slightly lower in self-contained classrooms. Statistically, the achievement scores were not significantly different. Therefore, the findings suggested organizational structures have very little relationship with achievement scores (CRT/TCAP) in language arts, math, science, and social studies for fourth grade students.

The results of the independent samples *t* test from question 1 also revealed no significant relationship to the fifth grade student achievement scores (CRT/TCAP) in language arts, science, and social studies in regard to organizational structures. Although the McGrath and Rust (2002) study gave support for higher achievement gains in language arts, in the relationship between self-contained classroom structures and student test achievement, the findings in this study could not concur. The McGrath and Rust and Catledge-Howard, Dilworth, and Ward (2003) studies also supported achievement gains in science, in the relationship between self-contained classroom structures and student test achievement, the findings in this study, again, could not concur with previous studies. The mean (CRT/TCAP) language arts, science, and social studies achievement scores were slightly higher in departmentalized classrooms. However, differences between achievement scores were not statistically significant. Therefore, the findings suggested organizational structures have very little relationship with achievement scores (CRT/TCAP) in language arts, science, and social studies for fifth grade students. However, the results of the independent samples *t* test revealed a significant relationship between the fifth grade student achievement scores (CRT/TCAP) in math in regard to organizational structures. In this study, fifth grade students performed significantly higher on math (CRT/TCAP) achievement scores in departmentalized classrooms than students in self-contained classrooms. As reported in the Dropsey (2004) study, teachers

in a departmentalized structure were able to cover more of the state standards by specializing in one content area. The Chan and Jarman (2004) study also supported these findings. Therefore, one could conclude that fifth grade teachers concentrating on one subject (math) resulted in higher achievement scores. However, this result was contrary to the McGrath and Rust study that indicated no achievement gains in mathematics in relation to self-contained and departmentalized classrooms. Based on this study, the departmentalized classroom structure may be beneficial for those schools that are targeting achievement scores for fifth grade math. Therefore, the findings suggested organizational structures do have a relationship with achievement scores (CRT/TCAP) in math for fifth grade students.

The results of the independent samples *t* test for research question 2 revealed no significant differences in student achievement scores in language arts, math, science, and social studies (CRT/TCAP) of fourth and fifth grade students in regards to teachers who favored or did not favor departmentalized classrooms. Therefore, the findings suggested teachers in departmentalized classrooms who favored or did not favor departmentalized structures have very little relationship with achievement scores (CRT/TCAP) in language arts, math, science, and social studies for fourth and fifth grade students. However, teachers who taught in departmentalized classrooms and favored departmentalized classroom organizations had higher average mean achievement scores in language arts, math, science, and social studies. Statistically, these scores were not significant.

The results of the independent samples *t* test for research question 3 revealed no significant differences in student achievement scores in language arts, math, science, and social studies (CRT/TCAP) of fourth and fifth grade students in regard to teachers who

avored or did not favor self-contained classrooms. Therefore, the findings suggested teachers in self-contained classrooms who favored or did not favor self-contained structures have very little relationship with achievement scores (CRT/TCAP) in language arts, math, science, and social studies for fourth and fifth grade students. However, teachers who taught in self-contained classrooms and favored self-contained classroom organizations had lower average mean achievement scores in language arts, math, science, and social studies. Statistically, these scores were not significant.

#### *Findings Compared to the Literature*

The findings from the literature and this study varied. Montgomery and Rossi (1994) stated, “The way in which schools and classrooms were organized (upper elementary) has an immediate impact on students’ educational experiences” (p. 7). The results of this inquiry provided little support for this statement in relation to organizational structure and student achievement.

In this study, the majority of teachers in self-contained and departmentalized structures in fourth and fifth grades were in favor of departmentalization. Survey results indicate that 56% (Table 2) of fourth grade teachers prefer to continue or to reorganize into a departmentalized organizational structure, while 72% (Table 3) of fifth grade teachers preferred to continue or reorganize into a departmentalized organizational structure. Slightly higher fifth grade math achievement scores in this investigation gave greater support to the departmental organizational structure for that particular subject.

The literature suggested in the McGrath and Rust (2002) study that teachers in self-contained organizational structures had higher achievement gains in language (arts) and science. Further stated in the literature review, the analysis from Catledge-Howard,

Dilworth, and Ward (2003) added support for the self-contained classroom organization structure over a departmentalized organization. Catledge-Howard, Dilworth, and Ward found student achievement was higher in some subject areas (language arts and science) in self-contained organizations. In this study, language arts and science (CRT/TCAP) mean scores in fourth grade self-contained classrooms were slightly higher in self-contained classroom structures as compared to departmental classroom structures. However, math and social studies (CRT/TCAP) mean scores in fourth grade self-contained classrooms were slightly lower in the self-contained classroom structures as compared to departmental classroom structures. Language arts (CRT/TCAP) mean scores in fifth grade self-contained classrooms were slightly higher in self-contained classroom structures than departmental classroom structures. However, math, science, and social studies (CRT/TCAP) mean scores in fifth grade self-contained classrooms were slightly lower in the self-contained classroom structures as compared to departmental classroom structures. The math (CRT/TCAP) mean scores were the only significant scores reported in this study with results confirming slightly higher means scores in departmental classroom structures. All other scores were not statistically significant. The McGrath and Rust study reported higher achievement gains in language (arts) and science in self-contained classroom structures as associated to departmental classroom structures. This inquiry could not support the McGrath and Rust results in language arts (fourth and fifth grades) or in fifth grade departmentalized Science classrooms which reported higher means scores gains. Independent samples *t* tests, however, were not significant for language (arts) or science. McGrath and Rust did not study math and social studies; therefore, no comparisons could be made.

In this inquiry, for classroom organizations that were departmentalized, fourth and fifth teachers who favored departmentalized classroom structures had higher (CRT/TCAP) means scores in language arts, math, science, and social studies. However, the independent samples *t* tests were not significant. For classroom organization structures that were self-contained, fourth and fifth grade teachers who favored self-contained classroom structures had lower (CRT/TCAP) means scores in language arts, math, science, and social studies. Again, independent samples *t* tests results were not significant. The mean score data supports the advantages reported by Chan and Jarman (2004) advocating departmental structures in elementary schools for those teachers who favor a departmental classroom structure.

The benefits of self-contained, departmentalized, or other structures in the classroom in relation to student achievement have been researched over the years with mixed results as indicated by the literature review and this study. The structure that provides for better student achievement outcomes continues to be questionable. The data from this study, in almost all cases, did not find significant differences in scores between students in self-contained classrooms and students in departmentalized classrooms.

### *Conclusions*

The traditional self-contained classroom is the prevalent organizational structure in elementary schools. Bezeau (2006) reported teachers are “subject matter generalists, but further emphasizes the personal relationships that develop between teachers and students” (p. 7).

While the departmentalized classroom has been found in some elementary schools, it is typically found in middle and high schools. Studies by Bezeau (2006),

Gess-Hewsome (1999), Catledge-Howard, Dilworth, and Ward (2003), and Chan and Jarman (2004) support the departmentalized classroom in elementary schools. The strongest advocates for departmentalization in elementary schools were Chan and Jarman. Advantages Chan and Jarman noted included: teachers could specialize in a particular discipline, instructional teams would be created to coordinate teaching efforts across the curriculum, student exposure to more than one teacher, increased teacher retention due to greater satisfaction in areas of instruction, greater focus on one discipline, less time in teacher preparation, greater job satisfaction, and flexibility in creating grade-level teams, cross-graded teams, non-graded structures, or partial departmentalization.

Because of previous studies, expectations were that the data analysis would have supported either self-contained or departmental structures in relation to student achievement. Furthermore, based on teacher preferences for both fourth and fifth grades in favor of departmental organizations, one would suppose language arts, math, science, and social studies achievement scores would have had similar results for departmentalized structures as fifth grade math indicated (significant higher achievement scores for departmentalized organizations as compared to self-contained). However, results from this study did not support this outcome or the findings of previous studies as noted in the literature review.

### *Recommendations for Research*

The findings from this study suggest:

1. The use of a similar study to include more school systems.
2. A student survey should be considered to obtain views and preferences on organizational structures.
3. The uses of quantitative and qualitative research to analyze student achievement in relation to organizational structures. This approach would provide both “closed-ended” quantitative data and “open-ended” qualitative data to best understand the research problem. Additional insight would be gained on teacher and student perceptions.
4. Inquiry of various levels of departmentalized and self-contained organizational structures as team teaching, semi-departmentalized, dual progress plan, open-spaced classrooms, non-graded grouping, looping, multi-age, and open classrooms.
5. The use of other tools that could be used to assess student achievement to further analyze classroom organizational structures. Analytical assessment data from programs as Thinklink, Ed Performance, and Brigance could be administered to gain further insight.
6. Consider teacher preferences in organizational structures for a particular discipline.



### *Recommendations for Practice*

The findings from this study suggest:

1. Schools should consider classroom organization as one factor to increase teacher satisfaction and improve student achievement.
2. Each school should look at themselves and identify which organizational structure is best for their particular school.
3. Schools should look at student preferences in considering organizational structure and improving student achievement.

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APPENDICES

APPENDIX A

IRB INFORMED CONSENT DOCUMENT

**EAST TENNESSEE STATE UNIVERSITY  
VETERANS AFFAIRS MEDICAL CENTER  
INSTITUTIONAL REVIEW BOARD**

**PRINCIPAL INVESTIGATOR:** Darrell Wayne Moore

**TITLE OF PROJECT:** Classroom Organizational Structure as Related to Student Achievement in Upper Elementary Public Schools

This Informed Consent will explain about being a participant in a research study. It is important that you read this material carefully and then decide if you wish to be a volunteer.

**PURPOSE:**

Educating our youth will require increased research on student learning, best practices, classroom structures, and teacher efficacy/preparation. The purpose of this study is to identify elements for best classroom organizational structures for student achievement from selected public schools located in upper East Tennessee. Change in organizational structures may provide schools with another option to increase student learning and obtain higher achievement results.

**DURATION:**

A demographic and teacher perception survey is brief and should not take more than 5 minutes to complete.

**PROCEDURES:**

The basic procedure for this research study is to distribute the demographic and teachers' perceptions survey to selected schools and to those teachers that meet the demographic criteria for the study.

**ALTERNATIVE PROCEDURES/TREATMENTS:**

There are no alternative procedures/treatments for this study.

**POSSIBLE RISKS/DISCOMFORTS:**

No risks or discomforts should be associated with this research.



### **POSSIBLE BENEFITS:**

This research study addresses theoretical perceptions, student learning, teacher efficacy, classroom structures, and their associations to student achievement. Most notably, the review of research, which discusses many studies of traditional self-contained classroom, has evolved into many possibilities and combinations of structures that could be used to improve student achievement. The results should assist colleges (teacher preparation programs), school districts (to improve decisions concerning grade and classroom organizational restructuring or address future building configuration needs for best practices classroom structures implementation), and elementary classroom teachers (providing best grade level organizational classroom structures for optimum student achievement).

### **COMPENSATION FOR MEDICAL TREATMENT:**

East Tennessee State University (ETSU) will pay the cost of emergency first aid for any injury that may happen as a result of your being in this study. ETSU makes no commitment to pay for any other medical treatment. Claims against ETSU or any of its agents or employees may be submitted to the Tennessee Claims Commission. These claims will be settled to the extent allowable as provided under TCA Section 9-8-307. For more information about claims call the Chairman of the Institutional Review Board of ETSU at 423/439-6055. .

### **VOLUNTARY PARTICIPATION:**

Participation in this research experiment is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or treatment to which you are otherwise entitled will not be affected. You may quit by calling (name), whose phone number is (phone number). You will be told immediately if any of the results of the study should reasonably be expected to make you change your mind about staying in the study.

In addition, if significant new findings during the course of the research which may relate to the participant's willingness to continue participation are likely, the consent process must disclose that significant new findings developed during the course of the research which may relate to the participant's willingness to continue participation will be provided to the participant.

In addition, if there might be adverse consequences (physical, social, economic, legal, or psychological) of a participant's decision to withdraw from the research, the consent process must disclose those consequences and procedures for orderly termination of participation by the participant.

### **CONTACT FOR QUESTIONS:**

If you have any questions, problems or research-related medical problems at any time, you may call Darrell W. Moore at 1-423-XXX-XXX or Dr. Louise Mackay at 1-423-XXX-XXX. You may call the Chairman of the Institutional Review Board at 423/439-6054 for any questions you may have about your rights as a research subject. If you have any

questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at 423/439-6055 or 423/439/6002.

**CONFIDENTIALITY:**

Every attempt will be made to see that your study results are kept confidential. A copy of the records from this study will be stored in (name the location where records will be kept) for at least 10 years after the end of this research. The results of this study may be published and/or presented at meetings without naming you as a subject. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the ETSU/VA IRB (for medical research) (or ETSU IRB for non-medical research), the FDA (if applicable), and personnel particular to this research (individual or department) have access to the study records. Your (medical) records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above.

By signing below, you confirm that you have read or had this document read to you. You will be given a signed copy of this informed consent document. You have been given the chance to ask questions and to discuss your participation with the investigator. You freely and voluntarily choose to be in this research project.

---

|                                      |       |
|--------------------------------------|-------|
| SIGNATURE OF PARTICIPANT             | DATE  |
| _____                                | _____ |
| PRINTED NAME OF PARTICIPANT          | DATE  |
| _____                                | _____ |
| SIGNATURE OF INVESTIGATOR            | DATE  |
| _____                                | _____ |
| SIGNATURE OF WITNESS (if applicable) | DATE  |
| _____                                | _____ |

## APPENDIX B

### IRB APPROVAL



East Tennessee State University

Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707 • (423) 439-6053  
Fax: (423) 439-6060

#### IRB APPROVAL - Initial Expedited Review

November 2, 2007

Darrell Moore  
220 Mandan Rd  
Kingsport, TN 37664

Re: Teachers' Perceptions of Classroom Organizational Structures as Related to Student Achievement in upper Elementary Grades in Northeast Tennessee Public Schools

IRB#: c07-034s

ORSPA #: none

The following items were reviewed and approved pending requested changes:

- FORM 103
- \*Narrative (10/5/2007)
- \*Informed Consent Form (09/04/2007)
- Permission from School Systems
- \*Letter to Teachers
- Letter to Principals
- Letter to Superintendents
- Permission
- CV/ Resume
- Conflict of Interest Form-no potential conflict of interest identified
- Survey

The item with an asterisk(\*) above needed changes requested by the expedited reviewers.

The following documents with the incorporated requested changes have been received by the IRB Office:

- revised Narrative ( ver date 10/30/2007)
- revised Informed Consent Document ( ver date 10/30/2007)
- revised Letter to Teachers ( stamped approved 11/2/2007)

The revised Narrative (ver date 10/30/2007), revised Informed Consent Document ( ver date 10/30/2007), and Letter to Teachers ( stamped approved 11/2/2007) incorporating the requested changes was reviewed and approved by an expedited process on November 2, 2007 by Dale Schmitt, Ph.D Chair, ETSU IRB.



Accredited Since December 2005

On November 2, 2007, a final approval was granted for a period not to exceed 12 months and will expire on 11/01/2008. Your Continuing Review is scheduled for 10/2/2008. The expedited approval of the study and requested changes [revised Narrative (ver date 10/30/2007), revised Informed Consent Document (ver date 10/30/2007), and Letter to Teachers (stamped approved 11/2/2007)], will be reported to the convened board on December 6, 2007.

The following **enclosed stamped, approved Informed Consent** have been stamped with the approval and expiration date and this document must be copied and provided to each participant prior to participant enrollment:

- revised Informed Consent Document (**ver date 10/30/2007**)

Federal regulations require that the original copy of the participant's consent be maintained in the principal investigator's files and that a copy is given to the subject at the time of consent.

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research can not be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following its implementation (within 10 working days) on Form 109 ([www.etsu.edu/irb](http://www.etsu.edu/irb)). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,



Dale Schmitt, Ph.D., Vice-Chairperson  
ETSU Campus Institutional Review Board

## APPENDIX C

### LETTERS TO SUPERINTENDENTS, PRINCIPALS AND TEACHERS EAST TENNESSEE STATE UNIVERSITY

Department of Educational Leadership and Policy Analysis  
Classroom Organization to Student Achievement in Fourth and Fifth Grades  
September, 2007

Dear Director of Schools:

Please allow me to introduce myself. I am Darrell Moore, a doctoral student in the Department of Educational Leadership and Policy Analysis at East Tennessee State University and an administrative assistant, 5<sup>th</sup> grade teacher, and technology coach at Indian Springs Elementary School in Sullivan County, Tennessee. I am currently completing the requirements for the Ed. D. degree. As part of my dissertation requirements, I will be conducting a blind study, researching the relationship between classroom organization and student achievement among fourth and fifth grade teachers in Upper East Tennessee.

This letter is to request your permission to survey a selection of fourth and fifth grade teachers within your school system during the Fall of 2007. Because the nature of my study will focus on achievement success, I am requesting permission to be granted access to each selected teachers' 2006-2007 TCAP Achievement Scores in Language Arts/Reading, Math, Science, and Social Studies from public domain the "Report Card" (Tennessee Department of Education web site). Scores will be kept in the strictest of confidence. I am only interested in "grade level scores." At no time will any names (teachers, systems, and students) be attached to any part of the dissertation. You will be assured of anonymity.

I would like to survey two or more schools in your system with similar economically disadvantage percentiles that I will obtain from the Tennessee Dept. of Education web site. One school that would be considered (previous or current years) self-contained in fourth and fifth grades and one school that would be considered (previous or current years) departmentalized in fourth and fifth grades if possible. The survey should take less than 5 minutes to complete and will have a self-addressed stamped envelope for return to me at the teacher's convenience.

For you to have more information, the instrumentation which I plan to use for the study is entitled Demographic and Teachers' Perceptions. I have included the proposed survey to be used for the study.

I am requesting your approval to contact two of your school system's principals in order to fulfill my dissertation requirements. Additionally, I am requesting approval to contact your testing coordinator to obtain the 2004-2005 and 2005-2006 TCAP class or grade level record sheets as they become available or use "Report Card" public domain information. Please e-mail me at XXXXXX@aol.com and/or contact me personally at 1-

423-XXX-XXX or 1-423-XXX-XXX with your recommendation. Thank you in advance for your consideration. Your assistance in helping me complete this study will be greatly appreciated.

Sincerely,

Darrell W. Moore

Doctoral Student

Louise Mackay

Dissertation Chair

EAST TENNESSEE STATE UNIVERSITY  
Department of Educational Leadership and Policy Analysis  
Classroom Organization to Student Achievement in Fourth and Fifth Grades  
September, 2007

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Dear Principal:

Please allow me to introduce myself. I am Darrell Moore, a doctoral student in the Department of Educational Leadership and Policy Analysis at East Tennessee State University and an administrative assistant, 5<sup>th</sup> grade teacher, and technology coach at Indian Springs Elementary School in Sullivan County, Tennessee. I am currently completing the requirements for the Ed. D. degree. As part of my dissertation requirements, I will be conducting a blind study, researching the relationship between classroom organization and student achievement among fourth and fifth grade teachers in Upper East Tennessee.

Recognizing that school economically disadvantaged percentiles could impact student achievement; I targeted a total 24 schools within 6 school systems with similar demographics for this study. Your school's fourth and fifth grade teachers have been chosen for the sample based on school SES similarities.

This letter is to request your permission to survey willing fourth and fifth grade teachers within your school. The survey Demographic and Teachers' Perceptions is attached and should take no more than 5 minutes to complete. A self-addressed stamped envelope will be included to enable all participants to return the completed survey to me at their convenience. All information will be kept in the strictest of confidence. At no time will any names (teachers, systems, and students) be attached to any part of the dissertation. You will be assured of anonymity.

I have requested and have been given permission from your Director of Schools to conduct research in your school. I am now requesting your approval to contact all fourth and fifth grade teachers at your school in order to fulfill my dissertation requirements. Please contact me personally at 1-423-XXX-XXX or 1-423-XXX-XXX, and/or e-mail me at XXXXXX@aol.com, with your recommendation. Thank you in advance for your consideration. Your assistance in helping me complete this study will be greatly appreciated.

Sincerely,

Darrell W. Moore  
Doctoral Student

Louise Mackay  
Dissertation Chair

EAST TENNESSEE STATE UNIVERSITY  
Department of Educational Leadership and Policy Analysis  
Classroom Organization to Student Achievement in Fourth and Fifth Grades  
September, 2007

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Dear Teacher:

Please allow me to introduce myself. I am Darrell Moore, a doctoral student in the Department of Educational Leadership and Policy Analysis at East Tennessee State University and an administrative assistant, 5<sup>th</sup> grade teacher, and technology coach at Indian Springs Elementary School in Sullivan County, Tennessee. I am currently completing the requirements for the Ed. D. degree. As part of my dissertation requirements, I will be conducting a blind study, researching the relationship between classroom organization and student achievement among fourth and fifth grade teachers in Upper East Tennessee. From my own experience as a teacher, I know how busy life is for a teacher. I would greatly appreciate your help with my dissertation.

I would like to include you, along with about eighty other fourth and fifth grade teachers throughout East Tennessee, in my doctoral research project. I will be conducting a blind study, researching the relationship between self-contained and departmentalized classroom organizations and student achievement among fourth and fifth grade students in Upper East Tennessee. With this in mind, I am requesting your assistance with the following:

1. A brief "Demographic and Teachers' Perceptions Survey

All of the information will be kept in the strictest of confidence. I will not share survey information with anyone but you. At no time will names (teachers, systems, and students) be attached to any part of dissertation. Numbers will be assigned to all participants.

I have requested and have been given permission from your Director of Schools and school Principal to conduct research in your school. Please contact me personally at 1-423-XXX-XXX or 1-423-XXX-XXX, and/or e-mail me at XXXXXX@aol.com, regarding participating in the study. I will be glad to answer any questions that you may have concerning this research project.

It is because of you that I can even attempt such a study, and I thank you in advance for your time and contributions. I appreciate all that you do in your teaching profession.

Sincerely,

Darrell W. Moore  
Doctoral Student

Louise Mackay  
Dissertation Chair



## APPENDIX D

### FOCUS GROUP ORAL QUESTIONS

1. What do you perceive as advantages for students and teachers in a self-contained classroom in elementary school?
2. What do you perceive as disadvantages for students and teachers in a self-contained classroom in elementary school?
3. What do you perceive as advantages for students and teachers in a departmentalized classroom in elementary school?
4. What do you perceive as disadvantages for students and teachers in a departmentalized classroom in elementary school?

## APPENDIX E

### DEMOGRAPHIC AND TEACHERS' PERCEPTIONS SURVEY

Please complete the following questions or statements that apply. For the purpose of this study, self-contained and departmentalized classroom organizations are defined as follows:

Self-contained classrooms are the most traditional and prevalent organizational structure in elementary schools. In this type of classroom, one teacher teaches all or nearly all subjects to a group of about twenty-five children, with teacher and students remaining in the same classroom for the entire day. Students may go to other classes for related arts subjects. Students may also attend special classes for remedial or advanced instruction (Parkay & Stanford, 1995, 2007, pp. 133).

Departmentalized classrooms are when "students typically study four or five academic subjects taught by teachers who specialize in them. In this organizational arrangement, students move from classroom to classroom for their lessons" (Parkay & Stanford, 1995, 2007, p. 134).

1. What was your major in college?  
 Early Childhood Education  
 Elementary Education  
 Other \_\_\_\_\_
2. What is the highest degree you have earned?  
 Bachelor's degree  
 Master's degree  
 Specialist degree  
 Doctoral degree
3. What is your teacher licensure?  
 Early Childhood (PreK-3 or 4)  
 Elementary Education (K-8)  
 Other \_\_\_\_\_
4. Are you considered highly qualified under NCLB?  
 Yes  
 No  
 In Process
5. Which grade do you currently teach? 4<sup>th</sup> 5<sup>th</sup>
6. How many children are in your classroom? Boys \_\_\_\_\_ Girls \_\_\_\_\_
7. Approximately how many students are in your grade level? \_\_\_\_\_

8. What type of organizational structure is your grade level?
- Self-contained
  - Departmentalized
  - Other \_\_\_\_\_
9. What subject(s) do you teach?
- Language Arts
  - Math
  - Science
  - Social Studies
10. If given a choice, which grade level organizational structure would you prefer?
- Self-contained
  - Departmentalized
  - Other \_\_\_\_\_
11. If you teach in a self-contained classroom, choose from the following:
- I like the self-contained classroom structure
  - I dislike the self contained classroom structure
  - I would prefer to teach in a departmentalized classroom structure
  - I would prefer to teach in another structure: \_\_\_\_\_
12. If you teach in a departmentalized classroom, choose from the following:
- I like the departmentalized classroom structure
  - I dislike the departmentalized classroom structure
  - I would prefer to teach in a self-contained classroom structure
  - I would prefer to teach in another structure: \_\_\_\_\_

VITA

DARRELL W. MOORE

Personal Data:      Date of Birth: January 18, 1957  
Place of Birth: Marion, Virginia  
Marital Status: Married

Education:            East Tennessee State University, Johnson City, Tennessee,  
Educational Leadership and Policy Analysis, Ed.D.  
2008

East Tennessee State University, Johnson City, Tennessee,  
Masters in the Art of Education, MAT  
1998

East Tennessee State University, Johnson City, Tennessee,  
Business Administration, B.B.A  
1981

Wytheville Community College, Wytheville, Virginia,  
Business Administration  
1977

Emory & Henry College, Emory, Virginia,  
Biology  
1975

Professional

*Experience:*        Administrative Assistant, Indian Springs Elementary,  
Kingsport, TN  
2006-Present

Fifth Grade Teacher and Technology Coach, Indian Springs  
Elementary,  
Kingsport, TN  
1999-Present

Technology Coordinator, John Sevier Middle School,  
Kingsport, TN  
1999

Seventh Grade Teacher, John Sevier Middle School,  
Kingsport, TN  
1998