

**The Value of Adding the Special Education Teacher
to the Co-taught Elementary Classroom**

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In the current era of educational reform and accountability, co-teaching has emerged as a popular and widely implemented service delivery model for students with special needs. The intent of this inquiry was to examine the roles and responsibilities assumed by the elementary special educator during the practice of co-teaching. Using naturalistic inquiry, 11 pairs of co-teachers in 32 elementary language arts and mathematics classes were observed and the activities of the special educator were documented at 5-minute intervals. Results indicated that the special educator assumed several different roles while co-teaching. These included team teaching, providing individual or small group support, and lead teaching. Overall, the special educator spent the majority of his or her time as the lead instructor of a heterogeneous group of students formed by the special and general educators dividing the class into groups. The special educator then either taught his or her group within the general education classroom or in a separate classroom, frequently the special education classroom. The roles and responsibilities assumed by the special educator also differed by subject matter.

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PREFACE

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1.0 INTRODUCTION

In recent years, the roles and responsibilities of special education teachers have undergone significant transformations. Forces behind these changes derive from both intrinsic and extrinsic sources. Reform movements in both general and special education coupled with changes in public policy and federal laws have altered both the student body and the instructional configuration of many general education classrooms.

Prior to these reforms, the responsibility for teaching students with special needs resided primarily within the purview of the special educator. Although collaboration was integral to the assessment and Individual Education Program (IEP) processes, the delivery of instruction was a principal role of the special educator and usually an individually assumed endeavor that occurred outside of regular education.

One catalyst for the reframing of the special educators' roles and responsibilities may be traced to Madeline Will's 1986 call for the "shared responsibility" of the education of students with special needs (p.411). Following Will's landmark address, there was both an increased interest as well as a broadening of the interpretation of the special educators' collaborative roles. Initially conceived of as a service provided outside of general education, collaboration was reconceptualized to include direct instruction within the regular classroom (Bauwens, Hourcade, & Friend, 1989). This model is now known as collaborative teaching or by its more common nomenclature of co-teaching.

While numerous definitions exist, co-teaching as a practice has come to mean the special education instructor simultaneously with the general education teacher within an educationally integrated setting (Hourcade & Bauwens, 2003, p. 39). Vaughn, Bos, and Schumm (2006) extend the definition by offering that the roles and responsibilities of the co-teachers may fluctuate depending upon the type or nature of the lesson.

Proponents suggest that co-taught classrooms provide an unparalleled venue for the integration of the complementary skills of the general and special educators. That is, the general educator brings content knowledge and group instructional skills; whereas the special educator brings expertise in the diagnosis and remediation of individual learning problems or challenges. By interfacing these instructional skills, it is hypothesized that the instruction in general education should be sufficiently enhanced such that the needs of both students with special needs and those at-risk for educational failure can effectively be met (Hallahan & Kauffman, 2006).

The confluence of reform movements, school restructuring and accountability in the last decade provided an environment that readily adopted the theory and practice of co-teaching. In a 1995 survey by the National Center on Educational Restructuring and Inclusion, approximately 900 school districts reported using co-teaching more than other instructional models in their inclusion classrooms. While no follow up study has been undertaken to date, it is reasonable to assume that these numbers have either increased or at the least remained level (Weiss, 2004).

Co-teaching has been advocated as a practice that could be implemented across all grade levels. However, implicit within the literature exists the assumption that co-teaching may operationalize distinctly at different academic levels (Walter-Thomas, 1997; Rice & Zigmond, 2000). In particular, counter-enthusiasts of co-teaching have questioned the efficacy of the practice at the middle and secondary levels. Due to issues of content density, curricular

specialization and academic pacing, several researchers have voiced concern about the roles and responsibilities of the special educator at these upper education levels (Boudah, Schumaker, & Deshler, 1997; Magiera & Zigmond, 2005; Rice & Zigmond, 2000; Zigmond & Matta, 2004; Weiss & Lloyd, 2002). As a consequence of these concerns the most recent research on co-teaching has focused at the middle and secondary levels. Overall, the results from these studies have suggested that the special educator frequently assumes the role of instructional aide and a variety of factors inhibits their ability to provide specialized instruction within the general education classroom.

The concerns about instructional value of the special education teacher within co-taught classrooms, however, have not as readily translated to the elementary level. Assumptions that the more basic curriculum will better avail itself to co-teaching seem to be the conventional wisdom. Yet, there is little evidence to support this assumption. In order to begin to address the silence regarding co-teaching at the elementary level, research investigating the characteristic actions of the special educator in co-taught elementary classrooms is needed. The roles and responsibilities of the special educator need to be better delineated in order to understand the additive value of co-teaching at the elementary level. The purpose of this study is to identify the typical activities of the special education teacher during the practice of co-teaching in elementary schools.

2.0 REVIEW OF THE LITERATURE

2.1 INTRODUCTION

The purpose of this chapter is to review the literature and research on the practice of co-teaching. This chapter begins with an overview of the historical context that led to the development of co-teaching. The second section provides the definition of co-teaching and overview of the models of co-teaching. The third section reviews the research that examines the roles and relationships between co-teachings. Part four examines the research on instructional effectiveness and student outcomes. This chapter concludes with a summary of what is known and what remains unknown about co-teaching

2.2 CO-TEACHING WITHIN AN HISTORICAL CONTEXT

2.2.1 History of Co-teaching

Debate concerning the educational needs and placement of students with special needs is not a new phenomenon. An analysis of special education history and literature reveals continuous themes that call for systemic reform. Even prior to the adoption of Public Law 94-142, Lloyd Dunn (1968) posited that special education delivered within self-contained classrooms was for

the most part unjustifiable. Excluding only the most severely disabled students, Dunn called for the education of exceptional students to take place within general education classrooms. Under this plan, special educators would become experts in diagnostic-prescriptive teaching. The dominant responsibility of the special education teacher would then be to implement these scientifically based individualized education programs via either a consultant or team teaching role (Dunn, 1968). Although Dunn's proposal for the partnering of the special education teacher and the general education teacher garnered limited attention for fifteen years, his education consultant model provided the conceptual basis for the resource room (Zigmond, 2003).

Within the era of the resource room, the roles and responsibilities of the special educator were apparent and distinctive (Klingner & Vaughn, 2002). Zigmond (1997) summarized these responsibilities as:

The special educator provided instruction based on the student's individual need. Special education was intensive, urgent and goal-directed and it was delivered by a uniquely trained teacher. The role of the special education teacher was to teach what could not be learned elsewhere-it was special teaching (pp.379, 384-385).

2.2.2 A Nation At-Risk

The publication of *A Nation at Risk* in 1983 stimulated a number of reform movements. *A Nation at Risk* was highly critical of the academic stands and educational outcomes of U.S. students. Data indicated that large numbers of students left school lacking the skills to effectively compete in a world economy (Vaughn, Bos, & Schumm, 2006). How to improve the

academic standards and student outcomes particularly those students considered “at-risk” for educational failure became one of the central issues in the reform movements.

While *A Nation at Risk* focused most of its criticism on general education, special education also came under scrutiny. However, the majority of the criticism of special education emanated from special educators themselves. At issue in special education was: classification, funding, evaluation and most prominently educational placement or the least restrictive environment (Lipsky & Gartner, 1987).

2.2.3 Reframing and Reform in Special Education

Criticism of and within the special education community developed along two separate but related spheres. First, critics asserted that instruction in pull-out programs was for the most part ineffective. In 1986, Will suggested that the pull-out approach, although well intentioned, had failed to meet the educational needs of exceptional students and may in effect create barriers to successful education. Lipsky and Gartner (1987) added that there was no compelling body of evidence that segregated special education programs benefit students. While these arguments were shown to be fallacious and criticized for use of inflammatory language, the impact of these documents has been far reaching (Kavale & Forness, 2000; Zigmond, 2003).

The second sphere of special education criticism shifted the focus to the organization and structure of general education. Citing the increasing numbers of diverse, exceptional and at risk learners, detractors contended that the traditional practices of general education were no longer viable. Instructional composition within the regular classroom needed to be reconceptualized such that the growing educational needs of this diverse population of learners could be met more effectively (Wang, Reynolds, & Walberg, 1986). For special education teachers, this meant

reframing their role to include going into regular education and helping general educators implement individualized, cooperative and adaptive learning environments (Stainback, Stainback, Courtnage, & Jaben, 1985, p. 148).

2.2.4 Merging of Special Education and General Education

Pressure to adopt the goals of the reform movements in both general and special education increased during the 1990's. Advocates of inclusive education for students with special needs joined with the advocates of the school restructuring movements (Skirtic, Harris, & Schriener, 2005). These groups of reformers stressed the importance of the development of consultative and collaborative teaching models between special and general educators. Co-teaching became vital to the reformers' goals of integrating general, compensatory and special education (Skirtic et al., 2005, p. 4). The 1997 reauthorization of IDEA strengthened these objectives by legislating that students with exceptionalities require not only access to their nondisabled peers but also to the general education curriculum. The era of standards based education and accountability began in earnest culminating with the No Child Left Behind in 2001 and the reauthorization of the Individuals with Disabilities Education Improvement Act. For many special education teachers and their students this meant that the general education classroom was to become their academic home base.

2.2.5 Co-teaching Defined

Although a plethora of interpretations of consultation and collaboration exist, Hourcade and Bauwens (2003) framed these models into two broad categories: direct or indirect service

delivery. Indirect models include collaborative consultation, peer collaboration, coaching and teacher assistance teams (Hourcade & Bauwens, 2003). In these models, instructional behavioral strategies are developed through peers and/or teams of teachers but are implemented in the regular education classroom solely by the general education teacher. Therefore, the fundamental structure and essence of the classroom remain unaltered (Hourcade & Bauwens, 2003). Models of direct collaboration are characterized by general and special education teachers working together to coordinate curriculum and instruction and to teach heterogeneous groups of students within the general education classroom (Vaughn et al., 2006, p. 26).

Models of direct collaboration utilize the terms team teaching collaborative teaching, cooperative teaching and co-teaching interchangeably (Reinhiller, 1996). The critical feature of co-teaching models holds that two educators are simultaneously present in the classroom and share responsibility for the education of all students (Bauwens & Hourcade, 1997). Therefore, the organizational structure and instructional platform of the general education classroom are fundamentally altered.

2.2.6 Models of Co-teaching

Current implementation of the practice of co-teaching is founded on models developed by four teams of advocates. The seminal model proposed by Bauwens et al. (1989) defines three options in co-teaching: 1. complementary instruction; 2. team teaching; and 3. supportive learning. In the complementary and supportive co-teaching alternatives, the general educator retains primary responsibility for the teaching of content, while the special education teacher complements the instruction by providing skill development to enhance learning. Team teaching requires joint

planning of lessons with each educator assuming the lead role at various times during the delivery of instruction (Bauwens et al., 1989; Hourcade & Bauwens, 2003).

2.2.6.1 Friend and Cook Model.

A second co-teaching model was conceptualized by Cook and Friend (1995) and describes five variations:

1. The one teaching and one assisting requires one educator to retain the instructional lead in the classroom, while the other teacher circulates through the room providing assistance and support to the students as needed. While this model reflects simplicity in its ability to be operationalized, the unintended outcome often renders the special education to the status of teaching assistant (Cook & Friend, 1995).
2. Station teaching involves dividing the instructional content as well as the physical space of the classroom into two or more zones. Each teacher assumes responsibility for teaching a segment of the content at a prearranged station. After a predetermined period of times elapses, the students rotate to the other station. Options for a third station may consist of working with a paraprofessional, peer tutor or independent study (Cook & Friend, 1995).
3. Parallel teaching requires teachers to jointly plan instruction which is then delivered to half of the students within heterogeneous groupings. Cook and Friend (1995) posit that parallel teaching may facilitate instruction comprised of drill and practice, test review of student projects.
4. Alternative teaching allows for large and small group configurations. This grouping permits intensive instruction for students with special learning needs in a reduced teacher-to-student ratio. One educator teaches the large

group, while the other educator simultaneously provides instruction to the small group. In order to avoid stigmatizing any group of students, the authors state that all students should periodically receive instruction within the small group (Cook & Friend, 1995).

5. The team teaching approach encourages parity between both teachers in planning instruction. The teachers continually alternate the role of primary instructor within individual lessons. This format requires the greatest degree of trust and professional compatibility among the five co-teaching approaches. Therefore, Cook and Friend (1995) suggest that this approach may not be for novice co-teachers.

Friend and Cook (2003) later reconceptualized the co-teaching format of one teaching/one assisting into two configurations: one teaching/one observing and one teaching/one drifting. Citing the importance of observing students, Friend and Cook postulate that co-teaching allows for observation time that is not afforded to teachers of single educator classrooms. In the format of one teaching/one observing, one professional retains responsibility for lesson design and implementation. Simultaneously, the other teacher observes either an individual student, a group of students, or the entire class for learning or behavioral issues that the teachers had previously determined for observation. The resulting data should then be used to inform instructional decisions (Friend & Cook, 2003). The one teaching/one drifting option retains the essential features of the one teaching/one assisting format. That is, while one teacher maintains primary responsibility for instructional content and delivery, the other teacher drifts around the room assisting students that require additional support.

2.2.6.2 Vaughn, Schumm, and Arguelles Model.

Vaughn, Schumm, and Arguelles (1997) developed a third model of co-teaching. While retaining the options of parallel teaching, station teaching and team teaching, Vaughn et al. provided adaptations to enhance the instructional aspects of one teaching/one assisting. Utilizing the nomenclatures of “grazing” and “tag teaching” to illustrate the perceived educational weaknesses inherent in one teaching/one assisting, Vaughn et al. proffer the concept of “teaching on purpose” p. 5. Via this option, while one teacher leads the class, the other teacher provides brief intensive instruction to individual students, student pairs, or small groups. The focus of these 60-second, 2-minute or 5-minute lessons may involve the re-teaching of key concepts, skills or vocabulary.

2.2.6.3 Walter-Thomas, Korinek, McLaughlin, and Williams Model.

A fourth co-teaching model is that of Walter-Thomas, Korinek, McLaughlin, and Williams (2000). As with the Friend and Cook (2003) and Vaughn et al. (1997) models, the co-teaching options of parallel teaching, station teaching and alternative teaching are retained as viable formats for co-teaching. However, the option of one teaching/one assisting is eschewed and replaced with a variation referred to as interactive teaching (Walter-Thomas et al., 2000, p. 189). Via the interactive teaching format, instruction is presented to the whole group with the educators alternating the role of instructional leader for periods to 5 to 10 minutes. As the lead teacher role changes frequently, both teachers are afforded several opportunities to serve as the primary educator (Walter-Thomas et al., 2000).

2.2.6.4 Co-teaching Models in the Age of Accountability.

More recently new models of co-teaching have been developed reflecting current education issues. Walsh and Jones (2004) citing the call for full access to the general education curriculum for students with special needs proposed several alternative models for implementing the practice of co-teaching at the secondary level (p.14). Citing increasing shortages of certified special educators, these authors concluded that there are not enough special educators to co-teach, particularly in secondary education. Using their own district of Anne Arundel, Walsh and Jones conceptualized four Collaborative Scheduling models. In Collaborative Scheduling-A, the special educator divides instructional time between two different classes for one or more periods a day. In Collaborative Scheduling-B, the special educator also divides her time between two different classes; however, the schedule is dictated by the days of the week versus splitting between the same day classes. In the third model, Collaborative Scheduling-C, the special educator serves as a resource to an entire interdisciplinary team. The teaching schedule for the special education teacher would be decided on a weekly basis by the team. The team decision would be based on when and where the most instructional support is required. Therefore, according to Walsh and Jones, instructional need dictates the cooperative teaching role. The fourth model named Collaborative Scheduling-D incorporates the use of teacher assistants. The teacher assistants would team with the special educator and absorb some of his/her caseload. The authors claim that the use of teaching assistants can increase both access and success in the general education environment while simultaneously decreasing the need to disproportionately group students with disabilities in the same co-taught class. This a major problem generated by the decreasing numbers of special education teachers. A major inconsistency in this model concerns the fact that the definition of co-teaching explicitly contains the words-two certified

teachers (Cook & Friend, 1995). Implementation of this model involves a major definitional omission and compromises the issue of treatment integrity.

2.2.6.5 Co-teaching Planning Models.

Vaughn et al. (1997) also addressed planning issues in co-teaching and provided a daily lesson plan format as well as a unit planning blueprint referred to as the Planning Pyramid. The Planning Pyramid provides a platform for differentiated instruction that details three levels of learning goals. Basic level goals are placed at the base of the pyramid and inform instruction for all students; the second level of the pyramid is comprised of goals for most students; and the apex details what some of the students will learn (Vaughn et al., 1997). In addition to providing a planning framework, Vaughn et al. delineate a temporal sequential framework to assist co-teachers in aligning instructional goals with specific co-teaching configurations in order to enhance instruction. Dyck, Sunbye, and Pemberton (1997) also provide a lesson planning model for co-teaching referred to as the interactive planning model. Replacing the pyramid form with a conical figure, the interactive planning model similarly promotes differentiated instruction. Dyck et al. contend that this lesson planning format should assist co-teachers in reconciling differences between individual versus group instruction. Further, guided questions are provided to assist co-teaching in the development of differentiated instruction goal (Dyck et al., 1997).

2.2.7 The Research Investigating Co-teaching Relationship and Roles

An analysis of the research on co-teaching reveals two dominant themes: that of the relationship between the co-teachers and the division of educational roles. The research base thus mirrors the

literature on the models of co-teaching in that the teaching of academics seems to be secondary to factors that either foster or impede the relationship and roles between the two teachers. Only the co-teaching model of Walter-Thomas et al. (2000) addresses instructional strategies and accommodations for the teaching of academics in depth.

2.2.7.1 Metaphors of Co-teaching.

A seminal article on co-teaching is that of Adams and Cessna (1993). These authors utilized a focus group format to interview an unspecified number of co-teachers in Colorado who were considered to be outstanding by their supervisors. The data were analyzed using a “qualitative process used to study successful business teams” (p.28). Adams and Cessna then developed three metaphors to frame the relationships and processes involved in co-teaching. Co-teaching was metaphorically described as: 1. the yin and yang; 2. the dance; and 3. the particle and the stream. The yin and yang refers to the principle of opposites and suggests that co-teachers bring unique skills that provide essential roles in the co-taught classrooms. The dance describes the manifestation of the collaborative processes between the two teachers. The metaphor of the particle (the student) and the stream (the instructional flow) depicts the importance of maintaining individual students within the flow of instructional activities (Adams & Cessna, 1993). The authors postulate that these metaphors provide both insights as well as a vision of successful co-teaching relationships. The teachers in the study held that co-teaching enhanced their instructional repertoires and significantly promoted the learning of their students (Adams & Cessna, 1993). However, no supporting data were cited for either assertion.

2.2.7.2 Co-teaching Roles and Relationships.

Factors that impact the relationships and role definitions between co-teachers were the subject of numerous investigations (Austin, 2001; Klingner & Vaughn, 2002; Nowacek, 1992; Rice & Zigmond, 2000; Salend et al.; 1997; Trent, 1998; Wood, 1998). Nowacek (1992) interviewed five co-teachers in an attempt to explore their experiences in educating students with LD. The study included pairs of co-teachers at the elementary and middle school levels, and a special educator who had co-taught at the secondary level. Using naturalistic inquiry the teachers' perceptions of their co-teaching experiences were presented anecdotally and evidenced similarities and differences at the three academic levels.

The three special education teachers described their roles in co-teaching as dynamic and contextualized by the philosophies and teaching styles of the general educator (Nowacek, 1992). Elaine, a secondary special educator explained that special educators as a whole realized that they must be “. . . willing to play the aide role at times” (Nowacek, 1992, p. 269). She continued that initially she frequently performed support and secretarial duties such as photocopying and reformatting tests. As the academic year progressed her role expanded and she assumed the responsibilities for grading and for about 10% of the instruction. In one class, however, while the general education teacher assumed the role of lead instructor, her role evolved into that of class disciplinarian. She asserted that she would make a concentrated effort not to allow this role dichotomy to occur in the future (Nowacek, 1992).

At the middle school level both the co-teaching roles and relationships appeared to evidence more parity and collegiality. However, at the middle school, the special education teacher selected the most competent general education teachers for co-teaching relationships. Carol, the special educator explained, “We did not see our role as one of helping marginal teachers improve” (Nowacek, 1992, p.265). Further, these co-teachers intentionally kept the

numbers of special needs students per class at a maximum of 50% by a labor intensive hand-scheduling of the co-taught classrooms. These co-teachers also described how certain content areas were more amenable to the process of co-teaching. For example, mathematics seemed to lend itself more readily to co-teaching than did English. The co-teachers, however, did develop a seventh grade spelling curriculum that was heralded as one of the highlights as well as the most structured component of their co-teaching experience. Student progress was assessed using pre-and post-tests and results indicated that all but one special education student gained at least one year (p. 270). Further, student evaluations indicated that they believed spelling was the most important skill learned in English.

At the elementary level as at the middle school issues regarding the roles and relationships appeared to evidence fewer concerns. However, several intervening variables should be noted. First, the documented co-teaching experiences were between a speech/language pathologist and a self-contained special educator as well as the speech/language pathologist and a regular education teacher (Nowacek, 1992). Therefore, the goals were skill specific and directed towards enhancing language and communication functions of students with communication disorders. When the speech/language teacher co-taught in the general education classroom, the focus generally included problem solving and interaction skills via cooperative learning groups. While both co-teachers said all the students improved, the only documentation presented was that of one language impaired student's dramatic progress on the Clinical Evaluation of Language Functions (CELF). The student's standard score increased from a 3 to a 5 on an unspecified subtest. The only other reported score was for the same student whose number of words per sentence increased from 4 to 14 on the Formulated Sentence subtest of the CELF (Nowacek, 1992).

Salend et al. (1997) also used naturalistic inquiry to chronicle the evolution of the co-teaching relationship between a veteran special educator and a veteran kindergarten teacher. Data for the study were comprised of non-directed journal entries and interviews with both teachers. Follow-up interviews with the school principal were also conducted. The kindergarten classroom consisted of 24 students, seven of whom were identified as students with various special needs as well as two paraprofessionals (Salend et al., 1997).

Initial issues about the co-teaching relationship voiced by both teachers focused on role delineation, teaching styles, and philosophical differences. However, as the academic year progressed, journalistic data suggested that both teachers were able to develop a variety of aspects concerning collegiality (Salend et al., 1997). Further, the teachers reported increased enjoyment with their teaching and affirmed that co-teaching had augmented their risk taking behaviors during instruction.

A major barrier in the relationship was that of philosophical differences which were framed as disparities embodied within instructional goals (Salend et al., 1997). The area of reading instruction was illustrative of the problems. While the general educator advocated a whole language approach, the special education teacher supported a skills-based approach. Sarah, the special educator, expressed serious reservations about the students' ability to acquire beginning reading skills within the whole language curriculum. Cathy did acknowledge Sarah's concerns and incorporated a little bit of skills work into the reading lessons (Salend et al., 1997, p. 6). Student progress was then reported only in general terms stating that most students had acquired beginning reading skills, although not at the same level of proficiency.

Two case studies also examined issues regarding the roles and relationships involved in co-teaching (Klingner & Vaughn, 2002; Trent, 1998). The case study by Trent (1998) provided

a compelling view of co-teaching by juxtaposing a positive relationship with a negative relationship. Trent described the experiences of a veteran secondary social studies teacher as she co-taught with two different special educators during two separate academic years. Students in both classrooms were either diagnosed as special needs (LD and BD) or functioning significantly below grade level and considered to be at-risk for dropping out of school. Data included running records of classroom observations, teacher interviews and archival data of modified instructional material developed by the teachers (Trent, 1998).

During the first year Christine, a 27 year veteran of general education, co-taught with Katherine, a special education teacher with two years of experience. Although these two teachers did not know each other, both reported an amicable relationship from the beginning (Trent, 1998). Christine and Katherine held compatible teaching goals and recognized each others areas of expertise. Thus, either intentionally or unintentionally, they adopted the co-teaching model of one teaching/one assisting as described by Cook and Friend (1995). While Christine retained control of the delivery of content knowledge, Katherine provided support through curricular adaptations and modifications and later organizational skills. Both teachers reported professional growth and enhanced academic outcomes for the students, although no supporting evidence was cited. The special educator did however proffer that she was not always using her specialized training most optimally (Trent, 1998).

The second co-teaching relationship for Christine was with another special education teacher, Angie. When describing their respective roles, the general educator repeated that of the previous year, content expert. For the special educator, the role was delineated into two major areas: 1. student monitoring for academic and behavioral issues; and 2. student support for note- and test-taking (Trent, 1998, p. 8). Despite the role similarities to Christine's previous

partnership with Katherine, the co-teaching alliance between Christine and Angie was problem laden and conflictual. Trent (1998) interpreted the problems as incompatible teaching and behavior management styles as well as communicative issues. In separate interviews, Christine expressed concern that Angie was both unfamiliar with the content knowledge of the course and demonstrated no interest in developing any content expertise. Angie was frustrated with Christine's teaching methods and was quoted as saying that it was not her job to change another teacher's teaching style (p. 9). Neither teacher seemed able to establish a dialogue with the other concerning approaches to teaching or the problems in the relationship. The special educator began to miss individual classes and eventually stopped coming to class altogether. The reasons behind Angie's reluctance to follow through with her co-teaching responsibilities and eventual total absence from the class were never clearly articulated. This study evidenced how differences in co-teaching pairs and classrooms can yield results that are diametrically opposed to one another. Trent hypothesized that the general educator, Christine, may have internalized the conceptual framework of the one teaching/one assisting co-teaching model. That is, due to her initial co-teaching relationship with Katherine, Christine assumed that all special educators would adapt to the roles of co-teaching in the same manner. Trent hypothesized that co-teachers need both training and support in dynamic communications skills and in effective strategy instruction to assist students in becoming self-regulated learners.

2.2.7.3 The Changing Roles of Special Educators.

Interpersonal communication abilities and communication skills also emerged as critical factors in co-teaching partnerships at the elementary school level. A case study undertaken by Klingner and Vaughn (2002) provided another perspective on the changing roles and responsibilities in co-teaching. These authors chronicled a special educator's seven-year journey

from resource teacher to co-teacher. Set within an urban school district, data for the case study included: individual and focus group interviews; classroom observations; meetings with researchers; and teacher journals, plans and other records. After employing multiple flows of data analysis, results suggested that the roles for special education co-teachers are complex and multifaceted. Further, these responsibilities emerged as dependent upon the individual general educator's willingness to share control of the classroom (p. 25). Joyce, the subject of the case study, co-taught in three different classrooms that required extreme flexibility on her part. For example, in one class the general educator expected her to assume the lead instructional role; in the second she alternated the instructional lead with the general educator; and in the third she assisted as the regular education teacher preferred to retain complete control of her class (Klingner & Vaughn, 2002).

In addition to adapting to the general educator's personality and teaching style, Joyce's key responsibilities were to provide both planned and spontaneous instructional adaptations as well as alternative assignments for selected special education students (Klingner & Vaughn, 2002). This required knowledge of the general education curriculum, the impact of the students' disability in learning the curriculum, as well as anticipating challenges students may encounter regarding specific learning tasks. The authors concluded that the demands upon the special educator in co-teaching relationships are challenging and labor intensive (Klingner & Vaughn, 2002). For in addition to the co-teaching responsibilities, the special educator retains the general responsibilities of special education. These responsibilities include individual student assessment, IEP writing and monitoring, and various meetings with parents, other teachers and administrators. Joyce reported that in order to meet all of her responsibilities, she arrived at

least an hour prior to the beginning of school, stayed after school and worked at home an additional four hours, for a minimum of four nights per week.

Klingner and Vaughn (2002) contend that the results of their case study hold several implications for the preparation of special education teachers. In addition to garnering knowledge concerning intensive individualized instruction for students with LD, Joyce required expertise in other areas that are frequently not comprehensively addressed in special education preparation programs. These include: 1. consultation and communication skills; 2. knowledge of the GE curriculum and skills in adapting this curriculum; and 3. knowledge of various teaching strategies appropriate for heterogeneous classrooms as well as how to implement them in co-teaching situations (p.30). Therefore, teacher preparation institutions must decide how best to integrate these skills into curricula such that special educators are better prepared to meet the emerging roles of special educators of the 21st century.

2.2.8 Barriers to Co-teaching

The research base investigating co-teaching has expanded considerable effort toward understanding issues related to instructional responsibilities and roles inherent in co-teaching partnerships. Limited attention, however, has focused upon the issue that differences in professional socialization for special educators and regular educators could create significant obstacles and may in fact impede the integrative processes necessary for successful co-teaching. Professional dispositions concerning differences between individual versus group learning goals might obstruct the development of positive collaborative relationships, often cited as a prerequisite to successful co-teaching partnerships. Rice and Zigmond (2000) investigated secondary co-teaching practices in Australia and the United States. Utilizing interviews and

observations, general and special educators in both countries rated personal compatibility highly for the development of successful co-teaching partnerships. Only 2 of the 17 teachers expressed a different perspective on the importance of compatibility. For these two Australian teachers, professionalism was of greater significance than personal compatibility (Rice & Zigmond, 2000).

For the teaching profession as a whole, professional autonomy is often the norm. This belief system frequently functions at both the individual level as well as the cultural level of the school. Attitudes of self-reliance combined with physical isolation in working conditions may create significant barriers to co-teaching particularly for special educators. In a survey administered to K-12 grade teachers (N=92), both special and general education teachers believed that general education teachers do more than their special education partner in inclusive classroom (Austin, 2001). The author hypothesized that that this finding may be related to the fact that the special education teacher is typically perceived as the visitor to the classroom. Being perceived as the visitor in the classroom, may preclude the special education teacher from practicing his/her craft of delivering specialized instruction and fosters issues of inequality between the teachers. Rice and Zigmond (2000) reported that one Australian teacher overcame these issues by training herself in metacognitive strategy instruction. Only by developing additional areas of expertise was she perceived as a professional and afforded parity in the general education classroom (Rice & Zigmond, 2000).

2.2.8.1 Whose Job is It?

The issues of systemic and other barriers that impact negatively upon co-teaching roles and relationships were revealed in a qualitative study by Wood in 1998. Three pairs of elementary co-teachers, teaching in an inclusion program for children with severe disabilities, were interviewed over the course of one academic year. The interviews were transcribed and

data analyses occurred overtime and were recursive in nature (Wood, 1998). The results suggested similar patterns of role perceptions, collaboration, and team decision making across the three groups. Initially both special and general education teachers maintained discrete role boundaries through a clear but informal division of labor. The roles assumed by the special educators included all responsibilities related to academic instruction, behavioral interventions and the supervision of classroom instructional aides for the included students. The general educators were thus “protected” from almost all official IEP duties. One general educator admitted that he did not think he had ever seen the EIP [*sic*] (Wood, 1998, pp. 187-188). The special educators also viewed retention of IEP duties as crucial to career preservation.

As the year progressed these boundaries tended to blur but other territorial and role issues remained. The general educators as a group described the presence of the special educators as, at times, disruptive or an imposition. As in the Rice and Zigmond (2000) study, the special educators believed that they had to prove themselves time and again. For both pairs of educators the role of the other teacher was often ambiguous and one general education asserted that she considered the role of the special education teacher was a “real waste of a very able teacher” (Wood, 1998, p.191). Wood hypothesized that several underlying issues may impede development of co-teaching relationships. These include: education and training in two separate and unique disciplines and the activation of the territorial survival mechanisms when professional roles and responsibilities become blurred or vague. The title of this article, “Whose Job is It, Anyway?” may illustrate one of the major problems for co-teaching.

2.2.8.2 Teacher Beliefs and Treatment Integrity

Co-teaching has emerged as a popular instructional platform in inclusion models of educational reform. However analysis of the literature indicates that there are disconnects

between the definition of co-teaching and the implementation of co-teaching. For example, Friend and Cook (2003) suggest that the effective co-teaching involves: a commitment to co-teaching; common planning time; compatibility in teaching styles and educational belief systems; parity in instructional duties and classroom management; as well as strong administrative support. However, in the survey undertaken by Austin (2001) co-teachers reported that only 28% of general educators and 27% of special educators had volunteered to co-teach. A majority of the teams who met daily reported that co-planning time was neither as important nor as productive as the literature might suggest (Austin, 2001). Similarly while a majority of teachers stated that they believed in sharing responsibilities in instructional duties and management, they did not in practice share these responsibilities (Austin, 2001, pp. 248-249). Thus, existent classroom practices of co-teaching appear to be removed from definitional components of proponents such that issues of treatment integrity are raised. Furthermore, while the majority of teams reported that co-teaching improved their teaching, no supporting student outcome data were cited (Austin, 2001).

2.2.9 The Research on Instructional Effectiveness and Student Outcomes

While co-teaching may make intuitive sense or possess face validity, research investigating issues of instructional effectiveness and the learning outcomes for students with special needs across grade levels is inadequate. Co-teaching has been studied more as a means to foster student placement in general education than as a medium to provide effective instruction (Weiss, 2004). One of the reasons for the dearth of outcome research resides in the fact that it is extremely difficult to study co-teaching in a way that informs instructional practice

(Zigmond & Magiera, 2001). Experimental studies are often prohibited due to problems with random sampling, matching classrooms and definitional issues of co-teaching practices (Zigmond & Magiera, 2001).

In a meta-analysis of the co-teaching research, Murawski and Swanson (2001) identified 89 articles that mentioned both a special education teacher and general education teacher in the same classroom. After excluding position papers, program descriptors, and other articles that lacked specific data, only six articles provided sufficient quantitative data in which an effect size could be calculated (Murawski & Swanson, 2001). Of these 6 studies only 3 were published in refereed journals. Effect sizes for the individual studies ranged from low (0.24) to high (0.95). The average total effect size of 0.40 suggests that co-teaching was moderately effective in influencing student outcomes (Murawski & Swanson, 2001). However this finding should be interpreted cautiously as only one study obtained a high (0.80) effect size. Self, Benning, Marston, and Magnusson (1991) investigated the impact of the Cooperative Teaching Project (CTP) on at-risk students in grades K-3. The high positive effect size was due to a dramatic decrease in the number of referrals to special education. Therefore, the average effect size of 0.40 maybe statistically inflated. Also, Murawski and Swanson (2001) noted that none of the studies reported explicit measures of treatment integrity, rendering it impossible to determine if the studies genuinely adhered to the described intervention.

2.2.9.1 Research Base at the Elementary Level

In 1990, Schulte, Osborne, and McKinney compared the academic achievement of 67 elementary students with LD who were randomly assigned to 1 of 3 conditions: one period of resource room instruction; consultation services provided for the classroom teacher; and consultation combined with in class instruction. Student achievement was measured using both

the Woodcock-Johnson Test of Achievement (WJTA) and the Essential Skills Assessment in Reading, a district developed criterion-referenced test. Results indicated that students who received a combination of consultation and co-teaching services showed a small but significant gain when compared to the students placed in the resource room. However, when achievement was examined separately for reading, writing and math these gains were not evident (Schulte et al., 1990).

In a similar study, Marston (1996) compared the reading progress of 240 elementary students with learning disabilities and IEP reading goals. Utilizing curriculum based measures of reading, Marston examined the program efficacy of students assigned to 1 of 3 programs: inclusion/co-teaching only (n=33); pull-out only (n=171); or a combined services model of pull-out and in-class special education (n=36). Results revealed that the reading progress of students served in the combined services model was significantly greater than that of students served in either pull-out or co-taught classrooms. Thus, in both the Schulte et al. (1990) and the Marston (1996) studies students with special needs appeared to require additional academic support to supplement the instruction received in co-taught classrooms.

2.2.9.2 How is Co-teaching Special Education?

Issues pertaining to instructional variability in co-taught classrooms were reported in a series of five studies across United States by Zigmond (1995a, 1995b) and Baker (1995a, 1995b, 1995c). In an elementary school in Pennsylvania, Zigmond (1995a) described the teaching for Jason a second grade student with LD. Special education for Jason, a non-reader, consisted of: an aide drilling him on spelling words, reduced assignments in math, and sight word vocabulary drills provided by the special education teacher to a small group on the side of the general education classroom (Zigmond, 1995a). At the Kansas site, special education for Andrew, also a

second grader with LD, was often comprised of assigning him to work with a peer tutor or “study buddy” (Zigmond, 1995b, p. 148). During a journal writing activity, Andrew’s study buddy coached him and dictated spellings of requested words. The general education teacher circulated the room stopping by Andrew’s desk to provide praise for his work. Simultaneously, the special education teacher wrote in her journal while sitting at an absent student’s desk (Zigmond, 1995b).

Similar scenarios were also documented by Baker (1995b, c) in Minnesota and Washington. In Washington, Steve, a sixth grade student with LD, was assigned to the extended day program (Baker, 1995c). This required Steve to come to school at 7:30 a.m., an hour prior to the official start of the school day. During this hour Steve practiced his reading and math skills. Steve then participated full time in the general education classroom (Baker, 1995c). The dominant instructional configuration of the class was cooperative learning groups. Steve worked with small groups for science, math and social studies. Steve’s level of participation in the group was limited and a review of the assigned learning packets revealed that most of his questions were left unanswered (Baker, 1995c). In Minnesota special education for a second grade student with LD, Charles, consisted of reading instruction in the media center with a paraprofessional (Baker, 1995b). Charles was also assigned to receive instruction in the resource room. During this time Charles again however worked with a paraprofessional to whom he read orally. The special education teacher reported that this arrangement allowed her to work with a student with more challenging learning problems (Baker, 1995b).

In an analysis of the case studies, Zigmond and Baker (1995) state that “special education in inclusive programs is by design no longer special” (p. 245). Instructional practices for the students with LD were essentially comprised of: working with either a paraprofessional or study

buddy; or low level modifications of assignments such as a reduction in the number of spelling words or math problems (Zigmond & Baker, 1995). Both authors emphasized the need to examine instructional practices and student outcomes in co-taught classrooms.

Klinger, Vaughn, Hughes, Schumm, and Elbaum (1998) examined the academic progress of 25 elementary students with LD placed in co-taught classrooms in grades 3-6. In an effort to address the instructional aspects, the four general educators and two special educators were taught to implement four instructional practices targeting reading and writing. The identified strategies were selected for their instructional effectiveness with students manifesting LD. Student achievement was assessed at the beginning and end of the school year using the BASS. The students with LD also received two individually administered reading tests to further assess their progress in reading. While the focus of the study centered primarily on reading, a group math test was also administered. Results of the study revealed that while 80% of the students with LD made statistically significant gains in reading, 20% of the students with LD showed no improvement. Therefore, even with additional teacher education and substantial university support, a subset of students with LD made little or no progress in reading (Klinger et al., 1998). Although not the targeted academic area of the study, analysis of the math scores of the students with LD indicated no statistically significant gains in either mathematical computation or application (Klinger et al., 1998).

2.2.9.3 Research Base at the Secondary Level.

Similar findings were also reported at the secondary level in studies by Boudah, Schumacher, and Deshler (1997) and Weiss and Lloyd (2002). Utilizing a four part experimental design, Boudah et al. examined the instructional actions of teachers and students' performance in content area classes. As in the Klinger et al. (1998) model, teachers received training in the

teaching of four instructional strategic skills. In addition these same teachers were instructed in the process elements of co-taught classrooms in an effort to facilitate instructional parity between the special education teacher and the general education teacher. Prior to the training, the teacher teams spent an average of 8% (SD=5.25) of a class period mediating instruction. Following the training, this average increased to 22% (SD=9.44). The average number of role exchanges during a class period preceding training was 5 (SD=7.02). While following the training the teachers averaged 17 (SD=13.44) exchanges per class period. Following analyses using a series of one-way ANOVA's, results indicated that despite increases in the amount of time spent mediating instructional behaviors and more frequent teacher role exchanges, academic achievement for students with mild disabilities actually decreased (Boudah et al., 1997).

Utilizing qualitative methodology, Weiss and Lloyd (2002) also analyzed co-teaching in secondary classrooms. The authors compared the instructional actions of six special educators in co-taught classrooms with their actions when instructing as the primary teacher in special education classrooms. Data included classroom observations in both educational settings, teacher interviews and reviews of the teachers' journals. Employing grounded theory methodologies, data were analyzed to identify teaching roles and instructional actions. Results suggested that instructional roles and actions of special educators in co-taught classrooms differed from those in special education classrooms. While working in co-taught classrooms, special educators frequently assumed the role of an instructional aid by providing assistance to students at their desks and monitoring behavior, while the general education teacher took the lead in instruction (Weiss & Lloyd, 2002). However, in special education classrooms, the instructional actions of the special educator expanded to include more focused and explicit instruction on educational tasks. The results of the Weiss and Lloyd study mirrored those of

Zigmond and Baker (1995) case studies. In the co-taught classrooms instructional grouping was usually whole group and the co-teaching configuration was operationalized for special education students as monitoring and assistance with their class assignments.

In an effort to further the understanding of extant practices of co-teaching in secondary classrooms, Zigmond and Matta (2004) studied 41 co-teaching pairs in 14 high schools in rural, suburban and urban areas. Utilizing a naturalistic observation design, co-taught classrooms across content areas were observed using an author developed narrative observation protocol. At 5-minute intervals, the observers would describe the behaviors of the special education teacher (SET), the general education teacher (GET) and the students (Zigmond & Matta, 2004). The roles assumed by the SET were then analyzed and coded utilizing a four stage coding schematic. Results indicated that while the SET was engaged with the students (69.4%), the role was generally that of providing educational support to either individual or small groups of students. The SET rarely assumed the lead instructional role (5.7%). Further analyses of the SETs' interactions with students revealed that the educational support was coded as procedural assistance 41% of the time. Procedural assistance was defined as providing support related to students' behavior, attention or educational materials as opposed to providing any substantive academic instruction (Zigmond & Matta, 2004). When the SET was engaged in substantive academic support, the instruction was generally brief and situation specific. That is, the instructional role assumed by the SET seemed to be that of providing immediate assistance when the students were confronted with an academic problem. The instruction provided by the SET was not intensive, nor was it designed to facilitate mastery level learning (Zigmond & Matta, 2004).

Instances of the highly developed models of co-teaching as described by Friend & Cook (2003) or Vaughn et al. (1997) were observed only two times during 201 observations (Zigmond & Matta, 2004). The most commonly observed model of co-teaching consisted of an unrefined version of the Vaughn et al. (1997) tag teaching where the GET spoke and the SET briefly extrapolated upon the instruction provided by the GET. Absent during the observations was either carefully-worded elaborative explanations or explicit strategic instruction provided by the SET (Zigmond & Matta, 2004, p.27). Therefore, one of the major premises of co-teaching that student learning would be enhanced by the complementary instructional skills of the SET and the GET was not borne out in this study.

2.2.9.4 Research Base at the Middle School Level

Research concerning the instructional effectiveness of co-teaching at the middle school level, like that at the elementary and secondary levels is limited. A review located two studies. In 2002, Rea, McLaughlin and Walter-Thomas examined behavioral and academic outcomes for 58 eighth grade students with LD in two middle schools. Both schools resided within a single district but Enterprise students with LD (n=36) were included in general education that incorporated co-teaching, while Voyager students with LD (n=22) received resource room or pull-out instructional services.

The Rea et al. (2002) study compared student outcomes relative to the two educational models across a range of variables. Employing archival quantitative and qualitative data sources this descriptive inquiry evaluated student outcomes on: academic achievement, behavior, and attendance. Data sources for the students with LD at both schools included: IEPs, student evaluation reports, class schedules, attendance records, discipline records, report cards and student scholastic records. The data for each of the programs included reviews of the: teacher

planning documents, supervisor observation notes, teacher and student schedules and team meeting notes. Results indicated that students in co-taught settings out performed their counterparts in resource rooms on some measures. The students with LD at Enterprise earned higher grades and achieved higher scores on the language and mathematics subtests of the Iowa Test of Basic Skills (ITBS). There were, however, no statistical differences between the two groups on the reading comprehension, science or social studies subtests of ITBS. Further, the students with LD at Enterprise attended more days of schools and received fewer suspensions for behavioral infractions than the students with LD at Voyager. On the state proficiency test, results revealed no differences between the groups on the mathematics, reading or writing subtests. The authors concluded that students with LD are better served academically in co-taught classrooms than in the resource room (Rea et al., 2002).

Magiera and Zigmond (2005) also studied the instructional experiences of students with special needs in grades 5, 6, 7, and 8. This study compared the experiences of these students in co-taught classrooms with their experiences when the general education teacher was instructing alone. Eighteen students with special needs (15 LD and 3 OHI) were observed four times under each of the two conditions using a time-sampling protocol (Magiera & Zigmond, 2005). Observations were coded on five major levels: 1. student groupings; 2. student compliance, e.g. on/off task; 3. student interactions; 4. instructional interactions; and 5. management interactions. Results suggested that the educational experiences for the students with special needs were not appreciably different during the co-taught classes. Despite the additional support of a certified special education teacher, classroom instruction and management configurations between the two conditions were remarkably similar. Differences reached levels of statistical difference on only 3 out of 23 comparisons. This included significantly less interaction between the targeted

student/s and the general education teacher when the special education teacher was present. The targeted student/s also received significantly more individualized instruction and individualized management during the co-teaching conditions. However, analyses of the data indicated that the student/s with special needs received individualized instruction at most once per class during periods of co-teaching (Magiera & Zigmond, 2005, p.82). Thus, despite the additional presence of a certified special education teacher there were no significant differences found among the variables of student groupings, on-task behaviors or student interactions. As in the Zigmond and Matta (2004) study, the value of adding a special education teacher to a classroom is questioned.

2.2.10 Summary

Analysis of the literature reveals both problems and omissions regarding the current state of the research on co-teaching. First, the literature is dominated by descriptions of various co-teaching models and guidelines for their implementation. Factors that either promote or hinder the development of a successful co-teaching partnership have been investigated more thoroughly than those involving student outcomes. The results of the research have suggested that teacher personality, instructional style, communicative issues, and parity within instructional roles are among the critical variables (Mastropieri et al., 2005; Salend, et al., 1997; Trent, 1998; Wood, 1998). The relative importance of the variables of administrative support and common planning time remains less clear (Austin, 2001; Weiss, 2004; Zigmond & Matta, 2004). While some student outcomes have been reported within these studies, the academic changes were generally teacher reports using only descriptive terminology, such as improved, with little or no supporting evidence presented (Weiss, 2004).

The use of co-teaching as an instructional platform in inclusive classrooms has out paced the research base. Co-teaching has been studied more as a factor of place than as a model of effective instruction (Weiss, 2004). In their analysis of the co-teaching research, Zigmond and Magiera (2001) located only four studies (three at the elementary level and one at the secondary level) that employed empirically valid measures to assess the effectiveness of co-teaching with student outcomes and a control group. The results, on student learning, particularly for those students with disabilities were not impressive. These results were corroborated in the meta-analysis of the co-teaching research conducted by Murawski and Swanson (2001). A further factor confounds this void in the research on co-teaching. In 2 of the 3 studies, the academic focus was on reading achievement. The study by Klingner et al. (1998) also examined students' reading achievement in co-taught classrooms at a single elementary school. Research investigating other academic areas such as mathematics is necessary.

While co-teaching has been presented as a practice that may be readily implemented across all grade levels, there exists data that co-teaching may operationalize uniquely at different academic levels (Rice & Zigmond, 2000). Concern about the roles and responsibilities of special education teachers in co-taught classes at the middle and secondary schools has been voiced by professionals (Weiss & Lloyd, 2002; Zigmond & Matta, 2004). This concern stems, in part, from issues related to instructional and content complexity inherent in the upper level curriculums. Consequently, the most recent research on co-teaching has been focused at the middle and secondary levels (Boudah et al., 1997; Magiera & Zigmond, 2005; Mastropieri et al., 2005; Murawski, 2006; Weiss & Lloyd, 2002; Zigmond & Matta, 2003). Overall results have suggested that the special educator frequently assumes the role of instructional aide.

Interestingly, the unease about the roles and responsibilities of the special education teachers does not seem as readily apparent concerning co-teaching at the elementary level. Some may hypothesize that with the less complex curriculum, special educators may assume more important roles than their counterparts in secondary education. There is some evidence to support this supposition. In a series of five case studies of co-taught classrooms, the authors found that in the fourth grade science class, both the special and general educators assumed viable instructional roles (Mastropieri et al., 2005). That is, these two teachers frequently exchanged roles as the presenter during a hands-on ecosystem science unit. In the four other case studies that investigated co-teaching at the secondary and middle school levels, the parity witnessed in the elementary class was not observed.

However, there is also evidence to the contrary. Other case studies of co-taught elementary classrooms, proffer a bleak academic picture for students with disabilities. As reported in the Baker and Zigmond (1995) inquiries, instruction in these co-taught classrooms, while variable, was often undifferentiated whole group instruction with only low level accommodations and modifications for students with LD. These authors observed little instruction in these co-taught classrooms that could be depicted as best instructional special education practices.

In order to more accurately assess the relative value of adding the special education teacher to the elementary classroom, further research investigating the activities assumed by special educators during the practice of co-teaching is needed. This study is intended to extend the knowledge base on co-teaching by assessing the contribution that the special education teacher makes to the every day educational experiences of students in co-taught elementary

classrooms. The focus of this research is to document and describe the activities assumed by elementary special educators as they engage in their assigned co-teaching jobs.

3.0 STATEMENT OF THE PROBLEM

Co-teaching has become a popular service delivery model for students with IEPs as a way to increase inclusion of those students into general education classrooms. Theoretically, the practice of co-teaching integrates skills of the general education teacher (GET) with those of the special education teacher (SET). The GET is assumed to have strengths in whole group instruction and group management strategies as well as depth of content knowledge. The SET is thought to have strengths in diagnosing or assessing individual learner needs and in targeting instruction to address individual learning needs through a variety of instructional strategies. Co-teaching therefore should bring a wider range of instructional practices to the general education classroom.

The research on co-teaching however, has found little evidence that the SET actually draws upon her specialized skills while co-teaching in the general education classroom. At the secondary level, results of research on co-teaching roles and responsibilities suggest that secondary SETs often are compelled to assume the role of teaching assistant (Weiss & Lloyd, 2002; Zigmond & Matta, 2004). The adoption of this role is in part attributed to the issues of content density and complexity associated with the secondary curriculum.

Research addressing the roles and/or responsibilities of the SET at the elementary level is quite limited. In the series of elementary level case studies conducted by Baker and Zigmond (1995) results suggested that the SETs' responsibilities during co-teaching were varied. While at

times the SET did engage in team teaching with the GET, often times the SET “dropped in” to monitor and prompt individual students (p. 171). All of the SETs in the case studies expressed concern about being perceived as a guest in the general education classroom. This perception appeared to foster the impression from most GETs that the SET was “...no more than an extra pair of hands, equivalent to a paraprofessional” (p. 172). Some may argue that due to the less complex nature of the content taught in the elementary curriculum, the SET will engage in more significant teaching roles and assume more instructional responsibilities than her secondary counterpart. Others may argue that, as in secondary co-taught classrooms, the GET will continue to take the instructional lead, relegating the role of the SET to paraprofessional. Further research is needed to determine the actual roles and responsibilities of the SET in the elementary co-taught classroom.

In theory, there is no shortage of possible SET roles and responsibilities in the co-taught classroom. Advocates of co-teaching (e.g., Friend and Cook, 2003) proffer that the presence of both the GET (the content area specialist) and the SET (the learning needs specialist) in the general education classroom will sufficiently enhance instruction such that the needs of an academically diverse group of students can be effectively met. After reviewing the literature, Zigmond and Matta (2004) summarized the roles that the SET may engage in during the practice of co-teaching as:

1. Add comments to the instruction delivered by the GET to clarify the presentation;
2. Observe the students while the GET teaches;
3. Provide supplemental, supportive, or alternative learning activities to a group of students;

4. Take over instruction to relieve the GET;
5. Teach academic survival skills or strategies for addressing special learning needs;
6. Teach a different lesson or segment of a lesson to a part of the class;
7. Teach a parallel lesson to half the class;
8. Team-teach with the GET;
9. Tutor individual students or groups of students (p.58).

In order to better understand the efficacy of co-teaching, the purpose of this inquiry was to identify the contribution that the SET makes to the educational experiences of students in co-taught elementary classrooms. The objective of this research was to document and describe the activities inherent within the roles and responsibilities assumed by the SET during co-teaching in elementary school settings. Through naturalistic inquiry this research documented and described the activities assumed by the SET during co-teaching in elementary school settings.

3.2

RESEARCH QUESTIONS

The following questions guided this inquiry:

Research Question 1. How much time does the SET spend with students in co-taught elementary classrooms versus no student contact?

a. When with students, how much time is spent in lead teaching, team teaching, and individual or small group support?

b. Without contact, how much time is spent doing clerical work, planning, and observing?

Research Question 2. Do the activities assumed by the SET in co-taught elementary classrooms vary by content area (language versus mathematics)?

Research Question 3. What specific contribution does the SET make to the educational experiences of the students in co-taught classrooms?

a. What percentage of the SETs' interactions is coded as substantive instruction vs. procedural instruction?

As in the Zigmond and Matta (2004) study, the focus of this work was not on what may be accomplished by the SET in co-taught elementary classrooms, but rather what is accomplished when ordinary SETs engage in their assigned co-teaching job (p. 59).

3.3 DEFINITION OF TERMS

Several terms are utilized for this study on the practice of co-teaching. These terms are identified and defined as follows:

Individual or small group teaching- The SET assumes an instructional support role and provides supplemental assistance to one or several students while the GET teaches the main lesson and assumes sole responsibility for the flow of the lesson (i.e. moving the lesson forward).

Lead teacher-whole class instruction going on with the SET clearly in charge of the lesson (i.e., the GET is not the primary instructor of the lesson) or two lessons being simultaneously and the SET is the primary instructor of one of the lessons.

Procedural instruction-any teacher-student interaction related to how to do an activity, how to use classroom materials, or how to behave in class.

Substantive instruction-Any verbal contribution to the class that relates to learning and knowledge whether it comes in the form of new lesson material, reinforcing of previously taught material, or reviewing course content or testing.

Team teaching-whole class instruction with both teachers actively involved in the lesson. Both of the teachers contribute to the lesson flow (i.e. moving the lesson forward) by interjecting instruction and/or comments toward the entire class.

4.0 RESEARCH PLAN

The practice of assigning a special education teacher (SET) to work with a general education teacher (GET) in an inclusive classroom has been promoted by advocates as a research validated practice. Yet despite the growing popularity and determined implementation of co-teaching, the research base regarding both its instructional effectiveness and impact on student achievement remains extremely limited. While a solid research base exists concerning the educational needs of students with LD (e.g., Swanson, 2000), little is known about the actual activities that are undertaken by the SET during co-teaching, particularly in elementary classrooms. Therefore, the purpose of this research was to identify and describe the activities undertaken by the SET in co-taught elementary classrooms. The present study is a replication of a previous study at the secondary level reported by Zigmond and Matta in 2004. This inquiry sought to extend the Zigmond and Matta study in order to determine if similar results are found at the elementary level.

The definition of co-teaching used for this study was as follows: (a) two qualified teachers sharing the same classroom and students; one being a general education teacher and the other a special education teacher; (b) both teachers share responsibility for planning and instructing a diverse class, in which there are some students with disabilities that impact upon their capacity to learn; and (c) both teachers engage in delivering substantive instruction (Rice & Zigmond, 2000, p. 191).

4.1 PARTICIPANTS

This study used the practice of purposeful sampling for the selection of participants (Patton, 1990). This practice is frequently used in qualitative research in order to select samples that will provide information-rich cases. The target participants for this study were general and special education co-teachers in public elementary schools from one Intermediate Unit (IU) in western Pennsylvania. An IU is a governing unit of schools and this specific IU is comprised of 15 school districts that represent urban, suburban and rural settings. In order to identify schools that practice co-teaching, the Coordinator of Professional Development for this Intermediate Unit in (IU) was contacted. The Coordinator then identified six school sites that implement co-teaching. Letters explaining the research project were sent to all six of the schools. Two schools replied in the affirmative. One school was located in a rural district and the other school was located in a suburban district. Three of the four other schools did not respond to repeated telephone or email contacts and the fourth school implemented co-teaching only at their secondary school level. The demographics for the two schools that agreed to participate are presented in Table 1.

Table 1: Demographics of the Two Participating Schools

School	School Designation	Number of Students	Grades	Lunch Eligibility	Special Education	English Language Learners	Teachers Per Student
A	Distant: Rural	541	K-5	150 (28%)	70 (13%)	0	13
B	Suburb: Large	893	5-8	210 (24%)	189 (14%)	0	16

Once the two participating schools supplied documentation indicating their agreement to participate, teams of co-teachers that would provide an opportunity for an in-depth study of co-teaching practices were identified by the principal at school A and the supervisor of special education at school B. The researcher then contacted the co-teachers and invited them to participate in the study. Participation in the study was completely voluntary. Permission to observe in the classes was obtained from both of the co-teachers (see Appendix B for teacher permission form).

Eleven pairs of co-teachers, (9 GETs and 6 SETs) volunteered to participate in this study. The average teaching experience of the general educators was 13.5 years (range 1-36) and 5.6 years (range 3-12) for the special educators. One of the general educators was also a certified special educator who had taught special education for 12 years. One special educator was also certified in general education and had taught in general education for 5 years prior to becoming certified in special education. Two of the SETs shared a third grade special education position

and each taught with the same four third grade GETs. One SET co-taught in language arts during the morning and the other SET co-taught in mathematics in the afternoon.

Ten of the co-teaching pairs were each observed three times with approximately one week between observations. Because of scheduling difficulties, the eleventh pair was observed twice. Observations were conducted in language arts and mathematics classes in grades one, three, five and six. A total of 32 observations were completed, 21 of the observations took place at school A and 11 at school B. Observation times were arranged with either the co-teachers themselves or by the Director of Special Education. Observations were scheduled to take place during the co-teachers regularly scheduled co-teaching time for the entire period.

The classes ranged in size from 15 students (1st grade language arts) to 30 students (6th grade language arts). The percentage of students with disabilities to students in general education in these co-taught classrooms was on average 15% but ranged from no students identified to 37% of the class. Two classes, first grade and third grade language arts, had no students with IEPs, although the third grade had one student with a Section 504 plan and one Title 1 student. The SET that co-taught in the first grade reading class was assigned there as a preventative measure against the development of early reading problems. The class that was comprised of 37% special education students was the sixth grade language arts class.

4.2 DATA COLLECTION PROCEDURES

Each of the co-teaching pairs was observed by either the researcher or one of the two trained observers during their co-taught classes three times, excluding the one pair that was observed two times. Observations were conducted at approximately one week intervals during language

arts and mathematics classes. All of the observations were conducted during the spring semester of 2008. Table 2 shows the number of observations by subject area and grade level.

Table 2: Number of Observations by Subject Area and Grade Level

Subject	Grade 1	Grade 3	Grade 5	Grade 6
Language Arts	3	12	2	3
Mathematics	0	6	0	6

4.3 OBSERVATION PROTOCOL

The narrative observation protocol reported by Zigmond and Matta (2004) was used to observe the co-taught classrooms. This instrument requires observers to document the activities undertaken by each teacher in the classroom at 5-minute intervals. Two observers were trained to document teacher and student behaviors in narrative note form during co-teaching. The training took place over the course of one day at a laboratory school affiliated with the university in December of 2007. This specific site was chosen as each classroom employs both a veteran and novice teacher, thereby simulating a co-teaching condition. In addition to the researcher, two expert research associates from the university assisted in the training.

Prior to the training each of the participants was provided with instructional materials related to the study. The training materials included an overview of the study which outlined the goals and inquiry procedures. Models of the narrative observational notes as well as examples of these notes transcribed into text documents were also included. These materials were adopted in part from the 2004, Zigmond and Matta inquiry. The packet also included the definition of co-

teaching and descriptions of co-teaching models, specifically the one teach/one assist, parallel instruction, team teaching, station teaching and alternative instruction.

During training each trainee worked with both the researcher and one of the professional research associates. All observers documented equivalent role descriptions on both the SET and the GET for 89% of the 5-minute narrative segments. Inter-rater reliability was checked again, half way through the data collection period. Each observer independently joined with the researcher and double coded a co-taught lesson. Inter-rater reliability was determined to be 87%. The narrative notes were therefore judged to be reliable. Reliability was calculated using the formula $[\text{agreements} \div (\text{agreements} + \text{disagreements}) \times 100]$.

4.4 CODING OF OBSERVATIONS

Following the observations, the handwritten notes of each observer were typed and saved as text documents. These text documents were then read and coded utilizing the four level coding schematic developed by Zigmond and Matta (2004). Each 5-minute segment was read and coded by the researcher. Reliability was established by double coding 20% of the observations. The initial phase of coding required the researcher to determine whether or not the SET was present in the classroom. If the 5-minute segment did *not* mention the SET, that segment was coded in one of two ways. First, if the SET was clearly out of the room, had yet to arrive in class, or had stepped out to deal with a student, the 5-minute segment was coded as SET absent. Second, if there was simply no mention of the SET and no reason for the teacher to be out of the room, the segment was coded as missing data.

If the 5-minute segment *did* mention the SET, the second level of coding required the researcher to ascertain whether the SET was with the students or was *not* with the students. For example, if the SET was present and working with some or all of the students in any capacity the segment was coded as *in contact*. If the SET was present but was not working with any of the students that segment was coded as SET *not* with the students. For example, if the SET was observed doing clerical work, conferring with the GET or observing the either the lesson or students, then that segment was coded SET as *not in contact* with students

The next or third level of coding required the researcher to determine the specific activity of the SET or what exactly was the SET doing? If the SET was coded as *in contact* with the students at level two, next the researcher then coded the type of activity of the SET from among the following three co-teaching activities: 1. team teaching; 2. individual or small group teaching or tutoring; or 3. functioning as the lead teacher. A *team teaching* code was assigned if one lesson was in progress, and both teachers were actively involved in the lesson. For example, if the GET told students to put books away for a test and the SET then told the students that they knew the procedure for tests, that segment was then coded as team teaching. A team teaching code was also used if the students were given an assignment to be completed either individually or within groups and the GET and SET rotated among all of the students. For example, if groups of students were given problems to solve with Cuisenaire rods and both teachers worked with all of the different groups, the code of team teaching was assigned.

The code of *individual or small group teaching* was assigned if the SET was providing supplemental assistance to one or several students while “something else” such as the main lesson was proceeding. For example, if the GET was demonstrating a problem to the whole class

on the board and the SET was providing individual instruction on the same problem to one or more students.

The code of *lead teacher* was assigned if there was whole class instruction and the GET was not the primary instructor, or when there was little or no mention of the GET in the 5-minute segment and the SET was in charge of the lesson. A code of *lead teacher* was also assigned if two lessons were being taught simultaneously and the SET was the lead instructor of one of the groups and the GET was the leader for the other group. For example, if the whole class was randomly divided into two groups of approximately equal numbers of students, then the *lead teacher* code was applied. The *lead teacher* code was assigned regardless of whether the instruction took place in the GET's classroom or if one group moved to different classroom such as the special education room.

If the SET was *not in contact* with the students, the researcher coded the activity of the SET from among these three options: 1. observing, drifting, or taking notes; 2. doing clerical activities (taking attendance, talking on the telephone, grading papers, working on a computer); or 3. conferring with the GET.

The fourth level of coding required the researcher to determine whether the SETs' actions were to be coded as either substantive or procedural. Procedural instruction included providing support related to the student's behavior, attention or educational materials. For example, if the SET directed a student to the correct math problem or story line, instructed the student to focus on what the GET was explaining, reiterated instructions of the GET, or admonished a student to stop talking or to turn around in his seat, the segment was coded as procedural. Substantive instruction on the other hand was defined as providing specific instruction related to learning and knowledge. Examples of substantive instruction included systematically cuing student through

steps of a math problem, reviewing test-taking strategies, posing reading comprehension questions or written language instruction. (Figure 1 presents the coding schematic.)

Coding Schematic for SETS' Activities

Coding Level	
Level 1	Is the SET? (Choose one) a. Present b. Not Present
Level 2	If the SET is present, is the SET? (Choose one) a. In contact with students or b. Not in contact with students
Level 3	A. If SET is in contact, what is the SET doing? (Choose one) 1. Lead teaching 2. Team teaching 3. Individual/small group instruction B. If the SET is in not contact, what is the SET doing? (Choose one) 1. Clerical 2. Observing 3. Conferring with GET
Level 4	If SET is doing one of the activities in 3A, what type of contribution is the SET making? (Choose one) a. Substantive b. Procedural

Figure 1: Coding Schematic for Special Education Teacher Activities.

Only one set of codes was assigned to any 5-minute interval per the protocol directions. If more than one code was applicable than the protocol directive required that the segment be coded as the most active role being assumed by the SET. Zigmond and Matta (2004) provided the following examples to illustrate: assign a “contact” code over a “no-contact” code; favor lead teacher over team teacher; favor substantive over procedural; and to favor observing over planning or clerical work (p. 61).

One of the two other observers was taught how to analyze and code the 5-minute narrative segments according to the coding protocol. When this observer consistently reached 85% reliability rate with the researcher, 20% of the 5-minute segments were randomly picked and then independently coded by the assistant and the researcher. Reliability for the coding of these 5-minute segments was again established using the formula: $[\text{agreements}/(\text{agreements} + \text{disagreements}) \times 100]$. Reliability on the 20% of the double coded segments was calculated to be 95%. Thus the coding was judged reliable.

5.0 RESULTS

The purpose of this study was to identify the contribution that the SET makes to the educational experiences of students in co-taught elementary classrooms. In the end, 32 observations were conducted with 11 pairs of co-teachers across 11 co-taught elementary classrooms. Of these 32 observations, 20 took place in co-taught language arts classes and 12 were in co-taught mathematics classes. An activity code for the SET was assigned to a total of 307 of the 5-minute narrative segments, while 14 segments received codes of either SET absent or missing data.

5.1 THE ACTIVITIES OF THE SET

In order to assess the value-added or the contribution that a SET might make to a co-taught elementary classroom, this observational inquiry documented the SETs' activities during the practice of co-teaching. The activities of the SET were initially coded as either: 1. in contact with the students; or 2. not in contact with the students. These two categories were then delineated further into one of six activities that the SET might engage in during co-teaching. Specifically these activities included: 1. lead teaching; 2. individual or small group teaching; 3. team teaching; 4. clerical work; 5. conferring with the GET; or 6. observing, drifting or taking notes. Table 3 presents the frequency counts and percentages for both the categories and for each of the six activities of the SET. As seen in the Table 3, the SET was more likely to be *in contact*

with students than *not in contact* with the students. Overall, the SET was with the students 85.5% of the co-teaching time or 262 times out of the 307 5-minute segments. The SET most frequently assumed the lead teacher role (39% of the time or in 120 of the 5-minute segments). Following lead teaching, the SET was most frequently identified as engaging in small group or individual support (27.3% of the time or for 84 of 262 segments). Team teaching was the least frequently observed (18.8% of the time or during 58 of the coded 5-minute segments). Additionally, the SET spent a limited amount of time doing either clerical work (2.9%) or conferring with the GET (2.2%). The SETs also spent about 9.4% of their co-teaching time observing, drifting, or taking notes.

Table 3: Distribution of 5-Minute Segments by Activity Code

	Contact with Students				No Contact with Students			Total	Overall
	Lead	Ind/Sm	Team	Total	Clerical	Observing	Conferring		
#	120	84	58	262	9	29	7	45	307
%	39	27.3	18.8	85.5	2.9	9.4	2.2	14.5	100

5.1.1 Taking the Lead in Instruction

The data set indicated that the SET quite often assumed the role of lead instructor during co-teaching. Out of the 262 narrative segments where the SET was *in contact*, 120 of these segments were assigned the code of lead teacher. Analyses of the narratives however revealed that the lead teacher code encompassed three different types of “lead teaching.” In the first type, the SET assumed responsibility for the entire class in the general education room while the GET

observed. In the second type, the class was divided into two groups and the SET and the GET each taught a group within the same classroom. In the third type, the class was again divided into two groups but the SET took his/her group to a different classroom for instruction. In the following sections are examples from the observational narrative notes that illustrate each of the three different approaches to SET lead teaching.

5.1.2 SET Leading Whole Class Instruction

In the first type of lead teaching, the SET assumed instructional responsibility for the entire class within the general education classroom. This type of lead teaching occurred in only 19 of the 120 (16%) lead teacher segments. Furthermore, out of these 19 segments, 8 occurred when the GET was either out of the classroom or not represented in the coded segment. In 7 of these segments, the SET assumed responsibility for whole class instruction only intermittently throughout the scheduled co-teaching time.

Lead teaching, in which the SET presented an entire lesson was recorded only one time and was limited to 20 minutes or 4 narrative segments. The observation in which this occurred was in one third grade language arts class. Previously this specific co-teaching pair had divided the class into two groups and instruction of both groups had proceeded simultaneously within the general education class. They had also engaged in team teaching during one of the three observations. The observation of this *third grade language arts class* in which the SET taught the entire class developed as follows:

10:25 SET and an observer went to the general education classroom. SET and GET briefly conferred, GET called students to return to their desks. SET said, “Good morning!” GET is at the blackboard. The SET apologized to students if

she called any students by the wrong name. *The SET continued, “We have a new story, starting on p. 316.”*¹ SET quieted the students and then tells the students if they get quiet, they will be able to do “popcorn reading.” (Student who has finished reading orally selects next student who is to read). GET is drawing a diagram on the board. SET tells the class that they are going to focus on new words, “First read the highlighted words.” SET asks the class if they have heard the words, plot and setting. Student responds that it is what’s happening in the story. GET is now observing. SET asks what setting means. A student says where it takes place. SET says that I know the reading teacher does strategies with you and asks students to define a strategy. A student responds, “You use it to find out something.” SET tells class to open books. SET calls on a student to be the first reader, but the student declines to read. SET picked another student and the student read orally. Student who read picked the next student for popcorn reading. SET is in the front of the room, with the teacher book. GET is walking around observing. GET also passed out good behavior tickets.

10:30 A student says, “I know the problem.” SET replies, “Not yet, hold onto that problem.” Next student reads. The GET is circling and observing. *The SET is in front of the room and says the case is solved and asks the students what they think about how the story ended. SET continues to ask questions about the story.* GET is observing. SET tells that class that they are thinking too hard. SET continues with questions and then tells class that there are two different ways or strategies that they can you to figure out plot and setting. SET forgot the word

¹ Italicized sentences indicate sentences that prompted the code assignment.

and GET supplied-graphic organizer. SET asks the students why the setting is at the beginning of the story. Student responds so you know where it takes place. SET continues, “Your job as a reader is to do what?” A student says, “Paint a picture in your head.” SET presented examples such as going to the beach on a hot day and going to a carnival. SET reiterated to the students how important it is to paint a picture in their heads. GET continues observing.

10:35 *SET tells the class that they need to connect to the story. SET continues by reading (the story aloud) to the class.* GET is now on the side of the room. SET say to the class, “You need to use clues, don’t guess, fill in the graphic organizer.” SET cued the student to the telephone clue then filled in the rest of the graphic organizer. SET told class that this story is short, so you might get the setting right away. Some students are talking and the SET asks class, “Who is talking?” (This was addressed to the student who was talking). The students responded, “You.” SET continues with the importance of using strategies. SET tells the students that we ran out of time. The SET quickly went through words on the handout. The SET asked what rising action is. A student said it might be the action that interested you. The SET said in this story the setting is in the introduction.

10:40 *SET continues teaching and goes over vocabulary words, but very very quickly.* GET is observing. SET asks what resolution means; SET asks students what word is tucked in? A student said, “Solution.” SET asks what the climax of the story is. A student responded the mixed up letters. SET said, “Awesome.” SET asked if they could use the graphic organizer to make a summary of the story. SET finishes up and tells the students that they did a nice job. SET tells

the students that she is sorry that they didn't get to fill in the handout. SET asks if it is time for specials. The GET says, "Yes." Students line up at the door after putting things away. SET leaves.

Thus, in the first type of lead teaching, the SET assumed primary responsibility for whole class instruction. However, this type of lead teaching was the least often observed.

5.1.3 Two Groups One Room

The second type of lead teaching involved the SET and the GET each simultaneously teaching his/her group within the general education classroom. This type of lead teaching occurred in 47 of the 120 (39.1%) lead teacher 5-minute narrative segments and was observed in both language arts and in mathematics. In mathematics, the SET taught some new content and also conducted reviews of previously learned material. In the language arts classes, the SETs taught beginning reading skills and test-taking strategies. The following sections present scenarios from two third grade mathematics classes, one first grade language arts class, and one third grade language arts class. The initial observation of a *third grade mathematics class* illustrates both instruction of new content and review of previously learned material. Initially the GET and SET conferred about the lesson.

12:15 GET calls his group from the previous day to come to the front of the room.

Eight students bring their math books and go to the GET. *SET tells the other students, "My group, look at me, bring your white boards over here."* They go to the back of the class. Students sit on the floor, there are a few student chairs and a small bean bag chair. Eleven students went to the SET. (At the end of the

observation the observer was told the groups had been randomly chosen and that the GET and the SET both taught the same content.)

12:20 *SET tells his group to open book to page 144. SET tells his group that tomorrow, there will be a quiz on adding, so we will review.* SET writes $65 + 18$ (vertically) on his larger white board. The SET asks what the first step is and a student says add the 5 and 8 and put down the 3. The SET asked for the next step. A student says to add the $6 + 1 + 1 = 8$. At 12:23, the SET says that he (the student) mentioned 10, what does he mean by that? The SET demonstrated by drawing lines between the one and tens place. The SET told his group that we get 8-10s and 3-1s. The SET writes $43 + 81$ and tells the group to add the ones and then add the tens together and you get 124. The SET tells the students to try number three on your white board. A student asked a question and the SET said good question, do you have to write it like they did in the book or like we did it? The SET told the students that you can do it either way.

12:25 GET is working with her group in the front of the room. *SET tells his group not to erase, yet. The SET then asks if everyone is done with the problem. The SET tells the students to show him their white boards.* SET told the students that everybody has 75, that's how much they add up to. The SET tells his group to try number four. The GET tells her group to try a new strategy. GET instructs her group to line the numbers up in the same space and remember to use the vocabulary that we want to use. SET asks a student where he got 13? The student replied from $5 + 8$.

12:28 *The SET tells his group to hold up their boards and asks who can tell me what they got; $54 + 68$ is written vertically on his board.* SET then says let's look at B, add $12 + 110$, how did we get those numbers? Look up here and put your pencils down. SET again draws line separating one's, ten's and hundred's columns. He shows that $4 + 8 = 12$ ones and $60 + 50 = 110$. The SET tells the students that we just broke the problem up. The SET continues that $110 + 10$ ones equal another 10, so the answer is 122.

During the next portion of the observation the SET worked on estimation skills with his group:

12:35 *The SET tells his group to do number six on their boards. The SET writes on his board 599, and asks what estimate means.* The SET continues that 599 is almost what number? A student responds 600. Next, the SET asks 923 is almost what number. A student says 900. The SET say $600 + 900 = 1500$ and the real answer is 1522, so you see we are very close.

The observation continued with both the GET and SET emphasizing learning strategies in their respective groups.

12:50 *The SET tells his group that number nine is a word problem. SET reminds his students to draw a picture to help them.* The SET asks a student to read. The GET is working with her group and again talking about strategies. After a student reads the problem the SET tells his group that if it helps you to draw a picture then do so. The SET continues that he would draw Julio with 12 raisins and Keri with 6 raisins. The SET showed the students how to draw a graph. The GET showed her group a student's work and asked, "Is it lined up correctly?" GET

tells the student his work is awesome and that the group is ready for the quiz, tomorrow.

12:55 The *SET* reads the problem, *if Julio ate 12 (raisins) and Keri ate 6 more (than Julio), how many raisins did Keri eat?* So Keri ate, SET paused and then said 18. How did you know when to stop counting Keri's raisins? The SET then said to his group, when you get to 18. The SET says that the problem is really asking you, how much more is 18 than 12. The SET demonstrated with a graph and pictorial representation on his white board.

12:57 *The SET tells his students to open up their workbooks to page 12.* An aide came into the class and crossed to the far side of the room. The aide took a box and went to the back of the room and began working on some folders. GET asked her students, "Do they tell us what strategies to use? Just like in reading, the authors don't tell us exactly what is happening, they give us clues. This also happens in math. You have to read the problem and get the best strategy. What was the word we used? Inference, you are using inference to determine what strategy to use."

With another co-teaching pair in an observation of a different *third grade math class* instruction consisted of a review of multiplication facts. As in the above scenario, the GET and SET are each teaching a group within the general education classroom. The observer noted:

1:15 *SET explains to his group that they are getting flash cards with a large silver ring to hold them.* The SET tells the students in his group to put their name on each card. GET is doing the same thing with the flash cards. The SET tells his

students that at first the cards will be in order, but after a while, you want them out of order.

1:20 *The SET tells his group of students to put the cards on the ring, one at a time. SET tells the group, "If anyone is having trouble, let me show you."* GET continues with the same procedures with his group. The GET and SET tell their groups to get with a partner. SET works with a female student who has a 504 plan. When she cannot get an answer, SET tells her to count on her fingers and the SET demonstrates. The GET is also practicing with a student. The students seem to be very familiar with these math facts.

1:25 *Both the SET and GET continue with the flash cards; students have been working with their partners.* Several students in both groups are drifting back to their desks or other places. These students appear to know these multiplication facts. The SET continues working with the same student.

Co-teachers also divided the class into groups for within-class group instruction in language arts. In one first grade classroom, the SET taught several groups in what was designated as Guided Reading. The groups rotated among the GET, the SET, and the Title 1 teacher and this configuration was considered to be co-teaching by both the teachers and the school administration. Co-teaching in this *first grade classroom* looked like this:

2:00 GET in the room and the SET enters. GET tells the SET that we are trying to get M caught up. There are five reading groups. GET is in the back of the room at a table with four students. SET is at the side of the room, he sits on a chair and three students sit on the floor. *SET tells students to have a seat and look at the book title. SET tells a student to read the title.* Student reads orally.

Students then take turns reading orally (round robin reading). SET tells the students that letters *ph* make *fa* not *pa* sound. Some students are at their desks working on independent reading and have small packets of books.

2:05 Title 1 teacher comes into the class and three students go from their desks to join her on the right side of the room. She is in a chair and students are on the floor. GET and SET continue to work with their individual groups. *SET tells students to look at the next page and use your pointing finger to follow along.* SET asks students, “How do we get to school? What is a way kids get to school?” Students tell him by bus or car. SET has a small dry erase white board. SET writes the word graph on the board. SET tells students that the *ph* is a digraph. SET asks, “Do we have any graphs in here?” Students look around for graphs. SET tells them they might use a graph in the morning for weather or other things in class.

2:10 GET has students change groups. SET also changes his group. Title 1 teacher kept her group but changed reading book. SET began with the new group. Students know the routine and are focused. *SET tells students to turn page and asks students what kids in the book are doing. SET reminds student to raise their hands.*

2:15 SET follows along while students continue round robin reading. SET does not have his own book; he then uses one of the student’s books. *SET tells the students to make a prediction.* SET asks, “What does the boy in the story bring? Does he have 100 pennies? Turn the page and find out. Let’s count, how many pennies are in each group.” SET tells students in the group that they did a good

job counting. A young woman comes into the classroom, goes to the Title 1 teacher and takes a student out. The noise level is increasing. Students working independently read aloud to themselves, although fairly softly. SET picks up white board and writes Kate and tells students that an, *e*, on the end of the word makes the vowel sound long. SET asks a student, “What’s her name?” Student replies Kate, saying it correctly. SET asks students, “What is the pattern, here? The kids in the book have 100 pennies, how many stickers do you think they will have? Look back in the book.”

During the observation, the instruction within the groups continued and the SET resumed the phonics lesson as follows:

2:25 SET asks student what a word is and tells him it has that sneaky e, so the word is take. SET tells the student to keep reading and SET provides the word giant. SET tells his group to think back to what we have read.

During the second and third observations of this same first grade classroom, the SET continued to teach the rules of phonics. For example, one week later the observer noted:

2:00 SET and observer enter the classroom. The GET is at her desk working with one student. GET moved to the table at the back of the room. SET motioned to some students. SET said, “Let’s not open the book yet, but look at the title page.” The SET murmured, “I think we have read this book before.” SET discussed title page. SET asked why the word was race, with a long a sound and not rac with a short a sound. SET discussed that it was because of the silent e that we talked about all last week. The silent e makes the vowel say its name. SET told students to open book to first page and told a boy to start reading. After the student read,

the SET asked student who was in the race. SET told student to look at the pictures to help them.

And during the subsequent week the following was observed:

2:10 SET tells student to use their pointing finger. Student read apples were rip. SET repeated. SET then said, "There's an *e* at the end of the word, what does that do to the *i*?" SET tells the student, "Go back and read it one more time." Student correctly pronounces the word *ripe*. SET asks what "*ripe*" means. No response from the students. SET says that most apples are ripe when they are red, not when they are green. SET asks in what season are apples ripe. Student looks at the book and says, "Fall." SET said to the student, "You went back and looked at it-very good." SET tells that student, "OK, next page." Student starts to read and SET says, "Stop, stop you're making it up, slow down." The student complied. SET told the student, "You read every word! All you have to do is slow down and read; very good."

In one other observation, class division was again observed and was the norm for this co-teaching pair. During this observation of a *third grade language arts class*, the SET taught test-taking strategies to her within-class group.

10:15 SET and two observers went to the GET's classroom. GET tells the class that the SET will let you know who is in her group. GET says that my group needs pencils and the SET say her group will go to the back of the room. SET tells the students that it will be the same group as yesterday. GET meets with her group in the front of the room. SET is in back of the room; there are two students on the floor, two students in chairs and one sitting on a stool. There are several

students doing independent reading at their desks. At the back of the room there is a flipchart that is commercially made with test taking strategies on it. *SET tells her group that she needs them to show her some good strategies. SET tells the students that today our purpose is to review strategies.* SET passes out a booklet to each student. SET thanks them for following directions and bringing their pink and yellow highlighters.

10:20 SET reminds students that their eyes should be on the speaker. *SET told her group, "When you take a test, say a reading test, what strategies do you use?"* A student responds, "I go and read the questions first." Another student replies, "Author and Me." SET asks, "How do you figure it out?" SET tell the students you make predictions and inferences, the author doesn't tell you here's the inference so you have to figure it out. A student says use your yellow highlighter for reading and your pink for "Author and Me." SET reviews three strategies: "Author and Me," "Right There," and "Think and Search."

10:25 *SET continues when the reading teacher works with you, it is always the yellow (highlighter) for reading and pink (highlighter) for writing.* The SET tells the students that they can reverse them. Strategies need to work for you. SET then holds up yellow laminated story questions and has a student explain them. SET asks the students that before we start taking the test is there anything else that you see up here? SET continues by reminding students to eliminate answers that do not make sense. The SET then showed multiple choice questions and asked, "Can you use that strategy on multiple choice questions?" SET told the students to keep a positive attitude and not to give up, as they may get it next

time. GET is working with five students. SET reminds the students that they should also use the heading when reading.

10:30 SET tells the student to turn in their booklets to p. xx (inaudible). *SET told the students to look at the questions first, "What type of questions does the test ask for?"* Then students took turns reading, each student reads one paragraph. SET asked the students to tell her the main idea from the paragraph.

10:35 GET dismisses her group. *SET told her group, "Let's finish the story."* *SET finished by reading out loud to her group.* SET told her group that they were very good using their strategies. The observation concludes.

In this second type of lead teaching, which occurred when both teachers taught in the same classroom, the SET sometimes taught new content and at other times reviewed previously learned material. During these observations, observers noted that for the most part the instructional content was similar for both the GET's group and the SET's group. However, at times the GET asked the SET to work on specific content or skills with his/her group.

5.1.4 Two Groups Two Rooms

The final type of lead teaching occurred when the SET took his/her group to a separate classroom for instruction. Of the 120 lead teaching segments, 54 involved such "pull-out" practices (45%). For 2 of the 11 co-teaching pairs this physical move was frequently to a special education classroom. The SET would initially go to the general education classroom and then gather his/her assigned students and take them back to the special education room. Sometimes the group was comprised of randomly chosen students while at other times the selection of pull

out students was more purposeful. This is illustrated in the following excerpt from narrative notes taken in one *third grade language arts class*.

9:35 The students sat at two adjoining tables in the special education room with the SET at one of the tables. *SET went over the classroom rules. The SET had a large magnifying glass and told students it was used to look for clues.* SET asked students for another word for prediction and the students replied inference. SET explained that an inference was a prediction from using clues.

9:40 The *SET then presented the story line for today's lesson.* The story involved a group of monks going into a village, a village that did not have enough food. *SET asked the students how the villagers might feel about the monks.* A student provided the answer of scared. The SET then asked the student what strategy he had used to get the answer and the student replied a "picture walk." The SET then called on a female student to begin reading the story. After the student read, the SET told her to pick next reader. The SET supplied words to students when they struggled.

This reading lesson continued for the next 15 minutes with each student reader choosing the next student to orally read. After a student read, the SET would ask the group comprehension questions and query the meaning of unfamiliar vocabulary words. The observation then continued with:

9:55 *The SET discussed the meaning of the word assimilate and then the next student read orally. The SET asked if the new character, a girl, was like the other characters in the story.* The SET discussed that the girl had gone out to meet with the monks; the SET then asked what the girl's actions tell us about her. The SET

used her large magnifying again to focus the students. The SET told the students that there are other clues right in the story. SET asked why the mother wanted to make soup and reminded the students it is during a famine. A student answered so that she can feed people. The SET told the student/s there is your big inference.

10:00 *The SET explained that they were running out of time, so the SET will finish the story by reading aloud to the students.* A student asked about the cat in the story and the SET asked him if the cat was a main character. The SET redirected the student by telling him that we are not talking about that now.

10:03 A teacher came into the room and sat behind the boy wearing the yellow and gray sweatshirt. The observer was told later that the teacher is the emotional support teacher. This teacher repositioned the student in his chair. *The SET asked the now quieted boy a question about the story to get him back on track.* The SET continued reading orally and asked more comprehension questions.

10:05 The SET asked the students if the stones would add flavor to the soup. *The SET then closed the lesson by reviewing how they need to look for clues when they get back to their classroom.* The students then returned to the general education classroom by themselves.

In another version of this kind of lead teaching, the class was split during the co-teaching period. For example, in a *sixth grade math class* on supplementary angles, the SET took 13 of 30 students to the special education room.

10:50 SET: *“Let’s go nice and slow, stop me if you can’t get it. Who remembers what to do?”* (SET) walked students through each step. The SET asked, “Do you want to do another one before we go back?” (All stayed).

The observation continued with the SET continuing to work with the group of students for another ten minutes. The SET then released the students after she had checked each student’s work. However, three students did remain with the SET in the special education classroom for further instruction.

A review of the narrative notes also indicated that dividing the co-taught class in two different rooms frequently involved student assessment as in the following excerpt from a different third *grade language arts class*. The students are practicing for an upcoming statewide evaluation. The SET and the observer met in the special education room. The GET sent a group of students to the special education room.

9:25 Ten students entered the special education room. *The SET then reviewed strategies for test taking. The SET asked students how they would figure out a word that they don’t know.* SET coached them to look around for A student says that if you see a letter, then you can check and see if you can put it on the word. SET then asked what if you don’t know what it means; have you heard of context clues. The SET continued with, “You can understand the word by reading the other words in the sentence.” Next, the SET asked the students about another strategy taught by a different teacher. Students replied “Think and Search.” The SET then reminded them to use their yellow highlighters for reading. The SET also asked students about the “Author and You” strategy and

told the students that they needed to think, imply and infer. The SET then asked about writing questions.

9:30 *The SET told students to use the pink highlighter for writing.* The SET reminded students that this was for a grade so she could not help them but she could remind them to use strategies. SET told the students to first go to the reading questions and then go back and read the passage.

9:35 *The SET told a group that they could use their pencils to underline, and that they didn't have to use a highlighter.* Students continued working on the test. *SET told students that if you are stuck, it is OK to skip them (question/s).* SET observing the students and walking around. The SET told the students that if the strategies are taking the whole time, you can skip them, as they needed to be reading the story now. At 9:39 an aide came into the special education room. The SET helped a student who was having trouble with the test.

At this point during the observation, the SET spoke with the observer and explained that some of these students had been sent to take the test in the special education room because the GET thought that they might require extra help. The SET also informed the observer that one of the students has an IEP. A few students completed the practice test and the SET collected their tests. The SET then carefully reviewed the tests and afterwards explained to the observer that she is rarely allowed to evaluate students' exams. The SET explained that it is a part of the picture to which she is not privy. (These 5-minute narrative segments were coded as the SET *not in contact* with the students and performing clerical work.) At the conclusion of the observation, two students remained in the special education room and continued to work on their tests. The SET prepared to leave the special education room and planned to return the tests to

the GET while she proceeded to her next assignment. An instructional aide entered the special education room and assumed the responsibility for the supervision of the two lingering students.

In sum, this type of lead teaching occurred in two separate classrooms where each teacher led his/her own group of students. In these instances the observer only recorded the SET's lesson.

5.1.5 Summary: Lead Teaching Activities

In summary, lead teaching consisted of three unique types of teaching activities: the SET assuming sole responsibility for whole class instruction; two groups in one instructional space; and two groups in two separate rooms (see Table 4). Analyses indicated that out of the 120 total lead teacher coded segments, 101 or 84.1% consisted of group instruction in which the GET and the SET each taught a separate group. Further scrutiny revealed that the SET was observed lead-teaching a within class group during 47 of the 120 lead-teaching segments (39.1%); additionally, the SET was observed lead teaching a group in a separate classroom for 54 of the 120 (45%) of the lead- teaching time. On two other occasions, the observers noted that the GET and the SET conferred about whether to separate the class into two groups for instruction but then opted not to do so. Assignment of the students into groups was usually random, but at times either the GET or the SET reported assigning a student who might “need extra help” to the SET's group. Also, students with special needs were often included in the group being taught by the SET.

Although instructional delivery and pacing varied across pairs of co-teachers, instructional content was generally the same for both groups in both separate and with-in class experiences. At times the GET would ask the SET to work on a specific assignments or skill with his or her group.

Table 4: Distribution of 5-Minute Segments by Activity Code

				Contact with Students			No Contact with Students				
				Lead Teaching							
	solo	2 groups	2 rooms	Ind/Sm	Team	Tota	Clerical	Observing	Conferring	Total	Overall
#	19	47	54	84	58	262	9	29	7	45	307
%	6.2	15.3	17.6	27.3	18.8	85.5	2.9	9.4	2.2	14.5	100

5.1.6 Individual/Small Group Support

If the SET was with the students and was not engaged as a lead instructor, s/he was most likely to be providing support to either individual students or small groups of students within the general education classroom. This code was assigned 27.3% of the time or in 84 of the 307 of the coded segments. In order to be coded in this category, the SET had to be providing support to either one individual student or several students, while the GET taught the main lesson or “something else” was going on in the classroom. This co-teaching configuration was observed during both instruction and assessment. The following sections present scenarios from: one third grade math class (two different observations); one sixth grade math class; one fifth grade language arts class; and three third grade language arts class.

During one *third grade math class* students were in preformed small groups. The observer noted:

12:30 GET tells the students to take things off their desks and get their math books. SET has just finished working with one female student on a writing

assignment. GET tells the students to turn to page 156 in their math book. *SET turns the page for the same girl he was working with on writing.* GET says yesterday you did problems 7 through 18. There were problems with subtracting across with zero and you haven't had that yet. The GET has the teacher manual. The GET then tells the class, "Today we will practice." He writes the problem: $105 - 26$ on the board. GET asks the students if I have 5 markers in my hand, can I give you 6. If no, then you have to regroup. SET is watching. GET then illustrated regrouping from the 10's place. GET asks students, "What do we do next?" A student tells him to cross out the one. GET asks what you are doing when you cross it out. GET cues them and student say regrouping.

12:35 GET continues with the problem. *SET is assisting student on the side of the room.* GET discusses place setting and what each place stands for. GET asked student for the answer to the problem. GET then says take one set of 10 away. What is $15 - 6$? SET is observing. GET finishes demonstrating the problem.

12:40 GET tells students to take out a sheet, and I am going to give you a problem. Then (the SET) and I are going to watch you work it. (The problem is $502 - 173$). *SET talked to one small group of students. SET told them to look at the problem on the board.* GET works with one student and demonstrates the problem. SET is observing different small groups and tells the students to do the problem. SET asks them if they have finished it. SET tells them very good. SET then checks the work of another group of three students. Student calls SET over. SET tells student to make sure that the 2 becomes 12.

12:43 GET continues working with the same student. *SET is working with a girl and is showing her how to do the problem. SET cues the student through the problem.* SET then checks the problems of the next group. SET is going around to all groups. The GET continues to work with the same student.

12:45 GET asks, "Is anybody still working?" *SET walks to same student experiencing problems. SET tells the student that the 2 becomes 12, see what I mean?* SET tells another student to turn around. GET is at the board and tells a student to talk them through the problem. SET continues working with the same student and SET points to GET at the board. GET cues students through the problem. GET makes intentional mistakes. GET tells the students that the answer is 329 and asks if everyone got that?

The observer noted that the SET and GET both spent much of their time working with either one of two students. It was later learned that one of the students was a Title 1 student and the other had a 504 plan.

During a different observation of the same co-taught third grade mathematics class, the SET initially worked with an individual student on mathematics problems at the student's desk. The other students were either reading or doing independent work and were scattered about the classroom. During this second observation of the *third grade math* class, the observer noted:

12:40 GET demonstrates a correct and incorrect problem for the class. SET checking the work of individual students. SET continues checking and observing. GET writes a new problem on the board- 9×4 . SET say to class 9 groups of 4 or 4 groups of 9. *SET then provides individual help to students.* Both GET and SET are checking the work of individuals.

12:45 *SET is working with the student with a 504 plan.* GET is with female student in the back. (The observer was later told that this student is a Title 1 student.) GET then goes to check on a different student. SET remains with the same student and is demonstrating (the problem) for her. She had only 1 group of 9. SET is showing her that she needs 3 more groups of 9. GET is disciplining a couple of boys and tells them not to play with the blocks or they will be taken away.

During the next ten minutes of the mathematics class, the class continued with the GET providing a challenge problem for the students and then both the SET and GET provided individual and small group assistance to the students. The observation concludes with the following:

1:00 GET and SET continue working with groups and individual students. *The SET goes to the student with the 504 plan and the GET goes to the Title 1 student.* The GET gives another challenge problem (9×3). An aide comes into the room. Students are very engaged and GET gives one more problem that asks the students to provide a different array for either 9 or for 3. Aide is now walking around and helping individual students. At 1:05 the SET per schedule leaves for a different classroom.

Similar patterns of co-teaching were noted during an observation of a sixth grade mathematics class. Initially, the SET observed from the side of the room, while the GET presented a problem at the blackboard. Then the SET went to the students with their hands raised to provide assistance. As in the third grade class, some students required and received

more individualized assistance than others. The *sixth grade mathematics class* proceeded as follows:

9:50 SET has now moved to the back of the room. GET is still at the front of the room at the board and working on the same equation. SET says, “You’ve got 50 cents and you take away a dime.” *SET went over to a female student and told her to multiply from left-to-right.* GET starts the next problem.

The observation continued with the GET at the board and the SET in the middle of the classroom. During the next several 5-minute narratives the following activities of the SET were noted:

9:55 *SET is checking the answers of two students in front of room by him. . .*²

10:10 *SET goes back to observe the same two girls. . .*

10:20 Students are working with partners. SET talks to the aide and the aide then goes back to help a student. *SET goes back to the two girls he has been working with.*

10:25 A student goes to the SET. The SET looks at the problem and takes notes on his yellow legal pad. *SET then shows this student how to work the problem using his legal pad.*

10:30 *SET returns to working with same two students.* GET goes to students in the back of the room. *SET is discussing with these students that they need to subtract 360.* SET is working on fractions and GET directs a pair of students to do a specific column.

² The ellipsis symbol indicates that there was more to the narrative, but that section is not about the SET.

10:35 *SET is with the same two students.* A number of students appear to be finished with their work, the room is quiet noisy. GET instructs students that they should be reading not talking. GET now goes to work with same students that the SET had been working with. GET demonstrates for these two girls on the board $.05 \times 100 = 5$. GET then moves to the back of the room. SET is again with the same girls now after the GET has gone to back of the room. SET says to these students, "Let's figure this row out now."

10:40 GET goes to the overhead. *SET continues working with two girls in front of the room ...*

10:45 GET hands out large packet and tells students to pass it on. GET tells class that test is on Tuesday. GET tells class that she is passing out the study guides. GET tells class to take out their planners. *SET working with same two students.*

10:50 *Both SET and GET move around checking individual planners.* SET signs a green card. Observer was later informed that green cards are behavior management cards. GET tells class that the student guides are due on Monday and the test is Tuesday so start studying. The same female student brings her assignment to the SET as the SET walks around the classroom.

10:55 GET is circulating. SET by his same two students. SET and GET confer briefly. GET then goes to the same girls that SET has been working with. GET says to them, "You tell me if its degrees." GET then begins working with a male student and SET moves back to the same two girls. A student asks the SET if he can get a compass. *SET is now providing subtraction help to the same two girls.* SET then tell another student to use his compass. SET tells another student to

measure the base first. The observation concluded at 11:00 o'clock when the bell rings.

In the above observation, the SET spent the majority of the time working with the same two students. After the observation, the GET told the observer that neither of these students should be placed in that mathematics class. In the previously presented observation of the third grade mathematics co-taught class, the SET and the GET spent the majority of their time also working with one of two students. Further, the observer noted that neither the SET nor the GET appeared to be aware of the amount of individual assistance being provided to either of these students.

In co-taught language arts classes, the SET was also observed providing individual or small group support. In these classes, the SET worked with students in activities such as written language and reading fluency.

In one fifth grade language arts class, an observer witnessed a reading fluency assessment in the only example of the "station teaching" (Cook & Friend, 1995; Vaughn et al., 1997; Walter-Thomas et al., 2000) model of co-teaching that occurred during the entire study. In station teaching, learning centers are set up in the classroom and students usually work at each center for a specified period of time. Station teaching in this class occurred immediately following a lesson on suffixes presented by the SET. The GET then broke the class up into 4 groups of 7. Next, the SET started a timer and the GET assisted the various groups of students as they began working at the different stations. In this *fifth grade language arts class*, the SET was observed administering individual reading fluency assessments at one station.

9:00 GET continued to go over words with the fluency group. The SET walked around the class observing other groups. *SET assisted one student in a practice*

evaluation. GET begins by taking one student from the fluency group to a desk for one minute timed readings. *SET assisting another student on the practice evaluation.*

9:10 Students continue in the four groups. GET continues with the one minute timings. SET talks with students in groups that are finished with their task. The timer goes off. Students rotate groups. GET asks SET if she would do the fluency group. SET replies, "Yes." SET resets timer for 15 minutes. *SET initiates fluency group.* GET walks around classroom.

9:15 Another student enters the classroom. GET greets her and assists her in the set up of activity. *SET goes over the words with the fluency group.* GET walks around the classroom. GET assists students who are having difficulty with tasks. *SET begins with one minute readings with individual students.*

9:20 *SET continues to time and score students during the one minute readings.*

9:25 *SET continues timing and scoring students during one minute fluency assessments one student at a time.* SET praises each student at end of one minute. GET walked around the classroom. GET assists students with rewinding tape. Timer goes off. SET finishes up with student she was working with. Students change to their third station. GET resets timer. GET takes the fluency group this time.

Another example of the SET's involvement in reading assessment was observed in a third grade language arts classroom. This class was divided into two groups and the SET took six students to the back of the classroom. The GET remained in the front of the classroom and her group worked on writing a letter to Ruby Bridges. The SET initially asked her group of students

whether reading quickly and without mistakes meant that they had understood what they had read. Several of the students replied in the negative. Then the observation of this *third grade language arts class* proceeded as follows:

10:30 *SET takes students one at a time to the table in the back and administered an oral reading test on a previously selected paragraph.* SET speaks with one male student in her group and then sends him to the GET's group. GET is discussing word discrimination. GET tells her group that it means unfair treatment. SET calls another student to the table, the rest of the group is sitting in the "reading room" either on the floor or in low chairs. Students are reading in their independent books. GET tells her students to write a letter to Ruby Bridges. GET models a letter on the blackboard. SET is doing oral reading test with one student.

10:35 *SET has student answer comprehension questions about the paragraph.* SET then called different student to check reading fluency. SET is now working with student on comprehension questions. SET calls the next student to read orally. After the third student, one of the first two students comes to ask SET about the comprehension questions. Students in SET's group are to write answers to questions on the oral reading passage. SET works with this student on the comprehension questions. GET continues with the letter writing.

The observation concluded with the following segment:

10:40 *SET tells the student to write that down (what student as just said) and tells student that the question asks you for your thoughts.* GET tells her group that they will continue with Writer's Workshop after the specials. (SET is not

scheduled to be in the class after the student specials). Students follow directions of the GET and leave for their specials. After students have left, the SET shows the reading test to the GET. SET says she marked mispronunciations and words that the student had to sound out. SET says that she wishes she had better news but the results are not unexpected. SET then leaves.

In two of the language arts classes, the observers recorded students participating in Writer's Workshop. During Writer's Workshops, students are typically taught a mini-lesson on a writing technique and then they practice the technique with their own writing. In each of the two third grade classrooms, the SET's work was often coded as *in contact* and providing individual or small group support. A *third grade language arts* observation is presented below.

10:25 SET spoke briefly with male student in gray sweater. Most of the students are at their desks, some are working at 1 of 3 computers. GET is at 1 computer with 4 to 5 students. SET comes back (to observer) and explains that the boy in the gray sweater wrote about his own invention. SET continued saying that this was not the assignment which the SET had told him, but he told the SET he would check this (answer) out with the GET. The SET said to the observer, "See, I'm not the authority in here." *SET is working with two girls at their desks.* GET is working with two students.

10:30 *SET is working with 1 of the 2 girls from before.* SET tells the student that *she has written a better description.* SET asks the girl "Is the seat like a tractor seat a little like a bike seat? How can you describe that?" Female with gray/white top goes to SET and SET reads her paper standing in the aisle. Students are lining up to speak with the GET.

10:40 *SET goes to the female in pink and helps her.* Another female goes up to SET and she is with the SET for a few moments, but quickly returns to her desk. SET goes to female in pink. Female in gray and blue shirt goes to SET. (SET later told the observer that this girl receives learning support.)

This observation ended at 10:45. After the class, the SET told the observer that when she was working with individual students she both asked for more details and provided students with instruction on how to write a transition to their second paragraphs. The SET also explained that she tells them to focus on the purpose of their writing.

In the other observation of Writer's Workshop, the SET was initially in the role of lead instructor. The SET then moved to the role of providing individual and small group support.

Language arts in this third grade classroom unfolded as follows:

9:45 SET went to the GET's classroom. *SET asked whole class how many were still working on writing.* GET is standing back and observing. *SET tells students that we will pick up with the rough draft, if you haven't shared it, yet.* SET continues this is your sloppy copy. Student tells SET that he has already done my final good copy. SET tells students to write their good copy on comprehension paper. SET repeated that if they need to share their sloppy copy, bring it to this side of the room. GET continues to observe. Four students went to the rug with GET. Third grade classroom aide came into the room and went to students who are working at their desks.

9:50 SET told the smaller group what they would need to do. GET stepped in to take over that group and aide went around to different students' desks. *SET begins working with one student, going over her paper.* GET is now working

with group of 5 on the rug. Aide questions 2 boys about stage of their writing. SET reads and corrects female student's writing. Aide and SET confer for a moment. Aide gets a red pen and starts to correct the writing of 2 boys that she has taken to a table at the back of the room. SET moves to a different student and reads and corrects writing. GET now working with 7 students on the rug at the side of the room. In this group, one student reads his writing and other students critique the writing.

9:55 SET continues to providing individual and small group instruction on students' writing. GET continues with her same group. Aide continues to correct the writing of the two boys in the back. SET is now working with student with special needs. GET discusses details that student might add to their writing.

The observation concluded at 10:00 after the SET conferred with aide. The SET had to leave as she was scheduled to work with a student with autism from 10:00 to 10:10 per student's IEP.

5.1.7 Summary of Individual/Small Group

Overall, the SETs spent nearly one-third of their time providing individual or small group support to students within the general education classroom. Providing individual or small group support to students was coded when the SET provided supplemental assistance to one or several students while the main lesson was proceeding or when something else was going on. This co-teaching model was observed during both instruction and during either individual or whole class assessment. The co-teaching configuration in which the GET taught the main lesson and the SET provided support was seen once in the sixth grade mathematic class. In the other classes,

the lesson structure generally consisted of either individual seatwork or small group assignments. During these classes, both the GET and the SET provided support to students or to the small groups when they requested assistance.

Also, the one example of the “station teaching” (Cook & Friend, 1995; Vaughn et al., 1997; Walter-Thomas et al., 2000) model of co-teaching was observed during a fifth grade language arts class. In two of the classes, the third grade mathematics and the sixth grade mathematics classes, both of the SETs spent a significant amount of time with the same one or two students. In these classes it was also noted that when the SET was not with these students, the GET was there frequently providing help to these same students. In the other classes, the SET’s help was more evenly distributed.

5.1.8 Team Teaching

If the SET was *in contact* with the students, but was neither lead teaching nor providing individual or small group assistance, then the SET was engaged in team teaching. This third *in contact* activity of the SET is discussed in the following segments.

Team teaching was defined as whole class instruction with both teachers actively involved in the lesson. Across all 32 observations of the co-taught classrooms, the SET was observed least frequently working with students in the team teaching category. In the end, the team teaching code was applied to 58 of the 307 coded 5-minute narrative segments. Team teaching therefore accounted for 18.8% of the coded segments. It should also be noted that in two different observations of the one team taught sixth grade language arts class, the observations predominantly consisted of whole class assessment.

Analyses of the data indicated that the team teaching model was observed during two mathematics observations: one of a third grade mathematics class and one of a sixth grade mathematics class. Team teaching was also observed in one third grade language arts class. It was further noted that team teaching was implemented for the entire co-teaching period only in the two third grade classes. During the sixth grade mathematics class, the class was separated into two groups approximately half way through the scheduled co-teaching time. Scenarios of these team taught classes are illustrated in the following sections. Beginning with the *third grade language arts* class, team teaching unfolded as follows:

10:25 GET opens lesson about predictions by telling students that author doesn't always tell us everything, but only what s/he wants us to know. *SET writes word inference on the board. SET says she will do first example and tells students to use clues.* GET writes on a dry erase board: Julio walked into the kitchen. His mouth began to water. Something smelled great. SET read the sentences and told class that there were lots of clues. GET asked what made the boy's mouth water? Answers varied from cookies to spaghetti. Both SET and GET are on the side of the room. Students are in groups in their desks. Interactions flow between GET and SET.

10:30 A student says that prediction and inference are synonyms. *SET writes on the board: It was Friday morning. I was nervous to take my test. I forgot to study.* GET writes clues on side of the board: Clue 1. Friday morning; Clue 2. Forgot to study; Clue 3: Friday spelling test. Students discussed whether it would always be a spelling test.

10:32 GET writes on board: I walked outside. It was dark and cloudy. I heard thunder in the distance. *SET asked what is the inference that we can draw from this.* GET is writing clues on the board: Clue 1. Outside; Clue 2. Cloudy and dark; Clue 3. Thunder.

10:35 GET says that we draw the conclusion that it is stormy. GET asks how did you figure that out. SET is quieting one of the students, she taps his shoulder and puts finger to lip. Student responded immediately. SET reminds students about story they had read yesterday. GET refocuses a student. SET reads a few sentences. *SET then asks what can we predict about the family festival.* GET again writes clues on the board. Clue 1. Families from the world. Clue 2. Invite our own families. Clue 3. Favorite dishes from families. SET then asks questions about inference we draw from these clues.

10:40 GET tells students to close text and take out practice book; the books with the word practice on it. Students transition their activities and many are talking. *SET says that she can demonstrate an inference from watching their behaviors that the practice book is not your favorite book.* SET quiets one group down. GET then reads the first scenario from the practice book. It is on making inferences. A father wants to try international food, but daughter Anna whines that she does not like international food. The family goes to a taco restaurant and she is happily surprised. GET asks how we know how Anna feels. Students are to write their answers in their books. GET and SET both walking around room providing individual and small group support. GET tells students that we are going to stop where we are and the SET leaves.

In a third grade mathematics class, a different co-teaching pair also team taught but the dynamics of the classroom were different from the third grade language arts class presented above. The team taught *third grade mathematics class* proceeded in the following manner:

1:15 GET had students get out their white boards. SET is observing from the right side of the room. GET is at the overhead. GET tells SET he will take one side of the room and that she, the GET, will take the other side of the room. SET questions GET about which students he will watch. GET points to number one on the overhead. Problem 1: How many ones are in the number 54. The answers are presented in multiple choice format. GET tells students to show us; indicating that they should hold up their whiteboards. *SET checking his side of the room and records on his clipboard.* GET does the same thing with her side of the room. Students ask if they have to write out the problem and the answer. GET responds that they just need the letter for the answer but to write the problem out. GET tells class that letter, *c*, is the answer. GET tells class to look at number two (28-7=). GET says think of what strategy you can use. Student asks if they have to show their work. GET responded to show the work. GET then says to class, "Show us." GET and SET check the answers. *SET tells student to write bigger.* GET tells students to look up here and asks what strategy you used. Student said s/he used doubles. GET tells students that each problem is worth one point. GET said problem four but mean three and there was some confusion. GET then tells students that if they have had feedback then they didn't have to wait. GET told students to keep their answer covered.

1:20 SET is working with an individual student and then tells her she to write bigger. Problem number three is $28 - 8$. GET tells students you can go ahead and read number four. Student asks SET a question and SET told her to do the best that she can. Student points to white board and tells SET here is number four. *SET tells the class, "Show us number four."* SET then provides help to same student as before. GET tells class that if you have done number four, you can show both of us. SET asked, "Are we on number 3 or 4? I'm a little off." SET checks his students' answers and gives a sign of thumbs up to a student indicating he has the right answer. GET asks students if they are making good choices. SET is observing a female student and then he checks the answers of the students on his side of the room. GET tells students, "Let's look at 4." Student tells GET that the answer is four. GET asked, "How did you start?" GET asks which hand on the clock you need to count. GET said start at five minutes and then count by fives. GET tells class to go to problem five and that the key word is from. GET tells student to take one point off. Student asks SET if spelling counts. SET tells student to do the best s/he can. GET jumped in and said spelling does not count but sound out the word and we will know you made good choices.

1:25 GET read problem five that says write the word form for 854. GET says OK people show me your whiteboard. *SET says, "OK, people in front show me."* SET then questions GET if he is checking a particular student. GET tells SET that she has that student. GET tells class that she sees people writing the word *and*. GET continues that we don't write it or say it. Student asked GET where the dash goes. GET asked another student who said between the 8 and 100. GET

queried, “Between the 100’s and the 10’s?” GET tells class that their eyes should be on the speaker. Student says it (the dash) goes between the 50 and the 6. GET then moves to problem number six. SET is observing on his side of the classroom. GET tells students that problem asks them to write in standard form, so vocabulary is very import. GET tells class to show them number six.

During the last five minutes of the observation, the GET tells the class to think about the problems and their problem solving, and not about the up-coming recess. The SET’s activity was coded as observing during this observation segment. Before the SET left the classroom, he conferred briefly with the GET. In both of the above observations the instructional time was relatively short.

In the sixth grade mathematics class, the instructional focus was a review of angles in geometry. This block scheduled co-taught class was scheduled to run from 9:50 to 11:16. The team teaching activity portion was observed for the first 50 minutes of the class. At this point the SET and GET divided the class into two groups, and the SET left with her group to go to the special education classroom for more intensive review of the topic matter. This team taught *sixth grade mathematics class* looked like this:

9:50 GET: Opens the lesson with direction for students to take out their planners.

The SET drifted around the class and checked the planners while the GET draw angles on the board. *The SET walked to the drawings and asked, “What do you know?”* Student described drawing. *GET and SET interjected answers.*

9:55 *SET called on a student to solve the next problem and the student complied.* GET asked about supplementary angles. *Both GET and SET described the answer.*

10:00 SET walked another student through the board problem and reminded student to show his work. GET agree and reiterated direction.

10:05 SET asked, "Do you see all the work I have up here?" GET told students to think of these as riddles. SET corrected a student by calling his name quietly and nodding to quit the talking and the student complied.

10:10 SET assisted a student work through another board problem. GET added suggestions to help student. SET concurred stating that the student was making it harder than it was and SET told student not to second guess himself.

10:15 SET gave directive to raise your hand if you have the answer. GET told students to come to us, if you don't know how to get this. GET and SET talked to students about study hall. Then SET and GET gave class directive to prepare for 3 problems. SET read the problems and wrote them on the board. Students began problems.

The observation continued with the SET and GET providing examples of problems and asking students to initially work on the problem by themselves. The GET and the SET then demonstrated the problems on the board. Each teacher presented important components of the lesson and the instruction flowed easily between them. At 10:45 the SET left with 13 of the 30 students. The students experiencing problems volunteered to go with the SET for extra instructional help and support.

Two other observations of team teaching occurred in one sixth grade language arts class. The observer noted that for much of the time, the students were involved in assessment. During one observation the assessment was a practice examination for the state's standardized

evaluation while the other observation focused on a class assessment. During these observations the *sixth grade language arts class* co-teaching appeared as follows:

8:15 *Both the SET and the GET are in front of the class and greet their incoming students.* GET directed students to test for benchmarks and told them that it would help on the state evaluation. *The SET reiterated and confirmed this idea.* The GET continued, “You are on your own for this. We can’t help you.” The SET passed out the tests while the GET spoke. The GET drew a strategy on the board.

8:20 The GET continue, “Don’t be fooled, don’t be tricked.” The SET reconfirmed and requested that students in the first seat pass the papers back. *The SET then gave the directive, “All books in the desk.”*

After the students had begun working on their tests the GET and the SET continued to provide instructions to both individuals and the class as a whole. The observation continued with the following:

8:30 The GET described the open-ended answer sheet to the students while the SET directed one student to test privately. GET told the students to underline the most important part of the test question and *the SET directed a student to follow the GET’s directive...*

8:35 *SET told the class, “Make sure not to put in needless information, it’s not meant to be a 10 page paragraph.”* GET continued with directional process.

8:40 *The SET told the class that even if you know the answer go back to the text and make sure.* The GET said to the students, “Talk to the text.” The SET gave directions privately to a student.

For the remainder of the observation the GET and the SET separately observed the class and answered individual student questions. The observation ended at 9:40 when the two teachers

collected the tests and signed students' planners as they exited the classroom. The second observation of this class proceeded in a manner that was nearly identical to the previously presented observation with the GET and the SET alternately providing test taking directions to their class.

5.1.9 Summary of Team Teaching

The third code that could be assigned to delineate the activity of the SET was that of team teacher. Team teaching was defined as both teachers actively involved in providing whole class instruction. Data analyses indicated that the team teaching code was the least frequently observed activity of the three codes of the SET. In the end, team teaching accounted for 18.8% of the 5-minute narrative segments. Team teaching was also rarely observed occurring for the entirety of the scheduled co-teaching period.

Examination of the instructional content revealed that during team teaching the GET and the SET frequently focused their teaching on a review of previously learned material and for student assessment. Whole class instructional reviews were observed in both the third grade and sixth grade mathematics classes. During the observations of sixth grade language arts class, instructional time for 2 out of the 3 observations was used for student assessment.

5.1.10 Subject Area Analyses

The purpose of this study was to develop the understanding of the efficacy of co-teaching by identifying the roles, responsibilities and contributions the SET makes to the educational experiences of co-taught elementary students. After delineating these roles, the data were then analyzed to assess whether the SETs' roles and responsibilities differed by subject area. A chi

square test was used to calculate the differences in frequencies between the subject areas of language arts and mathematics. Table 5 presents a summary of the coded distributions. As can be seen, the distributions of the codes between these two subjects differed significantly ($\chi^2 = 24.0$; 5 df; $p=0.000$).

Table 5: Number and Percent of 5-Minute Narrative Codes by Subject Area

Subject	Contact with Students				No Contact with Students			
	Lead In class	Lead Pullout	Ind/Sm	Team	Clerical	Obs	Conf	Total
Lang #	47	36	33	28	8	16	5	173
Arts %	27.2	20.8	19.0	16.1	4.6	9.2	2.8	
Math #	17	20	51	30	1	13	2	134
%	12.7	14.6	38.0	22.4	0.0	9.7	1.4	

Overall, the SET was significantly more likely to assume the role of lead teacher in language arts classes ($27.2+20.8=48\%$) than in mathematics classes ($12.7+14.6=27.3\%$). The lead teacher code was re-analyzed for the two lead teacher codes that required dividing the class into two groups. These included: 1. two groups in one room (in class) and 2. two groups in different rooms (pull out). As displayed in Table 5, the co-teachers were more likely to divide the class for instruction in language arts than in mathematics classes. Specifically, the co-teachers taught two groups within one class for 27.2% of the time in language arts classes but only 12.7% of the time in mathematics classes. Further, the co-teachers split the class for instruction in two different rooms in language arts 20.8% of the time but only 14.6% of the time in mathematics. However, the data also revealed that the SET was also more likely to be observed engaged in the non-contact roles of either performing clerical duties or conferring with the GET in co-taught language arts classes than in co-taught mathematics classes. Specifically, the SET spent 4.6% of

the time doing clerical work in language arts but 0% in mathematics and the SET was observed conferring with the GET for 2.8% of the time in language arts but only 1.4% of the time during mathematics.

Further analyses of the differences in the SETs roles, revealed that during co-taught mathematics classes the SET was observed providing individual or small group support 38% of the time, but only 19% of the time in co-taught language arts classes. The individual or small group support code was assigned when the SET was observed working with either individual or small groups of students while the GET taught the main lesson. The SETs were also somewhat more likely to be standing back observing and not interacting with students in mathematics classes than in language arts classes (9.7% vs. 9.2%).

The team teaching code was the least frequently observed code for either co-taught language arts or mathematics classes. The team teaching code was assigned when both the SET and the GET were actively involved in teaching the lesson. If the SET was observed team teaching it was more likely to be in a co-taught mathematics class than in a co-taught language arts class (22.4% vs. 16.1%).

5.1.10.1 Summary of Subject Area Analysis

In sum, the results of this study found that there were significant differences in the roles and responsibilities that the SET adopted in co-taught language arts classes as opposed to co-taught mathematics classes. In the end, the SET was significantly more likely to be observed lead teaching in language arts classes, but was also significantly more likely to be providing individual or small group support in mathematics classes. The least frequently observed category for both the co-taught mathematics and language arts classes was the team teaching code.

5.1.11 Type of Contribution

In order to further understand the efficacy of co-teaching, another important question that this study sought to answer concerned the specific type of contribution that the SET makes to students in co-taught classrooms. In order to analyze this contribution, the SETs' instruction was divided into two broad categories designated as either substantive or procedural instruction. Substantive instruction included any verbal contribution to the class that related to learning and knowledge whether it came in the form of new lesson material, reinforcement of previously taught material, or the reviewing of course content and/or assessment. Conversely, procedural instruction included any teacher-to-student interaction that related to how to perform an activity, how to use classroom materials, or how to behave in class. After the contributions of the SET were analyzed and coded for each of the three *in contact* categories, frequency counts and percentages were calculated. Table 6 presents these results.

Table 6: Number and Percent of Special Education Co-Teachers' Instruction Coded Substantive (vs. Procedural) Across Two Subject Areas

Subject		Lead In class	Lead Pullout	Ind/Sm	Team	Overall
Lang Arts	#	42	34	28	8	112
	%	50.6	41.0	84.8	28.5	77.7
Math	#	17	14	49	14	94
	%	46.0	37.8	96.0	46.6	79.6

As evident in Table 6, the SETs' contributions were more likely to be substantive than procedural. However, differences emerged among the categories. Overall, the SETs were observed providing substantive instruction 77.7% of the time in language arts and 79.6% of the

time in mathematics. During in class lead teaching, the SETs' contributions were substantive 50.6% of the time in language arts and 46.0% of time in mathematics. Also, if the co-teachers divided the class for instruction in two separate rooms (pull out), the SET delivered substantive instruction 41.0% of the time in language arts and 37.8% of the time in mathematics. The opposite pattern, however, was noted in the individual and small group support category. While providing individual or small group support, the SETs' contributions were substantive 96% of the time in mathematics and 84.8% of the time in language arts. An intriguing finding was that the SETs were least likely to be observed providing substantive instruction when they team taught. During team teaching the SET provided substantive instruction in less than one-half of the time in mathematics (46.6%) and in less than one-third of the time (28.5%) during language arts classes.

5.1.11.1 SETs' Substantive Instruction

During the study, the majority of the substantive instruction provided by the SET centered on either the reinforcement of previously learned material or review/s of course content and/or assessment. In language arts classes, the SET was often observed presenting reviews of either vocabulary words or phonics' rules. For example, in a third grade language arts class, the SET reviewed the words "prediction" and "inference." In a first grade reading class, the SET provided a review of the "silent *e* rule."

In co-taught mathematics classes, the SET was also observed providing substantive instruction. The SET frequently demonstrated a calculation sequence used to solve specific problems. The SET was also observed reviewing the concept of place value in a third grade class and explaining to sixth graders how to write a number sentence in order to mathematically

illustrate a word problem. In a *sixth grade mathematics class*, the SET was observed providing substantive instruction as follows:

11:00 *SET goes to the board in front of the room and writes $7/3 \div 3/7 =$. SET tells the students that this is problem number four from last night's homework. SET continues that he saw many students' homework indicate that the answer equals one or $21/21$, but asks the students what we have to do. SET then walks students through the problem and reminded class not to take the easy way out. SET tells the class that they are working with integers. SET tells the students that they must change the sign and make the problem an addition problem. SET reminds the students again to change the sign.*

11:05 *The SET continues at the board, SET then writes $16 - (-14)$ to $16 + (+14)$. A student asks if you multiply or add. SET tells the class you just add. SET tells students to change $5/8$'s to 16 's in order to have the same denominator. SET demonstrates (solving the problem) and then leaves the board and goes to assist a student. SET reminds the students of the rule when working with integers.*

Substantive instruction also included the SET reviewing learning strategies in both language arts and mathematics classes. An illustration of the type of substantive instruction is presented below. In a *third grade language arts class*, SET is lead teaching in special education room:

10:00 *SET said this strategy (graphic organizer) helps to organize information in order to help you make a good prediction. . . . SET asked about the purpose of a strategy. Students responded to help you think. SET asked if it was a magic cure. SET continued it helps you think. SET asked about raising and falling action. Student responded that*

there about how the problem gets solved. SET told student to plug in a couple of events to fill out diagram. There was obvious confusion and the SET then said, “OK, let’s do the first one together for practice.”

5.1.12 SETs’ Procedural Instruction

Procedural instruction, on the other hand, included instruction related to paying attention, using appropriate materials, or behaving in class. In both third and sixth grade mathematics classes, the SET was observed nonverbally directing a student to attend to the appropriate page in the textbook. The SET also engaged in behavioral directives to both individual students and the class as a whole. For example, in a sixth grade mathematics class, the SET told the students if they talked while they were finishing up their (computer) assignments, it would be a strike. A SET in a third grade mathematics class, directed a student to stop kicking the chair and told another students to stop tapping his pencil. During a third grade language arts class, where several students were talking, the SET reminded the whole class that she was the only one who should be talking.

The SET was also observed providing procedural instruction that involved lesson initiation or closure as well as the type of lesson materials students required. For example, in *one sixth grade language arts class*, the following was observed:

9:00 SET opened the class and told the students to put everything away. SET continued that they would begin by taking the quiz on the words for that day. The SET then explained the procedure for pencil sharpening during evaluations.

In one third grade language arts class the lesson began as follows:

10:15 *SET tells the students that the purpose of today's lesson is to review strategies. SET passes out a booklet to each student and then thanks them for following directions and bringing their pink and yellow highlighters.*

A code of procedural instruction was also assigned when the SET closed a lesson by either reviewing the homework assignment with the class as a whole or proceeded to check the individual student's planners for accuracy. For example, in one *fifth grade language arts class* the observer noted:

9:40 SET continued to help students get appropriate papers ready. GET assigns the homework. *SET helps student put this in his planner. SET writes the assignment on the rear chalkboard.* GET writes the information on the front chalkboard. Bell rings and students leave.

5.1.12.1 Summary of Substantive vs. Procedural

In the end, the SETs were more likely to be observed providing substantive instruction as opposed to procedural instruction. This frequently meant that the SET was: 1. reinforcing previously acquired knowledge; 2. reviewing course content; or 3. administering tests. Further analysis indicated that the SET was rarely, if ever, observed teaching new content in either language arts or mathematics. If the SET was observed team teaching, s/he was most likely to be providing procedural instruction. Further examination and the discussion of the results of this study are presented in the following chapter.

6.0 DISCUSSION

In the current era of educational reform and accountability, co-teaching has emerged as a popular and widely implemented service delivery model for students with special needs. And yet, despite its wide spread application, research regarding the value of adding the SET to the general education classroom in the role of co-teacher is quite limited. The intent of this inquiry was three-fold: 1. to document the roles and responsibilities assumed by the elementary level SET during co-teaching; 2. to examine whether these roles change in response to the subject matter; 3. to explore the nature of the instruction that the SET provides while co-teaching. Using naturalistic inquiry, 11 pairs of co-teachers in 32 elementary language arts and mathematics classes were observed and the activities of the SET were documented at 5-minute intervals. This study is a replication of an earlier study on secondary co-teaching reported by Zigmond and Matta (2004).

Analyses of the results indicated that SETs assumed several different roles while co-teaching in elementary general education classrooms. These included team teaching, providing individual or small group support, and lead teaching. Overall, the SET spent the majority of his or her time as lead instructor of a heterogeneous group of students formed by the SET and the GET dividing the class into groups. The SET then either taught his/her group within the general education classroom or in a separate class, most frequently the special education room. The role assumed by the SET also differed by subject matter. That is, the SET was more likely to be

observed in the lead teaching role in language arts classes than in mathematics classes. In mathematics classes, the SET was more often observed providing individual or small group support. The SET was least frequently observed working as a team teacher in either language arts or mathematics classes.

The results of this study differed significantly from the results of the previous study of co-teaching conducted at the secondary level and reported by Zigmond and Matta in 2004. In the secondary level study, the SET was most often observed providing individual or small group support and was rarely observed in the role of lead teacher. Of particular import was that the secondary co-taught classes were never divided into groups for separate instruction to be provided by both the GET and the SET. This difference may, in part, reflect the GETs' greater knowledge level of secondary content matter as compared to that of the SET. In a recent metasynthesis of 32 qualitative studies on co-teaching, Scruggs, Mastropieri, and McDuffie (2007) documented several secondary co-teaching studies where this appeared to be the case. In the majority of these studies across all grade levels, the SET was most often observed in the role of "teaching assistant" or "helper." Scruggs et al. note, however, that secondary SETs were more frequently observed adopting the subordinate teaching role. Furthermore, it is also possible that during the five years that have elapsed between the two studies, co-teaching has changed and some co-teachers have developed and adapted the practice such that they believe it more efficiently and effectively meets their needs and those of their students.

Although the co-teachers in this current study would emphatically contend that they were appropriately implementing the practice of co-teaching, their interpretation involving moving a portion of the class to another room rests outside of the boundaries of the definitions put forth by advocates (Cook & Friend, 1995; Vaughn et al., 1997; Walter-Thomas et al., 2000). None of the

definitions, in fact, includes the practice of co-teaching in separate classrooms. However, this interpretation is not without precedent in the co-teaching research and literature. Both Weiss and Lloyd (2002) and Scruggs et al. (2007) documented cases where “co-teaching” took place in two different classrooms. This practice was, however, rare and appeared to be the result of conflict between the two co-teachers (Mastropieri et al., 2005) and Mastropieri et al. contend that when a class is essentially split in two, it is difficult to characterize it as co-teaching (p. 269).

Teacher conflict was not the case in the current inquiry. For co-teachers in this study, dividing the class into two separate groups was a frequent and common occurrence and appeared to be the preferred approach to the implementation of co-teaching. It is possible that one of the reasons was pragmatic; co-teaching was perceived as simply a way to reduce the teacher-to-pupil ratio. The less complex and voluminous nature of the elementary curriculum, as compared to that of the secondary curriculum, may in fact lend itself more readily to the SET being able to take full responsibility for a group of students, only some of whom have disabilities. However, the practice of dividing the class may also reflect elements in teacher education and socialization where one teacher assumes responsibility for a singular group of students. The metasynthesis conducted by Scruggs et al. (2007) identified the issues of territory and turf as factors in co-teachers adaptation of specific instructional configurations. But again, in the majority of the 32 reviewed studies, most of the co-teachers seemed to prefer the one teach/one assist model.

One of the major premises that advocates of co-teaching proffer is that the blending of professional skills of the two teachers should offer a broader range of instructional practices and options in the general education classroom (Hourcade & Bauwens, 2003; Cook & Friend, 1995; Vaughn et al., 1997; Walter-Thomas et al., 2000). The GET is assumed to have strengths in content knowledge, whole group instruction, and group management strategies. The SET is

thought to have strengths in diagnosing or assessing individual learner needs and in targeting instruction to address these needs through a variety of instructional strategies and/or accommodations. Yet, in this study, the SET was rarely observed in the role of team teacher in either language arts or mathematics classes. Further, the SET was also least likely to be recorded providing substantive instruction while engaged in team teaching. Instead, observers more frequently documented the SETs working as either lead instructors or engaged in providing individual or small group support to students while “something else,” usually the main lesson, was proceeding in the class. Thus, the assurances offered by co-teaching proponents that co-teaching would increase the instructional options in the general education classroom by having two certified teacher teach together were not borne out in this study.

6.1.1 Limitations

There were several limitations which may have impacted the results of this study. First, the sample size was small and selected purposefully (Patton, 1990). Initially six schools implementing co-teaching were contacted but only two schools that eventually participated in the study responded affirmatively. These two schools represented two schools district within one geographic area of the country. Three of the four remaining schools did not responded to repeated requests for participation in the study and the other did not implement co-teaching at the elementary level, only at the secondary level.

Second, the co-teachers volunteered to participate in the study. Further, the participating co-teachers were also initially identified by school personnel as co-teachers who would be appropriate participants for the study. One of the co-teachers was identified as a particularly strong advocate of co-teaching who had personally approached several general education

teachers and requested that they engage in co-teaching with her. It is possible that the co-teachers who were not identified by the school administrators would have presented a different picture of co-teaching.

A third limitation inherent in the study involves the intended plan of the study. This research was designed as a naturalistic observation and the issue of observer bias may have impacted upon the results. Although the observers received formal training and inter-rater observer reliability was checked prior to the beginning of the study (89%) and again during the study (87%), observers may have inadvertently either added or omitted some pertinent information. This study also used a 5-minute time sampling format which may not have allowed observers to capture the complete essence of the lesson or the class as a whole.

As many of the co-taught classes were split into two groups, observers could only reliably document the actions of the SET. If the GET and the SET remained in the same room, it was sometimes possible to record the actions of both, but not to the extent of only observing a single class lesson. The phenomenon of dividing the class for co-teaching within either in the same room or in separate rooms also impacted on the coding of the study. As splitting the class had not occurred during the previous study on secondary co-teaching, (Zigmond & Matta, 2004) the coding schematic did not account for this. Therefore, professional judgment was required during aspects of the coding of these 5-minute narratives. In particular, when the SET was teaching a varying number of students by him or herself in the special education room this was coded as “lead teacher,” as the SET was completely in charge and the only certified teacher in the room. However, it would be possible to make the case that this could have been coded as “individual or small group support.”

6.1.2 Conclusions

Despite these caveats, the results from this inquiry require further consideration and studied interpretation. Thirty-two co-taught classrooms with 11 pairs of co-teachers were observed by three trained observers. The results were double checked for reliability on both observations and coding and were in compliance with accepted research standards. Further, one of the schools promotes itself as a “full inclusion” school. Therefore, several conclusions maybe drawn from the results of this inquiry.

First, despite the mandates of inclusion and the theories supporting co-teaching, general and special educators have adapted co-teaching practices such that they can better meet the needs of their students. Through a blend of professional knowledge, instructor intuition, and student educational needs, these co-teachers provided an alternative to the standard co-teaching models proposed by advocates. These co-teachers appear to have intuitively understood that whether for an entire period or only a portion of a period, some students’ educational needs may be better met outside of the general education classroom. However, due to the politics of inclusion and political correctness, using the pre-inclusion practices of pull-out that identified the students who needed more or different instruction, was no longer feasible. The new interpretation only allowed for students to either volunteer to go with the SET for instruction or for the GET and SET to randomly appoint students to go to a separate classroom for instruction. Due to this phenomenon it is possible to suggest that special education and special educators may be in the process of reinventing their roles for future practice.

Therefore, even with inclusionists’ hypotheses that all students can and should be educated in the general education classroom, it appears that some educators’ experiences tell them otherwise. During this inquiry, however, a number of the co-teachers adopted only

portions of the previously employed standards used in pull out instruction. The co-teachers' use of randomly chosen groups is curious and it is interesting to speculate as to why this was the case. In the end, it is possible to suggest that inclusion proponents have done a remarkably good job of convincing teachers that separate classes for students with special needs is no longer an appropriate practice. Intriguingly, these co-teachers circumvented the inclusionists' politics through the creation of instructional groups by chance, alone.

While dividing co-taught classes was partially successful, the use of similar content and instructional format for both groups also seemed to neglect the educational needs of a number of the students. Even with the decreased teacher-to-pupil ratios, observers rarely, if ever, witnessed the SETs employing intensive individualized instruction that would lead students with special learning needs to obtain a mastery level of the content. Conversely, it was also apparent by listening and watching several of the other students that the presented content was less than challenging. Therefore, the interpretation of the results of this study affords several implications for the practice of special education.

6.1.3 Implications for Practice

Special education and the practice of co-teaching appear to be in a state of evolution. Observations of the practice of co-teaching in this inquiry provided witness to neither full inclusion nor special education in the form of traditional pull out procedures inherent in the legally mandated continuum of services. Instead, only a partial portrait of each was observed. There was only limited evidence of Madeline Will's vision of general and special educators "sharing of responsibility" for the education of students with special needs (Will, 1986). Further, special educators were rarely if ever observed utilizing their expertise in specialized or

even “different” instruction for students of the various abilities ensconced in the classrooms of the 21st century. Although it was gratifying to witness special educators working in co-teaching roles other than that of teaching assistant, it was also disheartening not to witness them more effectively employing their specially learned instructional methodologies.

Therefore, it appears crucial that the field of special education consider adopting the co-teaching model observed in this study, as well as some other studies, as a recognized model of co-teaching. Further, the field of special education must grapple with how best to prepare current and future special educators for the type of instructional setting witnessed in this study. The field of special education must become deeply involved in determining how the practice of co-teaching and education for students with special needs should continue to evolve.

6.1.4 Further Study

Based on the results of this study, there are some implications for future research. A replication of this study should be conducted involving more elementary co-teachers in several different school settings and geographic locations. This might prove to be invaluable in ascertaining whether findings of co-teachers instructing groups in separate classroom are an anomaly or a more common practice. Furthermore, it could be instructive to add components to the research design that include observing and documenting the co-teachers’ planning times. This was not part of the current study and might add an important dimension to the understanding of the practice of co-teaching. Incorporating interviews of the co-teachers could also provide a richer perspective on co-teaching. Questions designed to elicit co-teachers’ definitions of co-teaching and their instructional philosophies and actions toward students with learning and behavior problems could prove to be informative.

In order to better ascertain and consequently understand the co-teaching phenomenon observed in this study, the coding protocol should undoubtedly be redesigned to more accurately reflect this novel “lead teacher” category. The lead teacher category could be reconceptualized to include all three types of lead teaching that were documented in the current inquiry: 1. solo instruction in the general education classroom by the SET; 2. two groups within the general education classroom; 3. two groups in separate classrooms.

6.1.4.1 Concluding Thoughts

The education of students with special needs continues to present society with many complex challenges. Debate concerning the most optimal educational environment that could successfully meet the needs of exceptional learners has often polarized special education scholars and professionals. The co-teachers in this study may have offered at least a partial solution to the inclusion versus continuum of services dispute. In this age of accountability, the co-teaching prototype advanced by these general and special educators deserves further research.

APPENDIX A

INITIAL CONTACT LETTER

Ms. /Mr. _____, Principal

_____, PA _____

Dear Ms. / Mr.

I am writing to request your assistance with a research project that will form the basis of my doctoral dissertation at the University of Pittsburgh. In response to a national trend to provide more inclusive education to students with mild or moderate disabilities, school districts have encouraged a service delivery model of special education in which students with disabilities *and their teacher* are integrated into general education classes. In these models, co-teaching between general education and special education teachers helps to accommodate the needs of both students with disabilities and the other students in the class. However, little is actually known about what goes on in co-taught classes, especially what roles and responsibilities each teacher assumes. In this research, I am undertaking an observational study to document the roles and responsibilities of general and special teachers in co-taught classes at the elementary school level.

Your school has been identified as one that uses the service delivery model of co-teaching. I would like you and the co-teachers in your school to be part of this study. The study is a naturalistic observation that will focus on the roles and responsibilities of the general

education teacher and the special education teacher during co-teaching. Co-teachers would be observed 3 times over a 3 week period. Each observation would consist of observing approximately 1-2 academic periods such as in reading and/or mathematics. During the observations, a research assistant and I will take narrative notes about the class, recording the roles and responsibilities assumed by each teacher. Following the last observation, we may ask to spend about 45 minutes talking with each co-teacher about his/her experience co-teaching, the planning it requires, and the co-teacher's general impression of its usefulness to him/herself or to the students. The interview would be arranged at the convenience of each co-teacher, such as during a planning period or before or after school. During the interview the co-teacher is free to refuse to answer any of the questions and s/he is free to withdraw from the study at any time.

All information derived from the observations, the interviews, as well as any school information will be held in the strictest of confidence. No one but I will be privy to the original observation or interview notes, although the co-teachers may review all of the observation notes taken in their classes and the transcription of the interview. The names of the school district, the school, or the co-teachers will not be used when the findings are summarized and reported, and once the data are transcribed they will be stored in a form such that identities will be completely protected. Results of the study will be shared with you and the co-teachers before they are disseminated more broadly.

I hope that you see the value of this study and that you and the co-teachers in your school will agree to participate in the study. There are no known risks to either the teachers or the students as the observations will take place in typical co-taught classrooms. The potential benefit to you and the teachers may include more effective implementation of the co-teaching model used in your school or district. There is no cost to you, the school or the district, nor will you, the students, or the faculty be paid.

The only requirement for the moment is a letter of support similar to the model letter enclosed. Also, I have enclosed a self-addressed stamped envelope for the participation agreement letter, for your convenience. If you need further information please feel free to contact me.

Thank you for giving this request your full consideration. I look forward to working with you.

Sincerely,

Victoria Volonino
Doctoral Student
University of Pittsburgh

APPENDIX B

ELEMENTARY TEACHER PERMISSION FORM

IRB APPROVAL 1/23/08

Dear Elementary School Teacher,

In response to a national trend to provide more inclusive education to students with mild to moderate disabilities, school districts have encouraged a service delivery model of special education in which students with disabilities *and their teacher* are integrated into general education classes. In these models, the use of co-teaching between general education and special education teachers helps to accommodate the needs of both the students with disabilities and the other students in the class. However, little is actually known about what goes on in co-taught classes, especially what roles and responsibilities each teacher assumes. I am undertaking a research study to document the roles and responsibilities assumed by general and special education teachers in co-taught classes at the elementary level.

You have been identified as a special or general education teacher involved in a co-teaching partnership. I invite you to participate in this study. If you agree, I would make arrangements to observe the classes taught by you and your co-teacher 3 times over a period of 3 weeks. During the observations, two observers (a research assistant and myself) will take narrative notes about the class, recording the roles and responsibilities assumed by each teacher. Following the last observation, we may ask to spend about 45 minutes talking with you about your experience co-teaching, the planning it requires, and your general impressions of its usefulness to you and your students. The interview would be arranged at your convenience, during a planning period or before or after school. During the interview, you are free to refuse to

answer any of the questions asked of you, and you are free to withdraw from the study at any time.

All information derived from the observations and the interview will be held in the strictest of confidence. No one but I will be privy to the original observation or interview notes, although you, yourself, may review all of the observation notes taken in your class and the transcriptions of your interview. Your name will not be used when the findings are summarized and reported, and once the data are transcribed they will be stored in a form such that your identity will be protected. Results of the study will be shared with you before they are disseminated more broadly.

I hope you will see the value in this study and that you will agree to participate. I believe that the findings from this study will help improve the nature of co-teaching arrangements and will inform you and other teachers about the ways in which these arrangements can work even more effectively. I know that the findings will be helpful to me as I prepare preservice general and special education teachers for their roles in elementary schools.

Please sign below to indicate your agreement to participate in the study, and return this form to me in the enclosed self-addressed and stamped envelope. Please retain a copy of this letter for your own files. Once I have received your consent to participate, I will contact you to arrange for the first observation.

Thank you for giving this request your full consideration. I look forward to working with you.

Sincerely,

Victoria Volonino, Doctoral Student
University of Pittsburgh
(203) 876-7157
MadameVictoria@aol.com

Voluntary Consent: I have read this letter and my signature below indicates that I freely agree to participate in this study. I understand that if I have any questions about the study, I can telephone Victoria Volonino (203) 876-7157 or Human Subject Protection at the University of Pittsburgh (412) 648-1770.

You name (please print): _____

Your signature: _____

School: _____

Co-teaching periods: _____ Co-teacher _____

Telephone # for initial contact: daytime _____ Evening _____

E-Mail: _____

APPENDIX C

NARRATIVE OBSERVATION GUIDELINES

The purpose of the Narrative Observation is to gather information about the manner in which instruction is delivered by the two teachers involved in a co-taught elementary classroom. The qualitative data collected through note-taking during instruction will form a narrative that describes the activities of the class and the roles and responsibilities of the two teachers. The observer will record these field notes during the entire class period over the course of two or three class periods, each time recording notes during the entire period. Field notes will describe classroom events in terms of how each teacher deliver instruction, the materials used, groupings of students, behavior management techniques, and the various interactions between teachers and students. Classroom events will be recorded on a continuous basis, with entries made at least every 5 minutes. The following is a description of the process of gathering field notes in a classroom observation.

Procedure for Gathering Classroom Field Notes

Note the time that the period begins. You will be making an entry into this narrative at 5-minute intervals (at least) from this time.

Write down which teacher open the lesson and what s/he does. What is the second teacher doing? Note the seating arrangement of students and the placement of the adults in the room. What materials are displayed, what materials are available for student use, and what information is written on the blackboard?

Every 5 minutes and every time the activity changes (grouping changes, material changes, topic of instruction changes), write down:

- which teacher has initiated the activity change
- what each teacher is doing,
- how the students are responding,
- what materials teachers and students are using (including what is on the blackboard),
- the focus of the instruction of each teacher,
- the nature and number of the teacher-student interactions, and
- anything else that would help to describe what is going on in the classroom.

Direct quotations of either teacher or student talk adds richness to the descriptions and should be clearly marked with quotation marks to distinguish them from paraphrased remarks.

Make an entry into the field notes any time either teacher changes activity for themselves or for the students. Also note any use of behavior management techniques.

At the end of the lesson, note which teacher ended the lesson, and what the other teacher was doing.

After the lesson is over, write down impressions or comments that might add to an understanding of what you have just observed

APPENDIX D

OBSERVATION PROTOCOL

Co-Teaching in Elementary Schools

Narrative Notes

School _____ Subject _____ Grade _____

Gen Ed Teacher _____ Sp Ed Teacher _____

Observer _____ Date _____ Start Time _____ End Time _____

REF TIME	GEN ED	SP ED	NARRATIVE NOTES
0	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
5	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	

10	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
15	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
20	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	

25	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
30	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
35	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	

40	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
45	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
50	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	

55	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
60	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
65	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	

70	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
75	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
80	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	

85	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
90	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	
95	Teach Observe Drift Parallel Station Team Pull Out	Teach Observe Drift Parallel Station Team Pull Out	

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