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UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

PERCEPTIONS OF CO-TEACHERS: AN EXPLORATION OF CHARACTERISTICS AND COMPONENTS NEEDED FOR CO-TEACHING

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

Laura Lee Bixler

Norman, Oklahoma

1998

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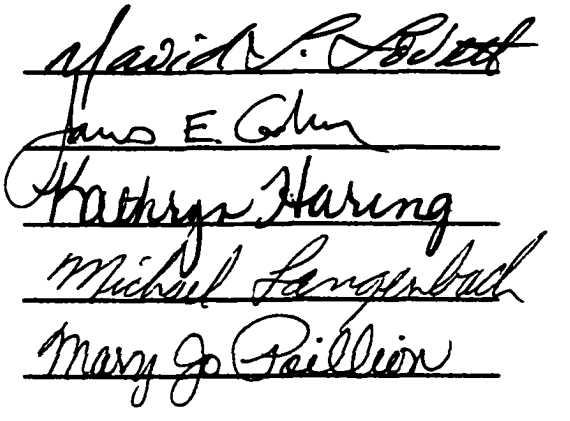
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PERCEPTIONS OF CO-TEACHERS: AN EXPLORATION OF CHARACTERISTICS AND COMPONENTS NEEDED FOR CO-TEACHING

A Dissertation
APPROVED FOR THE DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

BY



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Abstract

The purpose of this study was to identify what components and characteristics of the co-teaching model of instruction co-teachers perceive as necessary for co-teaching. This study focused on general educators co-teaching with special educators in providing a service delivery option for students with disabilities in inclusive environments. No previous empirical studies were found that investigated what characteristics of co-teachers and what components of the model co-teachers perceive as necessary for co-teaching.

The literature review included the following components a) definitions of co-teaching, b) historical background, c) types and descriptions of co-teaching, d) previous research, e) synthesis of 17 non-empirically based articles, and f) factors facilitating or inhibiting the co-teaching model. Twenty-one variables (nineteen located in the review of the literature and two identified by the researcher) were grouped into three categories. The first category, resources, consisted of five components. Compatibility issues and miscellaneous components were the second and third categories and had 8 components each.

Data from the study were obtained from two sources. Eighty-four participants (42 co-teaching pairs) returned three questionnaires. The second source of data consisted of interviews from 14 participants (7 co-teaching pairs). The results of this study support the results of other studies and non-empirically based articles identifying what is necessary for co-teaching. Areas that were not discussed by earlier authors, but were found in this study included a) the longer

co-teaching pairs teach together, the higher the perceived level of effectiveness in their co-teaching, (b) teaching English in a co-taught class may result in co-teachers self-reporting higher levels of effectiveness in co-teaching when compared to math or science, and (c) providing additional services/programs for students with disabilities in co-taught classes (i.e., independent study, etc.,) was perceived by co-teachers to influence their level of effectiveness in co-teaching.

PERCEPTIONS OF CO-TEACHERS: AN EXPLORATION OF CHARACTERISTICS AND COMPONENTS NEEDED FOR CO-TEACHING

Chapter One

Introduction

Educators and parents frequently participate in meetings about students with disabilities in which they are to make informed decisions. The focus of these meetings may be to assign a student to a specific category of disability or to an educational placement. Recently, the type of educational placements selected by teams of educators and parents has become increasingly less restrictive. According to Lipsky and Gartner (1996), "The 1992-1993 school year marked the first time the proportion of students with disabilities who attended mostly regular classes outpaced those in resource rooms, separate classes, or more restrictive settings" (p. 5). Although the Individualized Education Plan (IEP) process should ensure that the Least Restrictive Environment (LRE) is addressed, educators and parents may view the existing continuum of alternative placements as a menu. For example, E. Deno (1970) characterized special education as a service delivery system. Such a characterization is useful especially from an administrative perspective, but it also has the effect of focusing attention primarily on administrative arrangements (i.e., on where resources will be allocated and organized) rather than on the essential service provided through special education -- i.e., problem solving (Deno, S. L., 1989).

Traditionally, special educators have focused on creating special classes for students for whom general education programs have been unsuccessful. Deno suggested that special education emphasize solutions to a specific set of school-based social problems associated with the intellectual and personal development of children. Since the primary focus of LRE has been on "where" we service students with disabilities and not "how," educators may decide where to place a student without ensuring that effective educational supports are provided.

Researchers and educators have much information about educating students with disabilities and students without disabilities in the same educational environments (Jenkins et al., 1994; Kennedy & Itkonen, 1994; Vandercook et al., 1991). They have attempted to answer not only questions related to LRE, but also to identify the means by which to attain LRE (e.g., consultation, co-teaching). Co-teaching may be a viable option for supporting the success of students with disabilities in the least restrictive environment. Certainly, co-teaching should be examined as an alternative to the dichotomy of full inclusion vs. segregated special education programs. The emphasis of LRE should be on educators and parents making *informed* decisions that facilitate the effective education of students with disabilities.

Background of the Study

A current major reform trend, inclusive schools, emphasizes the integration of students with a wide range of disabilities into general education settings. The continuum of alternative placements (see Code of Federal

Regulations 300.551) provides educators and parents with a range of instructional environments to implement the IEP goals and objectives. Only one paragraph (CFR 300.551 [b] [2]) appears to allow flexibility in how these goals and objectives can be met. This section states, "Make provision for supplemental services (such as resource room or itinerant instruction) to be provided in conjunction with regular class placement" (p. 50). The "such as . . . itinerant instruction . . . " statement suggests that other methods, not in the placement continuum, may meet the needs of students with disabilities.

A number of strategies for providing less restrictive instruction to students with disabilities that are not listed in the continuum have begun appearing in literature and within the classrooms of our schools. Multiple opportunities for interaction between students with disabilities and students without disabilities now exist in schools today. Some of these include cooperative learning (Slavin, 1991), peer tutoring (Greenwood & Delquadri, 1995), augmentative technology (Blackhurst, 1997), collaborative consultation (Idol, Paolucci-Whitcomb, & Nevin, 1994), and co-teaching (Bauwens, Hourcade, & Friend, 1989). All of these strategies and models are designed to assist students with learning and/or behavior problems to perform more successfully in general education classrooms. Of these models, co-teaching is an instructional model that is quickly gaining recognition as a catalyst for including students with disabilities into general education classes (Bauwens & Hourcade, 1991; Bauwens, Hourcade, & Friend, 1989; Pugach & Johnson, 1995; Pugach & Wesson, 1995). However, there is a scarcity of studies investigating the effects of co-

teaching on students and teachers. Anecdotes, interviews, and non-empirically based articles have provided limited information on implementing a co-teaching model of instruction. Specifically, no empirical studies could be found that investigated what characteristics of co-teachers and what components of the model do co-teachers perceive as contributing to the effectiveness of co-teaching. If researchers and educators begin questioning *how* we provide school curriculum for students with disabilities, we may in turn begin to understand how students can be successfully integrated into general education environments.

Statement of the Problem

Because of the diversity in defining co-teaching and implementing the co-teaching model, it seems evident that not only the effects or products of co-teaching should be examined, but that the process or implementation of co-teaching also be explored. Although anecdotal articles provide insight into the co-teaching model, no empirical studies exist that investigated what characteristics of co-teachers and what components of the model do co-teachers perceive as contributing to the success of co-teaching. Further research is needed to intensively and systematically investigate the critical attributes of co-teaching.

The success of integrating students with disabilities requires more than a philosophy or regulatory voice of authority. As public schools and parents strive to educate students with disabilities in close proximity to students without disabilities, members on placement teams need to have the knowledge to make

informed decisions about programs in which inclusive settings are not only possible, but effective. The partnership of researchers providing an empirical knowledge base with the application of effective educational practices by teachers, may benefit all students.

Significance of the Problem

The number of models used to facilitate inclusive environments for students with disabilities is increasing (U.S. Department of Education, 1994). According to the U.S. Department of Education this trend is likely to continue in the future. As schools select and implement models for inclusive settings, they should invest time and attention toward the implementation stage. Williams and Cruikshank (1981), in a discussion on educational change, state that the implementation stage is crucial to the success or failure of an adopted innovation. Warren (1976) cautions that as much, if not more, attention must be given to the mechanics of instituting an innovation as is given to the purpose for its introduction. The importance of implementation is supported by others, including Fullan and Pomfret; Giaquinta and Bernstein; Gross, Lieberman and Griffin; Loucks, Herriott and Gross; Mann; and Sarason (as cited in Williams & Cruikshank, 1981).

The proposed study is significant because an in-depth study of educators already in a co-teaching environment could substantially contribute to the educational knowledge base. If educators are implementing the co-teaching model without knowing what components and characteristics are essential for success of the model, it may be the educators who either fail or succeed and not

the co-teaching model. Mann (1976) summarized, "What happens inside the school, at the service delivery level, is absolutely related to our success or failure . . . " (p. 313). The lack of knowledge about implementing new models in education is even more complicated when we conduct impact studies before we ascertain how the model should be implemented. Sussmann (as cited in Williams et al., 1981) stated, "Emphasis on the implementation stage and process rather than on premature outcome assessment is welcome in a field dominated by an emphasis on adoption and measures of success" (p. 6).

Feiman-Nemser and Floden (as cited in Walther-Thomas et al., 1996) commented that until recently, most educators spent their professional lives working alone. Few opportunities were provided to discuss, plan, and participate in ongoing projects with other adults. Consequently, most educators are poorly prepared for their new roles as collaborators and co-teachers (Bauwens & Hourcade; Karge et al.; Puguach and Wesson; (as cited in Walther-Thomas, 1996). Walther-Thomas summarized:

> Although school systems want their teaching staff to be innovative and continually improve the quality of instructional efforts, few systems are prepared to facilitate this process. Typically, most teachers implementing new ideas receive limited preparation and classroom support. As a result, and as any experienced educator will attest, many worthwhile innovations never take hold and become integral parts of the system. (p.256)

If educators can understand co-teaching as a process, and not merely as a placement, then the educational system may be more likely to accomplish its

goals. Students will be able to access the education offered to all, and the means by which to benefit from it.

Purpose of This Study

The overall purpose of this study is to investigate what components and characteristics of a co-teaching model are perceived to facilitate or inhibit the effectiveness of the model. This research study includes four separate objectives. The first objective of this study is to determine what components and characteristics of the co-teaching model do co-teachers perceive as necessary for implementing a co-teaching model. The second objective is to determine what similarities and differences exist between items perceived by co-teachers as necessary for co-teaching (as one group) when compared to items suggested as necessary for co-teaching by authors/researchers in the literature (as a second group). The third objective of this study is to determine what similarities and/or differences exist between perceptions of general education teachers (as one group) when compared to perceptions of special education teachers (as a second group) when identifying characteristics and components needed for co-teaching? The final objective of this study is to determine what factors on effectiveness of co-teaching differentiate groups of co-teachers if teachers self-report different levels of success in co-teaching. Clearly, intensive and systematic research is needed to verify the critical attributes of co-teaching arrangements. This study will provide a systematic investigation of the attributes perceived by co-teachers as necessary for co-teaching. The importance of knowledge gained as a result of this study may assist teachers in making

informed decisions about options available for delivery of services for students with disabilities.

Research Questions

The proposed research is designed to address the following questions:

1. What resources for the co-teaching model do co-teachers perceive as being necessary for implementing co-teaching (e.g., common planning, administrative support)?
2. What compatibility components do co-teachers perceive are necessary for implementing a co-teaching model (e.g., teaching styles, discipline procedures)?
3. What other miscellaneous factors do co-teachers perceive as necessary for implementing co-teaching (e.g., parental participation)?
4. What similarities and/or differences exist between perceptions of general education teachers (as one group) when compared to perceptions of special education teachers (as a second group) when identifying characteristics and components necessary for co-teaching?
5. Do pairs of co-teachers significantly differentiate themselves when self-reporting level of effectiveness in implementing a co-teaching model?
6. If co-teachers self-report different levels of effectiveness in implementing a co-teaching model, what factors regarding effectiveness of co-teaching significantly differentiate the groups?
7. If co-teachers self-report different levels of effectiveness in implementing a co-teaching model, what resources, compatibility components, and/or

miscellaneous factors of co-teaching significantly differentiate the groups?

8. If co-teachers self-report different levels of effectiveness in implementing co-teaching, what is the difference in the amount of discrepancy found between general education teachers and special education teachers of one group when compared to discrepancies found of a second or third group?

Summary

This chapter provides an introduction to co-teaching as a model of instruction. If components and characteristics can be identified for effective co-teaching, then there is likely to be more collaboration or effort directed toward the implementation stage of co-teaching. Wiederholt (1974) stated,

> Without a historical perspective, the uniqueness of present-day contributions and discoveries tends to be overemphasized. But in fact these contributions represent extension, modifications, verifications, or duplications of previously observed phenomena or stated positions. Unless we use the past as points of reference and guides, investigators of LD may either recommit past follies or rediscover the contributions of their professional progenitors when they should instead extend and correct the works of those who pioneered them. (p. 103)

If we are to "extend and correct the works" of our predecessors, then the process of co-teaching needs to be investigated as a viable option for serving students with disabilities. Further research is needed to intensively and systematically

investigate the critical attributes of co-teaching.

CHAPTER TWO

Review of the Literature

A number of strategies for providing less restrictive instruction to students with disabilities have begun appearing in literature and within the classrooms of our schools. Multiple opportunities for interaction between students with disabilities and students without disabilities now exist in schools today. Some of these include cooperative learning, peer tutoring, reverse mainstreaming, mentor programs, augmentative technology, independent study, and tutorials. In addition to these strategies, various interaction models include collaborative consultation (Idol, Paolucci-Whitcomb, & Nevin, 1986), mainstream assistance teams (Fuchs, Fuchs, & Bahr, 1990), teacher assistance teams (Chalfant, Pysh, & Moultrie, 1979) and co-teaching (Olson & Platt, 1992). These strategies and models are designed to assist students with learning and/or behavior problems to function more successfully in general education classrooms.

Of these models, co-teaching is a practice that is quickly gaining recognition as a catalyst for including students with disabilities into K-12 general education classes (Bauwens & Hourcade, 1991; Bauwens, Hourcade, & Friend, 1989; Pugach & Johnson, 1995; Pugach & Wesson, 1995). This may be due to Individualized Education Program (I.E.P.) and/or Review of Placement teams attempting to provide the least restrictive environment. Thousand and Villa (1990) summarize, "The overall purpose for assembling teaching teams is to increase the potential for individualizing instruction and enabling all students to

be educated with their same-age peers within local school general education settings" (p. 153). With more than one instructor, there is an increased opportunity for grouping of students and scheduling flexibility (Olsen, 1968), an increase in area of expertise from the respective teachers, (Bauwens et al., 1989) and an increase of teacher/student ratio (Thousand & Villa, 1989).

Literature Review on "Team-Teaching"

The origin of "team-teaching" began in the late 1950's. The ongoing curriculum explosion, the baby boom, and the severe shortage of teaching personnel promoted the establishment of the Commission on Curriculum Planning and Development by the National Association of Secondary School Principals in 1956. This organization decided to implement a series of experimental projects in secondary schools throughout the country. These projects were developed to devise new approaches to the critical problems facing the schools: curriculum development, teaching methods, space, and staff utilization.

After requesting and receiving hundreds of experimental designs from schools across the nation, the Commission, under the direction of J. Lloyd Trump (1966), submitted to the Fund for the Advancement of Education, A Proposal Designed To Demonstrate How Improved Teacher-Utilization Can Help to Solve the Problems of Teacher Shortage in the High Schools of the United States. The fund approved the proposal and agreed to provide financial support to schools, selected by the Commission to develop various staff utilization techniques. The most significant of these techniques became known as team

teaching.

Team teaching began as a practice among general education teachers. Trump (1966) proposed reorganizing secondary schools so teams of general education teachers shared responsibility for large-group presentations, follow-up sessions for groups of 12-15 students, and individualized study. Although his idea was initiated because of an acute teacher shortage, Trump also believed his model would allow schools to provide interdisciplinary and individualized instruction to general education students.

Since 1966, several variations of team teaching have evolved. In England, Warwick (as cited in Friend, Reising, & Cook, 1993) modified Trump's model by removing the discussion groups and designing a model with two components. The components consisted of a lecture to a large group of students followed by additional instruction in traditional class groups. Another model described by Geen (as cited in Friend et al., 1993), used primarily in open concept schools, involved joint planning by teachers on interdisciplinary units. The instruction was delivered separately by each individual teacher. This model was widely practiced in open concept schools primarily at the elementary level. A similar goal for all of these models was to create educational environments that were student centered (Easterby-Smity & Olve, 1984).

During the early 1970s, team teaching between general education teachers had become a popular practice. Several authors, Crespin, Geen, Meadows, and Wood (as cited in Friend et al., 1993) reported its occurrence in elementary and secondary schools in a variety of subjects and in several

countries. Friend et al. (1993) stated:

> Because so many different approaches were called team teaching and because most reports on team teaching were simply descriptions of situation-specific programs, it is difficult to analyze whether team teaching was successful in terms of improving educational opportunities for students. (p. 7)

However, a review of the literature did present at least six studies investigating the effects of team teaching (between general education teachers) from 1968 to 1977. Cotton (1982) reported that four of the six studies indicated that no differences were found in academic achievement of general education students in team teaching environments when compared to traditional teaching. Despite the lack of empirical evidence to support team teaching, general education teachers participating in these studies continued to favor the team teaching model over the traditional teaching model. The reason why general education teachers continued to favor team teaching was not provided.

Britain has also had an interest in team teaching between general education teachers. Thomas and Jackson (1986) reported that team teaching has become an integral part of their "whole school" approach and is a common practice in many British secondary schools. Team teaching is used in a variety of grade levels.

Literature Review on "Co-Teaching"

It wasn't until the 1980s that special education borrowed the model from general education. Greenbaum (1992) suggested co-teaching as one of the

models emerging from Madeline Will's 1986 policy statement. One particular model, The Mainstreamed Special Educator Model, (Reynolds & Volkmar, 1984) was used primarily in junior high or middle schools. Special education teachers worked in general classroom environments on a regular basis to promote appropriate education in the least restrictive environment. Special education teachers recognized the model as a way to provide less restrictive instruction. IEP teams began looking at team teaching as an alternative service delivery model instead of just the usual pull-out programs, resource rooms and self-contained classrooms.

As the later 1980s approached, team teaching between general education teachers and special education teachers began disappearing from the school house door. Friend and her colleagues (1993) suggested the following two reasons for the decline in using the team teaching model:

> The potential of team teaching was overshadowed by other controversy and confusion about service delivery. The debate about definitions of consultation and indirect services did result in clearer understandings about some service delivery models. Unfortunately, the debate overshadowed the investigation and development of other service delivery options, including team teaching. (p. 7)

The second explanation for the decline of the team teaching between general education and special education teachers may have been due to the lack of empirical evidence (during the 1960s through the 1980s) to demonstrate that team teaching increases educational opportunities for students (Friend et al.,

1993).

The Regular Education Initiative (REI) and the promotion of the inclusion model of education has prompted educators to once again examine alternative service delivery models for students with disabilities. The popularity of alternative service delivery models (e.g., team teaching between general education teachers and special education teachers, consultation) is growing. According to the U.S. Department of Education data, this trend is likely to continue in the future (U.S. Department of Education, 1994).

Karge, McClure, and Patton (1995), Pugach and Wesson (1995), and Walther-Thomas (in press) also indicate an increase in general and special educators team teaching together. They report that the increase is due to the potential benefits for students with disabilities, other low-achieving students, and the professionals who teach them.

Defining "Team Teaching" and "Co-Teaching"

Despite the many interpretations of the term "team-teaching," a basic definition is possible--though it is as flexible as the practice itself. According to Beggs (1964),

> Team teaching may be defined as an arrangement whereby two or more teachers, with or without aides, cooperatively plan, instruct and evaluate one or more class groups in an appropriate instructional space and length of time to take advantage of special competencies of the team members. (p. 16)

This definition is applicable to general education teachers teaming together,

and, also, general education teachers teaming with special education teachers. Begg's definition allows flexibility in how the model of team teaching is implemented. The number of adults, their roles and responsibilities, the location of the class, and the length of the class are not specified in this definition. This definition is broad enough to encompass several different models of team teaching.

Team teaching has also been labeled as cooperative teaching (Bauwens & Hourcade, 1991) or co-teaching (Friend & Cook, 1992; Walther-Thomas, 1995) . Bauwens, Hourcade, and Friend (1989) provided a definition of co-teaching that was specific to general and special educators teaching together. Their definition stated:

> Cooperative teaching or co-teaching refers to an educational approach in which general and special educators work in a coactive and coordinated fashion to jointly teach academically and behaviorally heterogeneous groups of students in educationally integrated settings (i.e., general classrooms). In cooperative teaching or co-teaching, teachers are simultaneously present in the general classroom, maintaining joint responsibility for specified classroom instruction that is to occur within that setting. (p. 18)

There is no universally accepted definition or method of team teaching (i.e., co-teaching). No one researcher can speak for the entire field. Team teaching is now used by the majority of authors to denote general education teachers teaching together. Co-teaching is used by the majority of authors to denote

special education teachers teaching with general education teachers (Bauwens et al., 1989; Friend and Cook, 1992; Walther-Thomas, 1995). To maintain this distinction, the remainder of this paper will use the term co-teaching as a designation of special education teachers and general education teachers teaching together.

Types of Co-Teaching Models (General and Special Educators)

In co-teaching, both the general and special education teachers are present in the general education classroom. Each teacher is jointly responsible for classroom instruction and behavior management. The special education teacher and the general education teacher plan together and teach academic subject content to all students. However, one teacher may select to have primary responsibility for specific types of instruction or portions of the curriculum at any given time. For example, the special education teacher may review previous concepts taught in a math class using direct instruction. The general education teacher may then follow by presenting the remainder of the day's math lesson that will deal with the introduction of a new concept. The teachers can alternate both instructional and disciplinary responsibilities. Consistency of techniques is crucial in the transition from one teacher to another.

Many styles of implementing co-teaching are available. Some of the more common approaches to co-teaching (see Table 1) are described by Bauwens et al. (1991); Bucholtz, Gerbino, & Gorman (1996); Cohen (as cited in Pugach and Wesson, 1995); Friend and Bursuck (1996); and Meyers,

Table 1

Types of Co-Teaching

Bauwens and Hourcade (1991)

Complementary Instruction: General education teacher assumes primary responsibility for teaching academic content. The special educator teaches "academic survival skills" (e.g., taking notes, identifying main ideas, related study skills).

Team Teaching: General education and special education teacher jointly plan and teach all contents to all students.

Supportive Learning: General educator provides core content. Special educator provides supplementary instruction.

Friend and Bursuch (1996)

One Teach, One Assist: Both teachers are present, but general educator takes the lead. Special educator "drifts" around assisting students.

Team Teach: Both teachers share the instruction of students. They may take turns leading discussion, demonstrating concepts/strategies, and modeling behavior.

Parallel Teaching: Teachers jointly plan instruction, but each delivers it to half of the class group.

Alternative Teaching: One teacher works with small groups to pre-teach, re-teach, supplement. The other instructs the large group.

Station Teach: Teachers divide content. Students rotate through "stations." Eventually all students participate in all "stations."

Table 1 (Continued)

Types of Co-Teaching

Bucholtz, Gerbino, and Gorman (1996):

Content and Strategy: One teacher presents material. Co-teacher presents strategies. Roles of teachers are interchangeable.

Joint Teaching: Two teachers constantly changing roles, yet equal in all responsibilities.

Small Group Instruction: Class is divided into heterogeneous groups. Each teacher presents lesson to his/her group.

Content/Academic Behavior Management: One teacher presents material while the mother manages behavior and monitors academic progress.

Content and Enrichment: One teacher presents, other adapts.

Cohen (as cited in Pugach & Wesson, 1995)

Throughout Interdependence: Team of teachers split the instructional tasks, with each taking responsibility for specific groups of students. In this kind of interdependence, teachers do not necessarily have to interact around substantive issues of instructional method or philosophy.

Instructional Interdependence: Two or more teachers working with the same group of students in the same subject.

Myers et al. (1990)

Pull-Out Group Instruction in General Classroom: General and special educator both remain in general classroom. The general and special educators have separate lessons, curriculum, and materials.

Gelzheiser, Yelich, and Gallagher (1990). The variations in implementing the co-teaching model as presented by these authors demonstrated that co-teachers have a broad spectrum of co-teaching models from which to choose. Certainly, there are merits to all five models. The following section will provide a brief description of the various co-teaching models along with the similarities and differences that may exist.

Description of Co-Teaching Models

Bauwens et al. (1989) identified three different types of co-teaching. In the first arrangement, called "team teaching," co-teachers are equally responsible for all areas of teaching. This includes instruction, monitoring, and performance evaluation. Similar types of co-teaching models described by other authors are "joint teaching," (Bucholtz et al., 1996) "team teach," (Friend & Bursuch 1996) and "instructional interdependence" (Cohen, as cited in Pugach & Wesson, 1995). Teachers implementing this style of co-teaching are required to "dovetail their presentations to ensure that all critical information is covered in sufficient depth" (Walther-Thomas & Carter, 1993, p. 34). Because co-teachers work together to develop a curriculum, monitor students, and evaluate student performance, a broader perspective and greater depth is achieved.

A second type of co-teaching suggested by Bauwens et al. (1989) is complementary instruction. In a complementary approach to co-teaching, the general education teacher assumes primary responsibility for teaching content subject matter. The special education teacher's responsibility is to teach "academic survival skills" (e.g., taking notes, identifying main ideas, related

study skills). This complementary approach to co-teaching is similar to Friend and Bursuck's "One Teach, One Assist" and Bucholtz's et al. (1996) "Content and Strategy." The difference among the three models may be who will be the primary teacher and who will be the "complementary" teacher.

A third type of co-teaching discussed by Bauwens et al. (1989) is supportive learning. In this model, the general educator provides the core content while the special educator provides supplementary instruction. For example, the two teachers may discuss a certain concept in math that should be taught. They then would identify which supportive learning activities would reinforce the new skills and concepts (e.g., teacher-led group discussion, cooperative learning or an alternative project, etc.). The supportive learning type of co-teaching is similar to other models of co-teaching such as, "Alternative Teaching" (Friend & Bursuck, 1996) and "Content and Enrichment" (Bucholtz & Gorman, 1996). Other types of co-teaching focus on the two teachers splitting the instructional tasks, with each taking responsibility for specific groups of students. "Throughout Interdependence" (Cohen, as cited in Pugach & Wesson, 1995), "Small Group Instruction" (Bucholtz & Gorman, 1996), and "Parallel Teaching" (Friend & Bursuck, 1996), all refer to a similar type of co-teaching in which teachers instruct separately, but are still within a general education classroom. These type of models allow flexibility in the grouping of students. Another co-teaching model that provides separate instruction while remaining in the general education classroom is the "Pull-out Group Instruction" (Meyers et al., 1990). However, the difference in this model

is the special education teacher only instructs students with disabilities and the lessons, curriculum and materials are different than those of the general education group.

After reviewing the different types of co-teaching, it becomes evident that no single model encompasses all the possibilities of how to implement co-teaching. A new model might include a combination of approaches (i.e., using small group instruction and complementary instruction) simultaneously. In choosing a particular type, co-teachers interested in co-teaching need to be aware of as many different approaches as possible. Bauwens et al. (1989) stated,

> While these different approaches are described individually for the sake of clarity of presentation, they should not be seen as mutually exclusive. Indeed, at any given time in a typical classroom in which cooperative teaching (i.e., co-teaching) is being used, several of these approaches might be used simultaneously. Specific implementation procedures will evolve naturally out of the close planning and professional working relationship between the general and special educators in the proposed cooperative (i.e., co-teaching) teaching arrangement. (p. 19)

Previous Research

Within the literature, six studies were identified as specifically relevant to the study of co-teaching between general education teachers and special education teachers. In the following section, each study on co-teaching will be discussed with specific emphasis on the research methodology used and the

advantages and limitations of these methods. Research studies on each of the methodologies will be introduced and critiqued.

Qualitative Research

Two studies on co-teaching (Pugach & Wesson, 1995; Redditt, 1992) using a qualitative research design were located in the literature.

Introduction of Study #1

Pugach and Wesson (1995) conducted a qualitative study on teachers' and students' views of co-teaching. Over a one year period, researchers investigated teachers' and students' perceptions of life in two fifth-grade classrooms using a co-teaching model.

Method

Population and Sample. The study conducted by Pugach and Wesson (1995) occurred in the fall of 1989 at an urban school district in a middle-sized Midwestern city. Prior to the study, the school district initiated three projects as a reorganization of existing district resources rather than new funds; a modest state grant paid for training. Out of the three schools implementing the projects, only one was used in this study.

The school population was approximately 30% African American, 10% Hispanic, and 60% white. Two classrooms with a total of fifty-five fifth graders were somewhat randomly selected to participate in the investigation. The two general education teachers commented that the administration had added more students with behavior problems to their two classrooms. The two male general education teachers believed the administration may have done this because

male teachers were perceived as being more effective with students having behavior and/or discipline problems. The other two fifth grade teachers were female. Thirteen of the 55 students were identified as having a specific learning disability. Prior to the study, these 13 students were served in a learning disabilities (LD) resource room/pull-out program. Students with learning disabilities were divided evenly between the two general education classrooms.

The teaching team was comprised of two male regular classroom teachers and one female teacher of learning disabilities. All three teachers were volunteer participants in this study. A daily joint planning period was scheduled, so that all three teachers had a common 35 minute planning time. The LD teacher moved back and forth between the two classes on more or less a random basis, offering assistance to individual students as needed. The team appeared to function as a small group whose members had equal status.

Procedures. Two sources of data were used for this study. The primary source included 18 interviews in transcript form of nine general education students and nine students with learning disabilities. The nine students without disabilities were selected at random from the 42 students in the two classes. Of these nine students, eight were female and one was male. Most student interviews lasted from 20 to 45 minutes, were audiotaped and later transcribed verbatim from tapes. The following eight questions were based on pilot interviews and guided by concerns regarding students' social relationships, academic needs, and relationships with teachers:

1. Tell me what you like about your classroom this year. What don't

you like?

2. What is different about your class this year than last year? Which do you like better? Why?
3. You have more than one teacher this year. Do you like it that way? Why?
4. Let's say you were having problems with your classroom lessons and needed extra help. Would you rather meet in a small group with one of your teachers outside of the classroom--like in the hall or a small room? Or in a small group inside the classroom? Why?
5. Have you made any new friends this year in your classroom? Tell me about them. Are you still friends with some of the same kids you were friends with last year? Tell me about them.
6. Who is the most popular student in you class? Who is the least popular?
7. How are you doing in school this year? Do you think you're doing better than last year? How do you know?
8. Is there anything else you would like to tell me about your classroom or about school this year?

Data Analysis. A content analysis was made of student transcripts. Through exploration and discovery, Pugach and Wesson (1995) identified a set of 10 tentative categories. The transcripts were then coded for specific instances of the categories and to look for relationships between categories.

Results and Discussion

Three broad categories and ten related subthemes emerged from the interviews of the teachers and students. The categories were: (1) classroom social climate, (2) instructional effects, and (3) teacher roles and tasks. Students reported that school was a highly positive experience, that their teachers provided motivating instruction, and social climate was one of relative unity and help for everyone. No evidence that general education students recognized that their peers were labeled LD was apparent.

Seven students with learning disabilities and all of the general education students had positive comments on the instructional effects. The variety of instructional activities and the grouping flexibility were two elements that emerged from the interviews.

Two subthemes that emerged from students on teachers' roles and tasks were: 1) the various roles the three teachers played and 2) the degree to which instruction was coordinated. One student commented,

> 'Cause if MR. C's (general education teacher) is busy with a couple kids. . . you'll have to take it home and maybe your parents will come home late or something. And Ms. K.'s (special education teacher) always there to keep you going and stuff, so you know she's always there to help you. (Pugach & Wesson, 1995, p. 288)

In general, the students did not view the assistance the special education teacher provided as directed toward a specific group of students. Students also reported that it was less of a problem to bother Ann (the special education

teacher) than the other teachers. "If MR. C.'s busy, I'd hate to bother him, 'cause he might get upset. So if Ms. K.'s (special education teacher) just going around asking people if they need help, I'd just ask her" (Pugach & Wesson, 1995, p.228). Overall, students perceived a division of labor in which Ann responded to their individual needs, both academic and social, and Dick and Hal (both general education teachers) "taught," which meant delivering content.

The teacher interview was an informal open-ended discussion lasting about two hours on Friday afternoon after school. The data collected from teacher interviews focused on: (1) teachers' perceptions of the program's successes and limitations, (2) perceptions of the performance of the students with learning disabilities, and (3) the nature of the teachers' interactions, and the degree to which the program could meet the needs of all students in the two classes.

According to Pugach and Wesson (1995), results from this study indicated that co-teaching appeared to offer an important alternative to traditional models of special and compensatory education. The authors stated, "Based on these results, there is reason to move forward with initial efforts at collaborative team teaching (i.e., co-teaching) albeit cautiously, at the same time that further research is conducted" (p. 294).

Critique

The problem statement was clearly defined. The authors' problem statement was theoretically significant and an argument was made for the need to investigate this topic. It was when Pugach and Wesson (1995) attempted to

develop a linkage between the problem statement and the specific research question(s) that a breakdown occurred. The problem statement was presented at a conceptual level, but was not conceptually framed into specific research questions. Because the research questions were not clearly defined, it was difficult to logistically relate the problem statement to what information the researchers hoped to attain. Pugach and Wesson (1995) did state the purpose of the study was, "to solicit students' and teachers' perceptions on co-teaching" (p. 281). The selection of a qualitative method did seem to be the best avenue for conducting this study. It is possible that because a qualitative method was used, the researchers did not expect to define the research questions at the beginning. In fact, near the end of the article, the authors attempted to "frame" the interpretation of data (from students only) into two questions. The first question, "What are the general benefits of co-teaching for all students?" (p. 293) was in fact related to the themes which emerged from the student interviews. The second question, "Which characteristics of this collaborative team are simply a manifestation of good teaching and which provide special benefits to students with learning disabilities?" (p. 293) was discussed by the authors. However, the discussion appeared to be anecdotal or opinion and was not based on information from participants. The authors did not attempt to frame the data gathered from teachers' perceptions into any specific question(s).

The review of literature seemed to relate more to the problem statement than to co-teaching. In fact, only one reference with respect to co-teaching was made and this was to define the term, co-teaching.

Pugach and Wesson (1995) clearly described the sample selection. Because of statements provided by the two general education teachers that, "disproportionately large numbers of students with behavioral problems were placed by administrators in the two fifth grade classes that had male teachers" (p. 281), some concern may be warranted with respect to the heterogenous grouping in the general education classrooms. Also, 14 of the total 18 students participating in the student interviews were female. Each fifth-grade class included six to seven students with disabilities. All of these factors combined seem to question the true heterogenous grouping in which these studies were conducted.

Probably of most interest was why the study did not attempt to include the other two district sites implementing the same co-teaching model. By having more than one sample group, the researchers could have demonstrated stronger validity.

Prior to this study, the student interview was pilot tested. The researchers did provide a copy of the revised student interview which was comprised of eight questions. One particular flaw in this study involved the teacher interviews. The process of the teacher interviews was explained vaguely and was stated as, "an informal and open-ended discussion lasting about two hours was conducted on a Friday after school" (Pugach & Wesson, 1995, p.282). Does this mean all three teacher participants were interviewed on an individual basis or was one group discussion between the researchers and the three teacher participants conducted? The researchers did not provide any description or example of the

types of questions asked. No instrument or teacher interview questions were available to review. If the researchers hoped to investigate teachers' perceptions on co-teaching, this study does not present the process of how this was done. The researchers' data analysis of teacher interviews lacked any systematic attempt to code and/or categorize. In fact, the results of the teacher interviews were not presented. One reference made to teacher interviews was all that was found. The researchers stated, "that they provided relevant insights and observations" (Pugach & Wesson, p. 288). What these insights and observations were, is not described in the study.

One of the strengths of this study was in the researchers' data analysis of student interviews. They did a good job of identifying patterns of student responses and categorizing these into themes and subthemes. The information was provided in both a narrative description and a table summary.

The techniques used to analyze the data from students consisted of a frequency table showing the number of comments made on a particular area and the number of students making those comments. If the researchers would have coded teacher interviews, possibly a chi-square could have been used to compare the results of students' and teachers' perceptions on co-teaching. Another option may have been to perform a factor analysis of the data. Either of these methodologies may have provided additional understanding of the process and the product from this study.

The strongest aspect of this study was the researchers' ability to recognize a need for distinction between the benefits of co-teaching from other

instances of good teaching. Many benefits attributed to good teaching (i.e., teacher caring, motivation, cooperative learning strategies) were dealt with in this study. However, the researchers had the insight to ask, "What can be accomplished in a co-teaching model that cannot be accomplished in the very best resource room or general education classroom?" (Pugach & Wesson, 1995, p. 292). Their findings were reported in a table summarizing eight aspects of teaching that were strengthened by co-teaching. Although it was not clear how this information was derived, the distinction between co-teaching and "good teaching" was confirmed by the researchers.

Introduction of Study #2

Redditt (1992) conducted an ethnographic study on co-teaching. An analysis of the perspectives of one general education teacher and one special education teacher who co-taught at a kindergarten class was made. The central focus of the research was to gain an understanding of the perspectives and of the feelings of one co-teaching team that worked together to teach a heterogeneous group of students.

Method

Sample and Setting. A public elementary school located in an urban area was the location of this study. One general education teacher (using the fictitious name of Mary) and one special education teacher (using the fictitious name of Nadia) were the primary participants of the study. Mary and Nadia had taught an integrated K-1 classroom for three years. Both teachers were volunteers in using the co-teaching model of instruction. Nadia had previously

co-taught in another school.

Procedures. Data for this study was obtained from the following three sources: (1) weekly tape-recorded interviews over a period of four months (2) participant observations, and (3) phone interviews. Data were collected in three phases. In phase one, the researcher focused on Mary and Nadia's teaching routine through formal and informal open-ended interviews. In phase two, the researcher collected data as a participant observing in the classroom. In phase three, the researcher used phone interviews to confirm data collected in interviews and observations.

Data Analysis. The researcher had each interview and observation transcribed into written format. The transcriptions were coded and presented in the following four essays: (1) different co-teaching styles used by Mary and Nadia (2) characteristics of co-teaching and collaboration (3) the ethos of Mary and Nadia's co-teaching relationship compared with feminist literature on empathy, mutuality, and women's growth in relationship, and (4) specific consequences of the ethos, such as the balance that Mary and Nadia had achieved.

Results and Discussion. The results indicated four themes that emerged: (1) the team used a predominantly "interactive style" of working together, (2) the team talked about and displayed a number of collaborative characteristics such as relational parity and constant verbal and non-verbal communication that helped them to "work well together", (3) the consequences of the team co-teaching together included a balance of personal strengths, weaknesses, and

relational power, and a number of specific benefits for students and teachers, and (4) the team "worked together as one" person, displaying relational empathy and mutuality that is the ethos of their professional relationship.

Critique. Although the study was limited in scope (focusing on only one co-teaching pair), the findings do reveal insight into the human dimensions of co-teaching and to the thoughts and feelings of co-teachers. This research begins to fill the gap in the literature on qualitative studies of co-teaching.

The researcher began each interview with a set of questions, but these were frequently modified to get new or different information. This may make the study difficult to replicate. Certainly, the findings should not be generalized to a sample outside of the two participants involved in the study.

Applied Behavioral Analysis

One study using a single-subject design was found on co-teaching for students who were at risk. Although this study was not specific to students with disabilities, special education teachers were involved.

Introduction of Study

Self, Benning, Marton, and Magnusson (1991) used a single-subject design to investigate the impact a Cooperative Teaching Project (CTP) had on high risk students. General education, special education, Chapter I, and compensatory education teachers were involved in the model. The two major goals of the project were: (1) to reduce the discrepancy in reading and readiness skills of high-risk students and their grade-level peers and 2) to increase classroom teachers' repertoire of instructional strategies to use with low-

achieving students.

Method

Population and Sample. Students attending an urban elementary in Minneapolis were selected as the population for this study. A total of 470 students were enrolled at the K-3 elementary school. Forty-four percent of the students were minority, 59% were eligible for free or reduced cost meals, 95% were bused to school, and there was a 42% student turnover rate in the academic year.

Of the staff involved in the CTP project, 14 were general education teachers, two were compensatory education teachers (job description not defined), two were special education teachers, two were Chapter I tutors, and one was a speech/language clinician. Staff development was provided on instructional strategies and cooperative teaching. All staff members were trained to monitor, chart, and interpret individual reading and readiness progress using trend lines and individual progress goals.

Procedures. Approximately 170 of the 470 students attending an elementary school were selected to be part of the CTP sample. Selection was made according to the following criteria: (1) scored below the 25th percentile on curriculum-based measures in reading and readiness, (2) scored below the 25th percentile in the district-designed grade-level test, (3) progress below expectation, and (4) teachers and parents expressed concern. Students were then assigned to a CTP class and a specific group according to his/her skill level. The general education teacher provided the primary instruction while the

remaining teachers/staff (i.e., special education, Chapter I, etc.) provided supplemental instruction in the general education classroom. The supplemental instruction included 25 minutes of reading/readiness instruction in small groups 5 days per week. Those students identified as having limited language skills received 25 minutes of supplemental instruction from the speech/language clinician 3 days per week.

Data Analysis. A single-subject time series analysis was used to assess pupil learning rate while students were taught in both a CTP and non-CTP condition. Of the 170 students participating in the CTP model, nine students were included in the analysis during the first year and 28 students during the second year. The slope of the learning was calculated for each student while being served in the general education classroom and then again after being placed in CTP. To compare the CTP to non-CTP, the learning rate for each student was aggregated for each phase and analyzed using a paired *t*-test. Reading and readiness progress was measured individually on a weekly basis. A formative evaluation procedure consisted of having students read from grade level passages once weekly for one minute while the teacher counted the number of words read correctly. Performance was charted on an equal-interval graph using the moving median approach. Interjudge reliability coefficients for teachers measuring reading and readiness exceeded .90.

Results and Discussion. The average rate of improvement for the nine students during the first year was .83 words per week for the non-CTP group (SD = 1.06). After students began the CTP class, the average rate of

improvement increased to 2.89 words per week (SD = 2.78). When comparing the CTP and the non-CTP group, a paired t-test analysis indicated a t-value of 2.19, with a probability level of .060. During the 2nd year, the average gain per week for non-CTP was .58 while the CTP reported a gain of 1.78. A paired t-test analysis provided a t-value of 3.25 with a probability of .003. When reviewing a breakdown of learning slopes by grade level, inconsistencies were apparent. It appears that statistical significance did occur, but was inconsistent from one grade level to another.

Although teacher attitudes were not assessed throughout the project, one attitude questionnaire was completed at the end of the project. Overall, teachers expressed an interest in more specific instructional strategy training and more scheduled time to team about individual students. The teacher questionnaire was limited to eight questions to which they were to agree or disagree.

Critique. The use of a single-subject design provides a unique perspective on the effects of co-teaching on students. One of the goals stated by the researchers was to reduce the discrepancy in reading and readiness skills of high-risk students and their grade-level peers. This research design may be the most appropriate in determining whether that goal was accomplished. However, the rationale for selecting an applied behavior analysis design (i.e.,sample group was not large enough to conduct a comparison of two groups) may be questionable. If 170 CTP students and 300 non-CTP students were available, other research designs might also have been appropriate.

Limitations which were not discussed by the researchers may have

affected the results of the study. In several instances, the researchers did not provide enough details or description. For example, the authors were vague in describing how students were selected to be used in the single-subject analysis. If the selection of the nine students from the first year and 28 students from the second year were random, the results could be more easily replicated and validated. Also, the authors alluded to some staff not willing to participate in the CTP project and that, "as a result, the principal made some unilateral decisions" (Self et al., 1991, p. 32). No information was given to what unilateral decisions were made and the possible impact on the study. An additional concern may be the 42% student turnover rate in each academic year. The authors did not discuss the attrition of subjects and it is not clear whether students participating in the CTP group remained constant or if data collected was dismissed.

The strongest concern is ethical in nature and reflects the district's decision to not identify Chapter I students or students with disabilities. In fact, the researchers stated, . . ."the project had a definite impact on special education; the majority of students receiving CTP service were able to progress at or above district expectations without being labeled or pulled out for special education" (Self et al., 1991, p. 32). Couldn't the CTP program be available as an option for students who were eligible for Chapter I or identified as having a disability? The "majority" as stated by the researcher certainly does not address the intent of the Individuals with Disabilities Education Act (IDEA) and the emphasis for *individuals* to be guaranteed procedural safeguards.

A possible limitation may have been the researchers neglect to address

potential intervening variables that may have affected the results of the study. In addition to cooperative teaching, other factors that may have influenced the results of the study included motivational strategies, parent involvement and contracts to improve attendance. Of interest would be whether the researchers could have teased out the different variables and their effect on the results of the study.

Quantitative Research Study

Within the literature, two quantitative research designs relevant to co-teaching as an alternative service delivery model were found.

Introduction of Study #1

Stanford (1995) used a quantitative research methodology to investigate an existing program of co-teaching in an elementary setting. Academic achievement of general education students and students with learning disabilities was evaluated. The co-teaching model had been in existence for two years prior to this study. The evaluation was needed to assess the program's viability as a service delivery model for students with learning disabilities and to allay public concern of "watering-down" instruction for the general education students included in the co-teaching environment.

Method

Population and Sample. In the fall of 1992, a school district located in Mississippi began implementing the Pupils Associate Learning Smiles (PALS) project. Twenty students with learning disabilities and 10 students without disabilities were assigned to the experimental group that utilized co-teaching.

No Chapter I students were assigned to the co-teaching classroom, but instead were randomly assigned to the remaining five fifth grade classrooms. Students who had been retained did not participate in the experimental group. The control group consisted of 25 students without disabilities in the general education classroom and 10 students with learning disabilities who attended a resource/pull-out program.

One general education teacher volunteered for the co-teaching assignment in the experimental group. A special education teacher who had some experience in whole language and cooperative learning was hired as the other member of the co-teaching team.

Procedures. All fifth graders in this district were administered the Stanford Achievement Test (SAT) in April of each school year. The test was administered by the home room teacher with a test proctor present. In the inclusion class (experimental group), both teachers shared the test responsibility. Because these were intact groups, an analysis of covariance (ANCOVA) was used to adjust for intact group mean differences. The SAT given in fourth grade was used as a covariate and the SAT given in fifth grade was used as the dependent variable. The areas to be evaluated included total reading achievement, total math achievement, listening achievement and thinking achievement.

Data Analysis. The design for this study was a posttest-only, nonequivalent control group quasi-experimental design. An ANCOVA was selected as the statistical treatment used to analyze the data. The SAT raw

scores from the fourth grade were used as the covariate (pretest) to control for initial differences resulting from the use of the intact groups. The subtest raw scores from the fifth grade SAT were used as the posttest. A statistical significance of 0.05 was selected. Effect sizes were computed when instances of statistically significant achievement differences occurred in the adjusted means.

Presentation of data by Stanford (1995) was made through narrative, tables, and charts. The data was used to compare the achievement of general education students in a traditional classroom setting with general education students in a co-teaching setting. It also compared the achievement of students with learning disabilities in a "pull-out" setting with students with disabilities in a co-teaching inclusive setting.

Results and Discussion. The following graphs provide a summary of the results for comparison of students without disabilities (see Figure 1) and a comparison of students with learning disabilities (see Figure 2).

Although general education students and students with disabilities in the experimental group showed gains in total reading achievement, it was the students with learning disabilities who made statistically significant improvement in reading. The general education students in the experimental group showed no significant difference in reading achievement when compared to the control group. There appeared to be no statistically significant difference in the effect of the environment on either experimental or control groups in math achievement. Although both subgroups of the experimental group did show gains in math

Figure 1

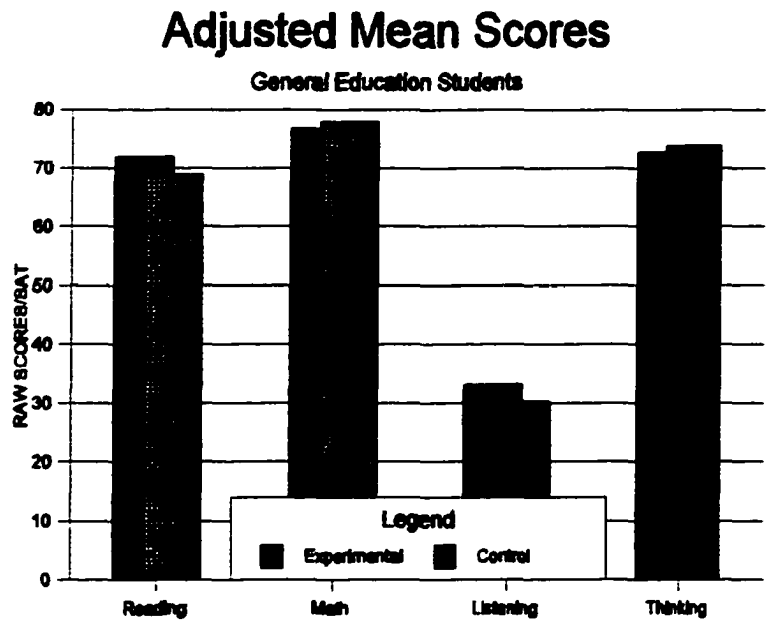
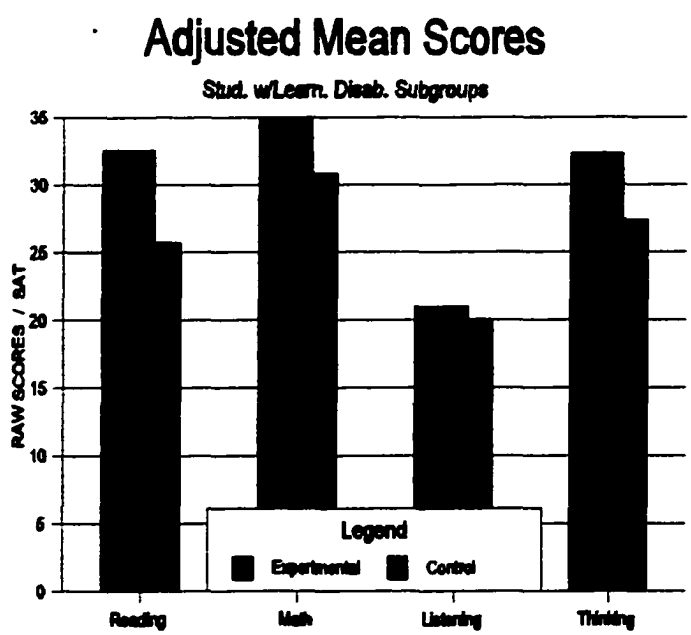


Figure 2



achievement, the results are not statistically significant at the 0.05 level. There was a trend in favor of the experimental subgroup for the students with learning disabilities and an opposite trend for the general education students. Neither the presence nor absence of co-teaching seemed to influence math achievement.

There was no significant difference in the listening achievement of students with learning disabilities when they received instruction in a co-teaching program as compared to students with disabilities who received instruction in a resource setting. However, the general education students participating in co-teaching did make statistically significant improvement. Because the comparison of adjusted mean scores for listening achievement yielded a F-ratio of 4.32 which is greater than the critical F value of 4.045, the results are statistically significant at the 0.05 level.

From this study, it may be concluded that students with learning disabilities perform as well or better in the general education classroom with co-teaching, than did their peers in a resource/pull-out program. The general education students in the co-teaching classroom performed as well as their peers in the traditional setting. The concern of curriculum being "watered down" for students without disabilities being co-taught with students with disabilities seems unfounded based on this study.

Critique. There were three possible limitations which may have affected the results of this study. The first limitation concerns the subjects participating in the experimental group. A true heterogenous group may not have existed in a

class consisting of 20 students with learning disabilities and 10 students without disabilities. According to Walther-Thomas et al. (1996), "A high concentration of students with special needs within a class makes it easy to overload classrooms with challenging problems" (p. 258).

The second concern is that the district seemed to be implementing more than just a co-teaching model. Stanford (1995) discussed earlier that the district was also utilizing cooperative learning and whole language curriculum. The students had even received training in cooperative learning strategies. Could the cooperative learning and/or the whole language teaching strategies have contributed to the results reported by the researchers? Could the cooperative training given to students have affected the results of the study?

A third possible limitation occurred when the researcher attempted to make equal the two intact groups by using an ANCOVA design. Horst, Tallmadge, and Wood (as cited in Schulte, Osborne, & McKinney, 1990) report, "When an ANCOVA is used to adjust for pretest differences, researchers must be sure the differences between groups reflect population differences rather than sampling error. ANCOVAs systematically under-adjust for initial differences between groups" (p. 7). It is not clear whether the researchers considered this possible limitation in using an ANCOVA.

Whether or not the researcher's lack of control for these three potential intervening variables affected the results of this study is unclear. The researcher should have considered addressing these limitations within the discussion of her study.

The study was conducted after two years of implementing the co-teaching model. It may have been valuable for the researcher to use the information from previous years as a pilot study. Were any of the students in this study also in previously taught co-teaching models? How much effect may be attributed to the prior existence of co-teaching by any of the teacher participants? Also, only those students with learning disabilities whose I.E.P. team had determined it appropriate to participate in the SAT test were allowed to participate in the study. Are there characteristics of students with disabilities who do not participate in the SAT that are different from those students with learning disabilities who do participate?

The researcher did select a research design with several advantages. She recognized that the groups were intact and would need to be adjusted so as to be equal before the study was conducted. She recognized and explained the need for this to be a quasi-experimental study, rather than a true experimental design. In choosing subjects, the researcher attempted to maintain some heterogeneity by allowing 10 students without disabilities to participate in the experimental group. By excluding students who had been retained or were in Chapter I, the class did not completely start out as a "remedial" or "low achieving" group as did a study conducted by Carlson, Ellison and Dietrich (1984). In their study, the sample consisted of students with learning disabilities and low achieving students. No students with average achievement ability were included in the sample.

Also noteworthy, the researcher valued the effects of the co-teaching on

both students with disabilities and students without disabilities. Too often, we are concerned with the different segments of a group and do not investigate the effects upon all those involved.

Introduction of Quantitative Research Study #2

Schulte, Osborne, and McKinney (1990) investigated the differences of pretest and posttest achievement test data for 67 students with learning disabilities. The students were assigned to one of four conditions: one period of resource room instruction per day; two periods of resource room instruction per day; consultative services combined with in-class instruction; and consultation services to classroom teachers without in-class instruction. The consultative services combined with in-class instruction appears to have had a co-teaching component and a review is warranted.

Method

Population and Sample. Eleven elementary schools were randomly selected from 48 schools in a large district serving more than 60,000 students in kindergarten through 12th grades. Rural, small-town suburban, and urban schools make up the districts and were represented in the study. A total of 108 students with learning disabilities in grades kindergarten through fourth grade participated. These students were randomly assigned to one of four treatment conditions. After students were assigned, the project was explained to teachers. If a teacher agreed to participate, a district representative and a project consulting teacher met with the child's parent(s) to explain the project, student and family rights, and to solicit permission for the child's participation. If

assignment to a treatment condition necessitated a change in the student's individual educational program (IEP), approval for participation was required from both the IEP team and the district's administrative placement committee as well as the parent(s) or guardians.

Procedures. The Woodcock-Johnson Tests of Achievement (WJTA) was administered to participants in reading, written language, and mathematics at the beginning and end of the study. Schulte et al. (1995) reported the WJTA was selected because it was appropriate for the age range of the group in this study and was widely used in research for students with learning disabilities. Also used were the posttest scores on a criterion-referenced reading test developed by the school district.

In addition to collecting data on achievement, three instruments were used to collect information about student placement and treatments. The Resource Room Questionnaire (RRQ), developed as a part of this project, documented instructional materials, caseloads, grouping strategies, and basis for determining IEP objectives. A second instrument used was a weekly log maintained by the resource room teachers. It documented the number of periods a child attended resource. The third instrument was completed by classroom teachers who participated in the two consultation models. Researchers selected an instrument developed by Erchul (1987). This instrument, The Consultation Evaluation Questionnaire (CEQ), was administered at the close of the study and most accurately reflects the teachers' perceptions on consultation.

Treatment. Each school site implemented all four treatment conditions. In the consultation conditions, special education services were provided by three masters-level learning disabilities specialists who were hired by the project. Each consultant teacher provided consultation direct (C/D) and consultation indirect (C/I) services to the appropriate treatment group. In the C/D model, the consulting teacher not only worked with the teacher, but provided direct instruction in the classroom for approximately one-half hour per day, two or three days a week. The C/I model focused on modifying classroom behavior, enhancing motivation, and teaching organizational strategies. The C/I consultant had no direct interaction with the students. The caseloads of the teachers providing consultative services were 12-14 students per teacher. Consulting teachers received 12 hours of training from project investigators, and attended bimonthly inservice training. They also participated in supervision in collaborative consultation and problem solving.

The third and fourth treatment groups were resource room treatments. If a student was assigned one period of resource room (RR1) they received 45-50 minutes of instruction four or five days per week. A student assigned two periods of resource room (RR2) received 90-100 minutes four or five days per week. The caseloads of the resource room teachers averaged 27 students per teacher.

Data Analysis. Using a multivariate, repeated-measures, analysis of variance (ANOVA), the researchers tested a 2X3X3 model in which condition (3) was a between-subjects factor and time(2) and test (3) were within-subject

Table 2

Pretest and Posttest Mean Achievement Test Scores

	Condition				
Test	CI	CD	RR1	RR2	Total Group
n	14	19	19	15	67
WJTA Reading					
Pretest					
M	92.3	91.0	92.5	80.4	89.4
SD	11.4	11.0	12.2	7.9	11.7
Posttest					
M	95.6	95.7	95.3	84.2	93.1
SD	11.1	9.9	12.0	9.2	11.4
WJTA Written Lang.					
Pretest					
M	95.0	94.2	92.6	84.1	91.6
SD	10.4	12.2	9.5	5.6	10.5
Posttest					
M	97.4	98.4	95.9	88.9	95.5
SD	10.4	12.9	11.6	8.8	11.6

Table 2 (Continued)

Pretest and Posttest Mean Achievement Test Scores

	Condition				
Test	CI	CD	RR1	RR2	Total Group
WJTA Math					
Pretest					
M	92.3	96.2	99.5	83.5	93.5
SD	8.2	17.3	15.7	7.7	14.6
Posttest					
M	98.0	103.1	101.2	91.9	99.1
SD	10.0	15.0	15.2	10.4	13.6
*Essential Skill Assessment					
Read./Study Skills					
Posttest					
M	17.2	16.6	17.5	14.9	16.6
SD	5.1	4.6	4.4	6.4	5.1

*Posttest only available for the criterion-referenced reading test (Essential Skills Assessment Reading/Study Skills) developed by the district.

factors. An ANCOVA using students' scores was used to test for differences between treatment groups at posttesting on the criterion-referenced reading measure.

Results and Discussion

Analysis of pretest achievement measures indicated that students assigned to two periods of resource room per day differed significantly from the other three groups. Results from this group were analyzed separately. A table is used to present the results of all treatment groups and reports specifically the mean pretest and posttest achievement scores (see Table 2). Of the remaining three treatment groups, researchers reported that the C/D group made greater overall academic gains than the RR1 group ($p < .02$). No other comparisons between groups showed statistical significance when measuring academic achievement. Responses to the CEQ indicated that, overall, teachers participating in both the C/I and C/D models viewed the consulting teacher and consulting process as positive. On items of the CEQ that measured the teachers' perception of consultation's effect on the target child and their preparation to deal with similar children in the future, mean ratings were reported to be statistically significant. These means suggested that the teachers in the C/D group saw consultation as more effective ($p < .006$) when compared to the C/I group.

Schulte, Osborne, and McKinney (1990) suggested more restrictive criteria (e.g., reading disability only) might have yielded more robust treatment effects. The authors summarized that the consulting direct service delivery

model appeared to be an effective alternative to the traditional pull-out/resource programs. However, they cautioned that the need for investigations of the implementation process does exist. Students assigned to the consultation direct model of services made greater overall academic gains than students assigned to a resource room program for one period per day. These gains were not significant when achievement (WJTA) was examined separately for reading, written language, and math. Students in the consultation indirect model of services made achievement gains comparable to those of students in the resource room. No significant differences were found between treatment groups on the criterion-referenced reading measure. Classroom teachers' perceptions suggest that the consulting direct services and the consulting indirect services were both viewed positively. No significant differences were found between these two types of service delivery according to the consultant and process subscales of the CEQ. However, the teachers' perceptions (CEQ) saw consultation combined with direct services as somewhat more effective.

Critique

Several disadvantages in this research design exist. The selection process of the sample group has ethical and statistical concerns. As described by the researchers, the students were randomly assigned to treatment conditions prior to the parent being notified of the study. This appears to be in direct conflict of the procedural safeguards of the student and parent (Code of Federal Regulations 300.561 and 300.562). The researchers further explain that after the assignment was made, a meeting was held with a district representative, the

project teacher and the parent(s) to explain the project, student and parent rights, and to obtain permission. Perhaps the researchers should have first met with the parents, discussed the project and asked for volunteer participants. Even then, the selection of which treatment condition a student was assigned should have been paired with the individual needs of that child and not a random assignment to a group. Maruyama and Deno (1992) stated,

> For research in school settings, however, the reality is that true experiments are difficult to conduct, especially if the study is to run over a long period of time. For example, in our study of low achieving students identified as having disabilities, laws and regulations preclude random assignment of subjects to conditions. (p. 88)

Along with this ethical issue is the fact that the consultation teachers were hired by the project researchers. This presents a possible bias and may have affected the results of the study. Tuckman (1988) stated:

> Experimental participants and their controls must experience a comparable history within the experiment in all regards other than for those experiences being tested. One common source of history bias is termed *teacher effect* and occurs when teacher A, teaching method A, is compared to teacher B, teaching method B. In such cases, it is impossible to separate the effect of the teacher from the effect of the instructional method. (p.116)

The parents' first meeting to receive information about the project included an administrative representative and one of the teachers hired by the

researchers. During this meeting, as well as during several other stages of the study, the project teachers may have been too closely associated with the project to be unbiased (Brown, Pryzwansky, & Schulte; Lippitt & Lippitt as cited in Schulte et al., 1990).

The researchers failed to mention whether or not they informed all participants they could withdraw from the experiment at any time. They also did not discuss any attempt of good faith after the study was concluded. Are they willing to allow students participating in the study the choice of continuing the same service delivery after the study is concluded? Are the researchers willing to provide additional training should the study show statistical treatment effects? Will students in the control group (i.e., resource room) have an opportunity to participate in one of the service delivery models if it is shown to be effective?

The researchers did recognize some of their limitations. The caseloads of the resource room teachers were much higher (27 students per teacher) when compared to the caseloads of the consultant teachers (12-14 per teacher). An explanation was given that the consultant teachers had to make time to be in class, but one half hour every three or four days in a general education classroom may not warrant such a discrepancy in caseload. Although the researchers did recognize the disadvantage of hiring the consultant teachers, they did not specify in which areas of the study this may have affected. The readers are left to speculate as to what extent the results of this study are valid.

The advantages of using this research method appeared well-intentioned. The researchers seemed to have wanted to conduct a true experimental design.

For example, the random assignments of students with learning disabilities to one of four treatment groups would "minimize selection invalidity" (Tuckman, 1988). Also, Schulte et al. (1990) did select an appropriate instrument, the WJTA, for the age of the sample group. The WJTA has been used widely in research for students with learning disabilities. In addition, the use of a multivariate, repeated-measures ANOVA to test a 2X3X3 model does provided valuable information regarding "between-subjects factors" and "within-subjects factors."

Hybrid Study

Only one study using a hybrid research design could be located in the literature. In this study, Carlson, Ellison and Dietrich (1984) investigated co-teaching in conjunction with cooperative learning. This particular study used a combination of quantitative and qualitative methodologies.

Introduction

Carlson, Ellison and Dietrich (1984) conducted a hybrid study on the effects of an alternative service delivery model for serving both low-achieving students and students with learning disabilities in a general education classroom environment. The "process-consultation model" was chosen as the alternative model. In this model, the roles of general education classroom teacher and special educator/consultant became those of complementary team members. This process-consultation model appeared to have a co-teaching component and a review of the methodology is warranted.

Method

Population and Sample. The study was conducted in a school district of a middle-sized Midwestern city. From a total population of 990 general education teachers and 50 learning disabilities teachers, 17 general education teachers and 13 learning disabilities teachers volunteered to participate. Of these volunteers, seven general education teachers and six learning disabilities teachers (seven teams) were randomly assigned to the experimental group with the remaining teachers forming the control group.

The random selection of students resulted in representation of varying socio-economic levels and grade levels in both experimental and control groups. In the experimental group, 21 students with learning disabilities and 24 low achieving students were identified. In the control group, there were 16 students with learning disabilities and 28 low achieving students.

Training was provided to the experimental group of teachers. Over a three day period, these teachers received training in two areas: 1) training in complementary roles and teaming skills and 2) training in basic tenets of cooperative learning. Approximately fifty percent of the training time was devoted to teaming skills and fifty percent to the basic tenets of cooperative learning.

Over a seven month period, the process-consultation model was implemented. Carlson et al. (1984) attempted to minimize contact between experimental and control groups. The control group was assured that they would receive training at the conclusion of the experiment.

Procedures. Several sources of data were used for this study. For students, both achievement and attitudes were measured. Four subtests of the Diagnostic Achievement Battery (Newcomer and Curtis, as cited in Carlson et al., 1984) were used to assess reading and math achievement. My Class Inventory (Fraser, Anderson, Alberg, as cited in Carlson et al., 1984) was used to measure social climate.

Because one goal of the study was to use teaming skills between general education teachers and special educators in inclusive classes, an instrument was needed to assess actual classroom interactions. The researchers selected the interaction component from the Teacher Interaction Codes (Stallings, as cited in Carlson et al., 1984). Coding was done by unbiased, trained graduate student observers during the first two weeks and last two weeks of the experiment. Teaming skills were also evaluated using an Analysis Form for Team Meetings from the Communication Model of the Experimental Education Unit at the University of Washington in Seattle (Lewis, as cited in Carlson et al.). Levels of concern were assessed using the Teacher's Concerns Statement developed by Fuller (as cited in Carlson et al.). According to Carlson et al. all instruments had undergone extensive field testing, were widely used in research studies, and were shown to be reliable.

Data Analysis. To test the significance of the results of student achievement and social climate, an analysis of variance with repeated measures (BMDP Statistical Software) was used for each dependent variable. F tests were obtained from this analysis. Teacher interactions were ranked and compared for

pretest and posttest implementation for both experimental and control groups. A simple sign test was applied to the measures of team interaction and levels of teacher concern. Data on open-ended surveys of teachers in the experimental group were summarized.

Results and Discussion

A .05 alpha level was selected to determine statistical significance. Results were presented under two main headings: (1) pupil measures and (2) teacher measures.

Results of Student Measures. The pupil measures reported findings in three achievement areas and five social climate areas. The achievement areas included reading comprehension, math computation, and math reasoning. Pupil measures gathered on social climate included cohesiveness, satisfaction, competition, difficulty, and friction. The following is a brief summary of the significance found in these eight areas of pupil measurement.

The process-consultation model as compared to the removal model appeared to have more positive gains in reading comprehension and math computation. However, these gains were not large enough to be statistically significant. Also, in math reasoning, the students with learning disabilities receiving instruction in a pull-out/resource room had greater gains, but still did not achieve statistical significance.

For the social-climate dimension, the students with learning disabilities in the experimental group expressed more satisfaction over time than did those students in the control group. For the social climate dimension of difficulty, both

the low achieving students and the students with learning disabilities in the experimental group as compared with the control group expressed feelings that the work was less difficult over time. There were no significant differences found in the remaining three dimensions of social climate.

The results of the social climate measurements were consistent with the open-ended comments where pupils indicated the support they felt from peers, making the work seem less difficult. The students with disabilities said that they liked being part of and contributing to group interaction.

Results of Teachers' Measures. Carlson, et al's. (1984) study also investigated co-teachers' perceptions on co-teaching. The Teacher's Concerns Statement (Fuller as cited in Carlson et al., 1984) was used to assess levels of concern from teachers participating in the process-consultation model (see Table 3). A simple sign test was assigned to measure the levels of concern expressed by teachers. There was a general direction for teachers in the process-consultation group to move to higher levels of concern from pretest to posttest assessment. Carlson et al. summarized:

> They moved from concerns about themselves and teaching subject matter to greater concern about pupils and what they, as individuals, needed to learn. There were also concerns about broader professional issues related to organizational structures that would meet pupil learning needs. (p.29)

Also included in this study was the gathering of data using an open-ended, structured survey. Teachers reported that in the process consultation

Table 3

Level of Concern in Teachers in Experimental Groups

Teacher Number	Pre	Post	Direction
1	2.3	4.0	+
2	4.0	4.5	+
3	5.0	4.4	-
4	3.5	4.7	+
5	3.0	4.8	+
6	2.7	5.2	+
7	4.6	4.6	0
8	4.5	3.7	-
9	2.4	6.0	+
X	3.76	4.66	+

model, a great support system was built into the teaching experience. Teachers stated, "There was a freshness in approach which gave pupils more enthusiastic instructors" (Carlson et al. 1984, p. 29). Joint problem--solving where "two heads are better than one" was stressed. They discussed the techniques that can be learned from other colleagues. Teachers in special education learned about how students in general education classrooms function and what teacher expectations of general education students were. General education teachers benefitted by learning new strategies for individualized and modified curriculum.

The process-consultation model would need to be replicated on a broader scale to corroborate results before generalized statements could be offered. For the sample in this study, the results of the research suggest that the model provides a support system and model for both students and teachers.

Critique

In the review of literature, the researchers provided a description of three "generic" models of instruction based on Neel's (1981) triadic model. The researchers theorized that a fourth alternative service delivery model could extend services to students with disabilities and low achieving students in the general education classroom. The researchers provided a problem statement that was theoretically significant. A study of this process-consultation group model was needed to investigate the effects on students and teachers.

The rationale for conducting this investigation was supported by the researchers with comments such as: "Little evidence has been collected about models where cooperative goal structuring is paired with in-class collaboration of

regular and special educators, where the special education service is provided in the regular education classroom" (Carlson et al., 1984, p. 6).

The research questions flowed smoothly from the problem statement and were clearly stated. It appeared from the onset that these researchers intended to investigate the process-consultation model (co-teaching and cooperative learning) and acknowledged that the model was a combination of two different interventions. They did not attempt to separate these two interventions and made it clear that this experiment would investigate one instructional model, not two separate components of the model.

The methodology for selecting a sample group of teachers from an appropriate population was described in detail. The description of how teachers were selected was understood enough, so that this portion of the study could be easily replicated. The selection of students was not quite as clear. The researchers stated that the selection was random, represented varying socio-economic levels and grade levels. At this point, they began describing the selection of the experimental group by providing a definition of students with disabilities and low achieving students. However, a final description of the control group was vague. The control group was referred to as the "removal" group. The reader must assume "removal" refers to students with learning disabilities being removed from the general education classroom and served in a pull-out/resource room. It was not clear how the low achieving students are "removed" or whether they would be instructed in a general education classroom that does not utilize co-teaching or cooperative learning.

The strongest limitation in the selection of the sample group was the lack of heterogeneous grouping. We know that a total of 21 students with learning disabilities and 24 low achieving students were assigned to seven teams (one learning disabilities teacher and one general education teacher). We do not know how many were assigned to each team. A chart listing students according to "primary," "intermediate" or "junior high" assignment provided limited information. It appeared that the junior high had a combination of nine students with disabilities and low achieving students assigned to one team. The primary grade level had assigned a combination of 29. According to Walther-Thomas et al. (1996), in a class of 25 students, no more than six class members should have identified disabilities in the mild to moderate range or other related problems that make them candidates for school failure. In this particular study, it appeared that the number of students with disabilities combined with the number of low achieving students in math and reading exceeded this recommendation. The lack of heterogeneity may have been an intervening variable.

Although the control group had a similar class makeup, students with disabilities were removed to a pull-out/resource room for math and/or reading. This would return the general education class to more of a heterogenous group during the period these students were removed.

A direct advantage of this study was the training that was provided prior to the implementation of the study. It would have been interesting to determine how much the training contributed to the success of the process-consultation model. One possible disadvantage of the study was the lack of a pilot study.

Because this study was conducted over a seven month period, a pilot study may have provided invaluable information.

The research design selected by the researchers was more than adequate. They seemed to ask enough questions to recognize that one specific methodology could not provide all the answers. By combining qualitative and quantitative research designs, the researchers could explore more thoroughly the effects of the process-consultation model on both students and teachers. These effects could be reported with statistical significance as well as through interviews. Both methodologies were needed in order to provide answers for the questions posed by the researchers.

One advantage of the research method used in this study was in the choice of instruments administered in the quantitative portion. Carlson et al. (1984) went to great length to identify, explain and validate the use of the instruments. They seemed to select instruments that could measure the dependent variables accurately. The use of an ANCOVA with repeated measures to analyze data allowed student achievement scores and social climate dimensions to be measured over a period of time.

The qualitative portion of the study allowed student and teacher attitudes to emerge which contributed to the depth of the study. The quantitative portion of the study could not provide the insight and reflection of students and teachers participating in this study. The decision to incorporate qualitative and quantitative research designs into this study is what makes this study so much stronger. Because the researchers used a hybrid study and even included a

variety of measures within the different methodologies, this study has several layers of support.

A possible concern already recognized by Carlson et al. (1984) in the "further considerations" section of their study was the need to separate the two components of the process-consultation model. They stated,

> Would specified content in math and reading be learned more effectively in cooperative groups if a special educator is present in the classroom as compared to the general education teacher assuming full responsibility for all pupils? Would a teaming model with the regular and special roles specified as in this study without the cooperative learning component be as effective as the process-consultation group model with this component? (p. 33)

These questions require further investigation. Also, the process-consultation group model would need to be replicated on a broader scale to corroborate results before generalized statements could be offered. The contribution that this and additional studies could provide may mean a more positive support system and model for students and teachers. Carlson (1984) stated, "It is in this interdependent, interacting, goal-oriented model that pupils are prepared to live and work together, in interrelationship, in a free, democratic society" (p. 34).

Comparison of Additional Variables Not Included in All Studies

The results from the studies cited above reveal inconsistent findings on the efficacy of co-teaching as a model of service delivery for students with disabilities. Although the data is extremely scarce, studies on teachers'

perspectives on co-teaching appeared much more compatible.

In addition to reporting relevant research findings, a review of the six studies provided information about what components and/or characteristics of co-teaching researchers described in their study (see Table 4). Eight areas identified, but not common in all studies were: 1) pilot study conducted 2) inservice/training provided 3) selection of sample (heterogeneous or homogeneous) 4) volunteer of teacher participants 5) common planning time for co-teachers 6) types of instructional strategies used 7) teacher roles and tasks defined, and 8) administrative support.

The comparison of this information allows us to define what we are investigating besides the effects of co-teaching. Are we comparing "apples to oranges" by investigating models of co-teaching which are so varied? Exactly what components and/or characteristics of co-teaching are needed for the success of the co-teaching model are not clearly identified. If co-teaching is so varied in the implementation stage, researchers will find it most difficult to assess the potential contributions of co-teaching to education. Further investigations are needed to study the implementation of co-teaching before we can accurately describe and/or predict the effect of co-teaching as a service delivery model for students with disabilities.

Summary of Methodologies Previously Used

There is a scarcity of studies conducted on co-teaching. The six studies reviewed and discussed, with respect to advantages and disadvantages, are so varied that it is difficult to compare the results. The model and implementation of

Table 4

Components of Co-Teaching Found in Six Research Studies

Components of Co-Teaching Found In Studies	Pugach & Wesson, 1995	Carlson, 1984
Common Planning	35 min./daily	
Pilot Study Conducted	Student interview only	
Previous training in co-teaching		Experimental group only
Heterogenous Classes		Questionable
Teachers volunteered	Yes	
Compatibility discussed	Yes	
Type of Instructional Strategies	1) Small group 2) Coop.learn.	1) Cooperative Learning
Teacher roles/tasks defined	Equal role	Shared responsibility
Administrative Support	Yes	

Table 4 (Continued)

Components of Co-Teaching Found in Six Research Studies

Components of Co-Teaching Found In Studies	Self et al. (1991)	Redditt (1992)
Common Planning	Informal/weekly	Daily
Pilot Study Conducted		
Previous training in co-teaching	Staff development annually	One teacher had previous experience.
Heterogenous Classes	No: High Risk	Yes
Teachers volunteered	No	Yes
Compatibility discussed		Yes
Type of Instructional Strategies	Motivation strategies attendance contract, parent involvement	Cooperative Learning Whole language
Teacher roles/tasks defined	Supplemental instruction by special education teacher	Parity/shared responsibility
Administrative Support	Yes	Yes

Table 4 (Continued)

Components of Co-Teaching Found in Six Research Studies

Components of Co-Teaching Found In Studies	Schulte et al. 1989	Stanford, 1995
Common Planning	Weekly	
Pilot Study Conducted		
Previous training in co-teaching	Consultant teachers only	Student Training Cooperative Learning
Heterogenous Classes	Yes, but violated procedural safeguards	Questionable
Teachers volunteered	Yes, but sp.ed. teacher hired by researcher	Yes
Compatibility discussed		
Type of Instructional Strategies	1) Behav.management 2) Small group	1) Co-teaching 2)Whole language
Teacher roles/tasks defined	Minimal participation by special educ. teacher	Shared responsibility
Administrative Support	Yes	Yes

co-teaching took many forms from true partnership and interchangeability to teachers working independent and separate from each other. "There seem to be about as many different ways for teachers to collaborate as there are pairs of teachers collaborating. . ." (Sindelar, 1995, p. 234).

It is only through the comparison of studies conducted on co-teaching, that a more operationalized analysis can be made. If we find that we are comparing "apples and oranges," then the effects of the co-teaching model are unclear. If however, we can find enough components and characteristics of the model to compare "apples and apples," then the process and the product of co-teaching may be more clearly understood.

The following discussion and subsequent tables will provide a comparison of the six studies in two different areas. These two areas include: (1) a summary of areas investigated, and (2) a summary of advantages and disadvantages for selecting a particular research design.

Areas of Investigation (see Table 5)

Five of the six studies investigated student achievement. Four of the six studies used standardized tests to assess the achievement of students in math and/or reading. The two remaining studies investigated teachers' perceptions of student performance.

A second area investigated by researchers was teachers' perceptions of the programs' success and limitations. In five of the six studies, researchers believed this a valuable area to explore, and used instruments (qualitative and/or quantitative, and single -subject) to obtain such information from the

Table 5

Areas of Investigation Found in Studies on Co-Teaching

Study	Type of Research Design	Student Performance	Classroom Social Climate	Nature of Teacher Interaction	Teachers' Perspectives
1. Pugach & Wesson (1995)	Qualitative	X	X	X	
2. Stanford (1985)	Quantitative	X			
3. Schulte, Osborne McKinnie (1990)	Quantitative	X			X
4. Carlson (1984)	Qualitative & Quantitative	X	X	X	X
5. Self (1991)	Single-Subject	X		X	X
6. Redditt (1992)	Qualitative			X	X

teachers.

Social climate was included in two of the six studies. Parents, students and/or teachers were asked to provide feedback on the social climate found within a co-teaching environment. In four of the six studies, teachers were either observed or interviewed about teacher interactions.

Advantages and Disadvantages of Research Methodologies Selected

The second comparison (see Table 6) includes information summarizing the six studies with respect to the advantages and disadvantages of the research methods selected. This section will not attempt to restate specific advantages and limitations that occurred within each study. Instead, a summary of advantages and disadvantages will be presented with respect to the researcher'(s) choice of research design(s).

Pugach and Wesson's (1995) selection of a qualitative research design allowed categories and subthemes to emerge that would not have emerged from a quantitative research methodology. Through the interviews, the researchers were able to recognize the emergence of "good teaching" and its entanglement with the effects of co-teaching. The qualitative research design allowed enough flexibility to distinguish between these two factors. A quantitative design, however, may not have discovered a need for the distinction and have the flexibility to change the design during the study to allow for the distinction. The same benefit of selecting a qualitative design is also apparent in Redditt's (1992) study. By using a case study approach, the researcher became an observer participant and was able to investigate the interaction and relationship between

Table 6

Advantages and Disadvantages of Research Methodologies Used in Previous Research on Co-Teaching

Study	Method	Advantages	Disadvantages
Self (1991)	Single Subject (ABA)	1) Allowed researcher to investigate low sample size 2) Allowed researcher to investigate when a quantitative design was not possible (due to inadequate control group caused by pre-teach groups differing significantly)	1) Not able to separate possible intervening variables (motivational strategies, attendance contract, parent involvement 2) Data descriptive; less internal validity/reliability 3) Ethical concern in not providing procedural safeguards for identifying/serving students with disabilities 4) Teacher bias due to teachers

Table 6

Advantages and Disadvantages of Research Methodologies Used in Previous Research on Co-Teaching

Study	Method	Advantages	Disadvantages
			being forced to co-teach
Stanford (1995)	Quantitative	1) Use of standardized tests increased internal validity, reliability 2) Researchers able to adjust for differences of intact groups 3) Replication of study more probable 4) Generalization to similar sample groups increased predictive utility (external validity)	1) Quantitative could not investigate "how or "why" which may have contributed to a more in-depth study 2) Quantitative not able to "discover"

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Study	Method	Advantages	Disadvantages
		4) Replication of study more probable & generalization to similar sample groups increase external validity	
Carlson	Qualitative and Quantitative	1) Several different approaches/instruments used to measure/discover allowed increased validation of results; several layers of support 2) Quantitative & qualitative can be compared to see if common areas produced common results 3) Qualitative provided insight/reflection; quantitative increased validity	1) Hybrid study may be more difficult to replicate (time, cost factor)

the two co-teachers.

The selection of a qualitative design by Pugach and Wesson (1995) and Redditt (1992) did contain certain disadvantages. The researchers did not use a formal instrument in the qualitative portion of their study. Gall, Borg, and Gall (1996) suggest that the lack of formal instruments makes it difficult to measure variables . Redditt (1992) and Pugach and Wesson (1995) must be cautious in making statements of generalization because of the lack of external validity. Redditt's (1992) and Pugach's and Wesson's (1995) choice of conducting a qualitative research design limited the predictive utility of their study.

Schulte, Osborne and McKinney's (1990) and Stanford's (1995) selection of a quantitative research design provided similar advantages and disadvantages. Both studies increased the internal and external validity by having the researchers attempt to control and manipulate the variables. Because the external validity was strengthened, the predictive utility and generalization to other sample groups was enhanced. The opportunity for replication of the study existed in these quantitative studies, whereas, in a qualitative design it would be difficult. Also, the selection of a quantitative design allowed information to be gathered which was not available in a qualitative design. For example, in Schulte, Osborne, and McKinney (1990), the researchers were able to compare "within-subject" and "between-subject" factors.

Carlson et al.'s (1984) selection of a hybrid research design had similar advantages and disadvantages to the qualitative and quantitative studies

already discussed. The difference was, however, that in choosing a hybrid design Carlson et al. were able to use the advantages of one design to minimize the disadvantages of the other.

Self et al.'s (1991) selection of a single-subject design presented a unique analysis of student achievement. The researchers pointed out that other research methodologies had to be abandoned and substantiated why. The investigation may not have been possible unless the single-subject design was used.

Exactly what components and/or characteristics of co-teaching are needed for the success of the model remain unclear. Can we identify or agree upon a set of "apples" to implement co-teaching? What we are investigating must be more clearly stated and operationalized before studies on the effects of co-teaching can be undertaken.

Studies Reviewed and Found Not Relevant to Co-teaching

Also noteworthy, three studies were located that reported using a co-teaching component (Affleck, Madge, Adams, & Lowenbraun 1988; Ferguson & Adams, 1982; York et al.,1992). However, after reviewing the definition of co-teaching in this paper (see p. 18) the process described by these authors as "co-teaching" is not compatible with the co-teaching definition. For example, Ferguson and Adams' survey reported an evaluation study on co-teaching. After careful review of the sample group of teachers, only five of the 41 special education teachers jointly prepared and/or taught lessons with the general education teachers. York et al. (1992) conducted a study that appears to have

co-teaching as a component. Yet, after examining the sample, a special education "support person" was present only in the initial stages of the study. The "support person" was reported to have been a special education teacher or a paraprofessional. All special education support persons were removed from the general education classrooms shortly after the study began. Affleck et al. (1988) integrated students with learning disabilities and compared achievement results to students without disabilities remaining in resource/pull-out programs. The general education teacher was either a former special education self-contained and resource teacher or former general education teacher who received further personnel preparation to fulfill requirements for teaching special education. Each Integrated Classroom Model (ICM) included an aide from one half to three hours per day. A co-teacher, as defined earlier, was not a part of the project.

Non-Empirically Based Articles

A review of the literature relevant to co-teaching included 17 articles written as anecdotal or non-empirically based papers. None of these articles included empirical research studies, but a review is warranted. Similarities and differences found in these 17 articles should be considered in identifying components and characteristics of co-teaching. The information from these 17 articles will be synthesized and presented both in narrative and table format. Nineteen different factors relevant to co-teaching were found in articles by the various authors. For purposes of brevity and clarification, these 19 factors when discussed will be grouped into the following three categories: 1) compatibility

issues (see Table 7) 2) resources (see Table 8), and 3) miscellaneous components of co-teaching (see Table 9). Each summarization table will identify the specific author(s) and the description and/or identification of components described in their respective article.

Compatibility

An area frequently discussed by authors was the issue of compatibility between general education teachers and special education teachers. Sixteen of the 17 authors included some aspect of compatibility in their article. Nowacek (as cited in Hallahan & Kaufman, 1994) stated, "Teacher compatibility is one of the most important ingredients for success in using a co-teaching model" (p. 68). Hallahan and Kauffman report researchers are consistently finding that and working styles being compatible. Many teachers spend the bulk of their day, and even their entire career engaging in very little professional contact with their peers (Boles, 1992). Earlier studies (Bean,1985; Bean & Eichelberger,1979) showed that the majority of general education teachers were hesitant and unwilling to share their domain with another adult. The need for compatibility may be summarized in a statement by Reynolds and Volkmar (1984). "The goal of the program could be quickly short-circuited if the special educator's presence is viewed as an intrusion" (p.585).

Nine of the articles specifically discussed common goals as an issue to be agreed upon between co-teachers. Common goals had a wide range of interpretation from leadership and decision-making processes to student and teacher expectations of the co-teaching program.

Table 7

Compatibility Issues of Coteaching Found in 17 Anecdotal Articles

Authors	Discip line	Student Evalua.	Teach. Styles	Teach. Volunt	Goals	Roles	Commu nication	Flexib ility
Thousand & Villa, 1989	X	X	X		X	X		
Hallahan & Kauffman, 1994				X				
White & White, 1992	X	X	X	X	X	X		
Bauwens et al., 1989					X			
Pugach & Wesson, 1995			X	X	X			X
Walther-Thomas, Bryant & Land, 1996		X	X	X	X	X		
Walther-Thomas & Carter, 1993		X		X			X	X

Table 7 (Continued

Compatibility Issues of Coteaching Found in 17 Anecdotal Articles

Authors	Discipline	Student Evaluat	Teach. Styles	Teach. Volunt	Goals	Roles	Communication	Flexibility
Friend, Reising, Cook, 1993						X		
Yau, 1988	X					X		
Adams, et al. 1993	X	X	X		X	X	X	X
Armbruster & Howe, 1985	X	X		X		X		
Vaughn et al. 1997	X	X				X		
Dieker & Barnett, 1996	X	X		X		X	X	
Nowacek, 1992		X		X		X	X	X
Latz & Dogon, 1995	X	X	X		X	X	X	X
Cook & Friend, 1997	X	X	X	X	X	X	X	X
Chisholm, 1991	X	X	X	X	X	X	X	X

Table 8

Resources for Co-teachers Found in 17 Anecdotal Articles

Authors	Common Planning	Staff Development	Admin. Support	Teacher Schedules	Building Design
Thousand & Villa, 1989	X	X			
Hallahan & Kauffman,1994	X				
White & White, 1992	X	X	X	X	
Bauwens et al., 1989	X	X			
Pugach & Wesson, 1995	X		X		
Walther-Thomas, Bryant & Land,1996	X	X	X	X	X
Walther-Thomas & Carter,1993	X		X		
Friend, Reising,Cook, 1993	X	X		X	X
Yau, 1988	X	X	X		
Adams et al., 1993	X				

Table 8 (Continued)

Resources for Co-teachers Found in 17 Anecdotal Articles

Vaughn et al., 1997	X				
Authors	Common Planning	Staff Development	Admin. Support	Teacher Schedules	Building Design
Dieker & Barnett 1996	X	X	X		
Latz & Dogon,1995	X	X	X		X
Armbruster & Howe 1985	X				
Cook & Friend,1997	X	X	X		
Nowacek, 1992		X	X		
Chisholm, 1991	X	X	X	X	

Table 9

Miscellaneous Factors of Co-teaching Found in 17 Anecdotal Articles

Authors	Pilot Progr	Parent Particip	Heterog. Class	Crisis Interve	IEP addressed	Long range
Nowacek, 1992			X			
Chisholm, 1991		X		X		
White & White, 1992	X	X	X		X	
Pugach & Wesson, 1995	X	X	X	X		X
Walther-Thomas, Bryant & Land 1996	X	X	X		X	
Walther-Thomas & Carter,1993	X					
Friend,Reising, Cook, 1993			X			
Yau, 1988		X	X			
Vaughn et al., 1997		X				
Dieker & Barrett, 1996		X				
Latz & Dogon, 1995		X	X		X	X
Armbruster & Howe, 1985		X				
Cook & Friend, 1997		X			X	X

compatibility. Friend et al. (1993) reported two common problems related to the role of the special education co-teacher. First, the general classroom teacher may assume that the special educator's presence should not have any impact on the class. That is, general educators believe that the fundamental classroom structure, instructional format, and leadership roles are not expected to change. However, the dynamics of co-teaching presume a different structure will evolve and the teaching role will change. Second, the special education teacher may be perceived more as a paraprofessional or student teacher in the class, and relegated to a second class role. Instead, the special educator should be expected to be an equal partner. Some authors did address this concern and suggested that in selecting a type of co-teaching (see Table 1), the roles may be more defined.

Volunteering of teachers to participate in a co-teaching model of instruction was suggested in 10 of the 17 articles. Other areas of compatibility included in the articles were teaching styles, procedures for evaluating students (report cards, I.E.P.s, etc.), discipline procedures, communication, and flexibility of teachers in implementing the co-teaching model. For specific reference to authors and compatibility issues, see Table 7.

Resources

A second category, resources, include those elements of co-teaching in which districts and or building sites would need to allocate for the model to exist. In reviewing the 17 articles, the item on which consensus of authors was reached most frequently was the need for common planning time between co-

teachers. Sixteen of the 17 authors discussed common planning time as a necessary resource for co-teachers to develop lessons, determine teacher responsibilities, and to evaluate student progress. District or building site administrators should "build into the schedule" a common planning time for co-teachers. Although research on classroom co-planning is limited, Engestrom (as cited in Walther-Thomas et al., 1996) found co-planning was essentially a recursive process. As co-teachers became more familiar with each other's style and skills, they built on each other's ideas more easily and circled back to earlier points in their discussion as they made plans and imagined together. Participants have found that once preparation time has been provided, the necessity for lengthy planning sessions was minimal (Bauwens et al., 1989). The amount of time and frequency of planning sessions suggested by authors varied from co-teachers meeting daily for 25 to 30 minutes to co-teachers meeting only one time per week.

Other types of resources suggested by authors include staff development, administration support, scheduling of teachers, building design, and program evaluation. Staff development was suggested in 10 of the 17 articles and was recommended to occur before, during, and after the implementation of the co-teaching model. The success of any teaching method begins when teachers hold critical prerequisite skills. Co-teaching skills are not usually a part of the traditional training preservice teachers receive (Taylor, Richards, Goldstein, & Schilit, 1997). To overcome some obstacles, staff development efforts are necessary. Special and general educators can be trained to work with others in

a team situation in a variety of ways (Walther-Thomas et al., 1996). Participants currently finishing their first year of co-teaching report that positive beliefs concerning cooperation increase when teams of participants (a) are given prior training in cooperative teaching, and (b) develop individualized guidelines specific to their programs (Bauwens et al., 1989). As these factors increase, teachers become more comfortable and positive about co-teaching. Effective co-teaching skills encompass the ability to negotiate, the ability to determine the emotional needs of co-workers, and the ability of co-teachers to train each other to utilize effective teaching practices that one may not possess. For a staff to change to co-teaching (and/or inclusive school practices) an entire school staff may have to dramatically change the way it views the world of education, including changing paradigms of teaching and learning, teacher support, and staff development practices. Such a change may be a formidable challenge for a school teaching faculty. Ferguson (as cited in Malarz, 1996) argues that co-teaching fails when it is viewed as an "add on" not as an integrated part of educational restructuring.

Administrative support was mentioned as a necessary resource of co-teaching in 10 articles. The district and/or building site(s) need to show a commitment to utilization of staff in assigning co-teachers according to the authors of four articles. Building design was not a priority as a resource and was recognized in only three studies. The authors of these three articles discussed the need for a larger classroom to allow for additional students and flexibility of grouping. For specific reference to authors and resource issues see Table 8.

Miscellaneous Components of Co-Teaching

The last category, miscellaneous factors and components, is comprised of a variety of items suggested by authors as necessary for the co-teaching model of instruction. These factors included the implementation of a pilot study, parent participation, heterogeneous grouping of students in co-taught classrooms, procedures for addressing co-teaching on IEPs, crisis intervention teams for students experiencing difficulty in a co-teaching environment, and long range planning for co-teaching district wide. Four articles included the suggestion of implementing a pilot study prior to offering co-teaching as an alternative service delivery model. The authors of these four articles discussed the need for co-teaching to be implemented on a small scale over a period of time. Parent participation was recommended by the authors in 10 different articles. This participation varied from parent surveys, participation in IEP meetings and/or observation of a co-teaching environment.

Determining which students and how many students participate in a co-teaching class was discussed in seven articles. Brown (as cited in Walther-Thomas et al. 1996) stated, "As class rosters are developed, it is important to keep the principle of natural proportions in mind" (p. 258). Stainback and Stainback (1990) report that schools serving a high special education and/or at risk population find it hard to become more inclusive. Walther-Thomas et al. (1996) commented,

> School teams need to carefully assess student needs and available resources (e.g., co-teaching time, paraprofessional time, scheduled

> planning periods, class size, specialist caseloads) as student placement decisions and co-teaching assignments are made. Ideally, in a class of 25 students no more than six class members should have identified disabilities in the mild to moderate range or other related problems that make them candidates for school failure. If the identified disabilities are more severe and necessitate more support, fewer students with disabilities or at risk students should be added to these classroom rolls. The underlying goal in the development of classroom rosters is heterogeneity. (p. 259)

For specific reference to authors and miscellaneous components of co-teaching see Table 9.

Summary of Non-Empirically Based Articles

The above information provides a synthesis of suggestions and recommendations from authors familiar with the model of co-teaching. Although the information is not empirically based, the variables do lend themselves to becoming theoretical constructs that may later be investigated.

Advantages and/or Benefits of Co-Teaching

Several authors propose specific advantages or benefits of using a co-teaching service delivery model. Friend et al. (1993), Thousand and Villa (1990), Walther-Thomas (in press, as cited in Walther-Thomas et al. 1996), and Yau (1988) discussed that students with disabilities develop better attitudes about themselves and others. Bauwens et al. (1989), Farkash and Vegso (as cited in Stanford, 1995) Thousand and Villa, and Yau suggested that more

individualized teaching was available in the general education class when co-teaching was utilized. A third benefit was the ". . . enhanced potential for professional interaction and stimulation that such an arrangement provides for the teachers" (Bauwens et al., 1989, p. 21). Farkash and Vegso, Thousand and Villa, Walther-Thomas et al. and Yau proposed similar professional benefits to teachers. Sarason, Levine, Goldenberg, Cherlin, and Bennet (as cited in Walther-Thomas et al.) noted " . . . teaching is basically a lonely profession . . . it is rare that a teacher has the opportunity to discuss her problems or successes in teaching with anyone else" (p. 21). Bauwens et al., Friend et al., Farkash and Vegso, Hallahan and Kaufman (1996), and Thousand and Villa suggested that two professionals working together could bring a variety of skills and expertise to a general education classroom. Bauwens et al. stated,

> For example, most general educators are knowledgeable about curriculum and curricular sequencing, especially in the traditional academic areas. In addition they are also skilled and experienced in large-group management skills. On the other hand, special educators traditionally have developed expertise in targeting areas of difficulty within a curriculum, and analyzing and adapting instructional materials and strategies--skills more in demand in the general classroom as general teachers face increasingly heterogeneous student populations. In addition, most special educators have experience in the development of Individualized Education Programs (IEP's), as well as in applied behavior analysis procedures. (p. 18)

Bauwens et al., Thousand and Villa, Walther-Thomas et al., and Yau also reported a "spillover effect" to other students who may be high risk, but not identified as having a disability. Yau stated, "This is particularly beneficial to those students who need special help but would not otherwise have the opportunity for it" (p. 69). Friend et al. and Walther-Thomas et al. suggested co-teaching may improve the academic and social skills of students with disabilities. Although Least Restrictive Environment was discussed by only one author as a benefit of co-teaching, it probably is one of the most beneficial aspects of co-teaching. Bauwens comments, " Co-teaching should expedite the transition of students presently receiving educational programming in segregated special education settings back into the classroom" (p. 18).

Concerns or Potential Disadvantages of Co-Teaching

In seven of the 17 articles reviewed, authors discussed concerns or potential disadvantages of co-teaching. Some of these concerns previously discussed are time (planning, coordinating, and implementing co-teaching), compatibility issues, space allocation, role ambiguity, and lack of empirical evidence to support co-teaching. In addition to these concerns, other factors that may affect co-teaching are increased workload as perceived by co-teachers (Bauwens et al., 1996), "loss of identity" of co-teachers (Pugach & Wesson, 1995), and cost effectiveness (Friend et al., 1993). Loss of identity referred to co-teachers no longer having their own classroom and feeling a loss of control in how their classroom would function. Yau (1988) discusses a concern of students with disabilities continuing to have available both resource/pull-out

programs and co-teaching in general education classrooms. She states, "If co-teaching becomes a sole service delivery system (i.e., resource/pull-out programs no longer available), co-teaching may not provide an appropriate education for all" (p. 82). Fuchs and Fuchs (as cited in Hallahan and Kauffman, 1994) suggest a unique concern that " . . . the importance of interpersonal skills in making cooperative teaching [i.e., co-teaching] successful may lead to teachers neglecting the actual teaching of students" (p. 68).

Summary of Literature Review

As the divergence increases among co-teaching studies, so do the reports on its effectiveness. It may be that other prerequisites, such as staff training, clear role definition, and/or administrative support, are necessary for successful implementation of co-teaching. It is evident that conclusive generalizations cannot be made by the empirical studies currently found in the literature. A broader review of other sources, such as anecdotal or non-empirically based papers may provide additional information that proves to be beneficial in understanding the product and process of co-teaching.

CHAPTER THREE

Methods and Procedures

Chapter one presented an introduction to the co-teaching model of instruction. The literature review examined the historical background of co-teaching, the definition and types of co-teaching, relevant research findings, non-empirically based articles, and advantages and concerns of co-teaching. A review of methodologies used in past studies was also presented in the literature review. The advantages and disadvantages within these studies have been identified and discussed. In addition, a brief description of advantages and disadvantages of four types of research methodologies, qualitative, quantitative, ABA, and mixed or hybrid was presented. For the purpose of investigating what components and characteristics of the co-teaching model co-teachers perceive as necessary, a mixed or hybrid research design was selected.

By combining a qualitative research design with a quantitative research design, the data collected was not as restricted as with a single research method. According to Maruyama and Deno (1992), "For research in schools, quasi-experimental and nonexperimental research methods are needed to judge the effectiveness of different programmatic approaches" (p.88). The advantages of both methodologies may remove some of the barriers imposed when only one design is used. Sieber (1992) emphasized that methods should not merely be used alongside each other, but should be integrated in the course of a research project. He indicates how qualitative and quantitative methods may be used together by providing a specific discussion of fieldwork and

surveys. Overall, such a research approach allowed the principal investigator of the study more flexibility.

Stainback and Stainback (1984) discuss corroboration of research, often referred to, as triangulation, as involving the use of multiple indicators to measure a single concept. In triangulation, several sources of information are brought together or converged to verify a single phenomenon, thus strengthening its credibility. As described by Patton (cited in Stainback & Stainback, 1984) "triangulation is a process by which the researcher can guard against the accusation that a study's findings are simply an artifact of a single method, a single data source, or a single investigator's bias" (p. 332). The mixed or hybrid design used in this study may have the same advantages as does the triangulation process.

This chapter will examine the following components: (1) results of a pilot study, (2) a description of the study's research design, (3) process for recruiting and identifying participants, (4) district and teacher informed consent, (5) instrument design, (6) administration of instruments, and (7) data analysis.

Results of Pilot Study

A pilot study was conducted in the Spring of 1996 involving nine teachers utilizing a co-teaching model of instruction. For purposes of brevity, a summary of the pilot study is provided. For a description of the pilot study and detailed results see Appendix A.

All participants were asked to complete a demographic questionnaire (see Appendix B), a self-reporting ability inventory (see Appendix C), a checklist

describing the co-teaching environment (see Appendix D), and an interview consisting of eight questions (see Appendix E). In summarizing the self-reported ability inventory, co-teachers' perceived a need for more knowledge and skill in utilizing a co-teaching model of instruction in four of five areas.

Overall, in the results of the checklist describing the co-teaching environment (see Appendix F), teachers reported consistency in identifying characteristics of their own teaching style as well as their partner's. Out of the 28 characteristics listed by the researcher, co-teachers selected the following characteristics most frequently for themselves and their partners: (a) flexibility, (b) dependability, (c) maintaining a sense of humor, (d) student oriented, (e) laid back, (f) values individual differences, (g) patience, and (h) learning from experience.

A naturalistic interview (see Appendix E) was also included in the pilot study. Eight questions were asked of each participant. Personal interviews were audio-taped and later transcribed. The following categories emerged from the transcribed interviews: (1) expressed concerns of co-teachers, (2) benefits of co-teaching, and (3) suggestions and/or strategies for co-teaching. The concerns expressed by co-teachers included teacher compatibility, role ambiguity, workload, and evaluation of students.

This pilot study assisted in providing specific research questions to be addressed (see Addendum I), instruments that can more accurately gather data, and results that may be more precise in assessing components and characteristics necessary for co-teaching. Specifically, this pilot study revealed

a need for instruments that can contribute data specific to individual co-teachers, co-teaching pairs, and/or different types of co-teachers (i.e., general education teachers, special education teachers). The results of the pilot study influenced the type of instruments used in the study. The researcher found that the instruments used in the study would need to be much broader in scope. Although the quantitative portion of the pilot study provided descriptive statistics on teaching styles of co-teachers, the researcher recognized the value of extending the research to include the perceptions of what co-teachers believe is necessary for co-teaching.

The most useful data from the pilot study were insights gained during the personal interviews. Prior to the pilot study being conducted, speculation on whether co-teachers would be reluctant to discuss their experiences were concerns. However, the interviews revealed that co-teachers willingly responded with concerns and benefits of co-teaching. Six of the eight questions in the interview from the pilot study are included in the study presented in this dissertation. A much more extensive interview is needed to obtain more complete information on the perceptions of co-teachers.

Research Design

From the experience gained during the pilot study and after a review of the literature, the research design best suited for this study was determined to be a mixed or hybrid design. Both qualitative and quantitative research designs were needed to address the research questions (see Appendix L) previously stated in Chapter I.

Quantitative

Two different research designs were used in the quantitative portion of the study. Participants were selected on a volunteer basis and randomization was not possible. In the first stage, a descriptive research design was utilized by the researcher. Descriptive statistics were gathered from the demographic questionnaire (see Appendix G), the Likert-type questionnaires (see Appendix H and J), and the rank order questionnaire (see Appendix I). Measures of central tendency were calculated for continuous scores and for ranks. Categorical data, including dichotomies, were summarized by creating frequency distributions. The researcher expected this information to be relevant to the research question asking what components and characteristics do co-teachers perceive as necessary for co-teaching.

The second type of research design used in the quantitative portion of the study was causal-comparative. The type of causal-comparative design included t-tests, chi-squares, and an ANOVA. A comparison was made between subjects in whom a characteristic was present and subjects in whom it was absent or present to a lesser degree (Gall, Borg, & Gall, 1996). The independent variable was the type of teacher (general education or special education teacher). If the participants self-reported different levels of effectiveness in implementing a co-teaching model, the independent variables investigated would be the type of group (e.g., group self-reporting high level of effectiveness in co-teaching) and the type of teacher within a specific group (i.e., general education teachers self-reporting high levels of effectiveness in co-teaching). The dependent variables

were: 1) mean score differences between general education teachers and special education teachers on each item of the survey, 2) discrepancies between the three groups (if they exist), and 3) discrepancies found between general education teachers and special education teachers of each group when compared to other groups. The researcher expected the causal-comparative research design to address the similarities and differences that exist between general educators' and special educators' perceptions on co-teaching. Also, if different levels of effectiveness were reported by co-teachers, the researcher hoped to gain knowledge in identifying what factors contributed to the difference in levels of effectiveness. Gall, Borg, and Gall (1996) state, "You can identify a phenomenon of interest to you and then attempt to identify possible causes of it. The phenomenon of interest . . . is a presumed effect" (p. 381). If discrepancies between groups reporting different levels of effectiveness did exist, it may be possible to determine what factors (the phenomenon of interest) might contribute to these differences.

Qualitative

Personal interviews (see Appendix K) were conducted using a naturalistic/qualitative approach. The interviews consisted of open-ended questions, were audio-taped, and later transcribed into a written format. Information from the interviews was described using a content analysis method. Common patterns, characteristics, or components that co-teachers perceived as necessary for co-teaching were identified. After separating the interview data into categories, the qualitative information was incorporated into the eight

research questions where appropriate.

Process for Recruiting and Identifying Participants

The researcher used two methods of obtaining a sample for the study. First, a list of special education directors was obtained from the Oklahoma State Department of Education (1997-1998 Educational Directory). The researcher identified 73 school districts that listed a special education director. An attempt was made to contact special education directors by going through the directory alphabetically. Six of the ten school districts participating in this study were solicited through this procedure.

The second method of obtaining a sample was from the researcher's previous knowledge of districts currently known to be implementing a co-teaching model of instruction. Four districts were selected as part of the study based on this knowledge.

Special education directors and/or appropriate school administrators were contacted by phone or letter to determine their interest in becoming involved in this study. The importance of this study, answering questions, and request for their support was the primary focus of the initial contact. After providing a brief description of co-teaching between a general education teacher and a special education teacher, the following information was requested: 1) Is the co-teaching model utilized in your district? 2) If yes, would you be willing to have your district participate in a study of co-teaching? and 3) If so, can you identify a contact person for the district who is responsible for approving a proposed research study?

Informed Consent

District

The district contact person was provided a written description of the project and was encouraged to ask questions pertaining to the proposed study. The district contact person was assured that all participants would be volunteers, all information would be confidential, and no reference to any particular participant, building site, or school district would be made. A signed and dated letter of informed consent was obtained from an administrator of each district that participated in this study (see Appendix M). After permission was granted from a school administrator, a request was made to obtain information on building site(s) and to identify a contact person for each building site location. A letter, phone call, or personal visit was made to the identified building site contact person. Questionnaires were either mailed to each contact person, who coordinated the distribution of questionnaires to teachers in their building (i.e., mailbox) or questionnaires were hand delivered to volunteer participants. The number of questionnaires distributed to each district was determined by the total number of teachers implementing a co-teaching model of instruction. The intent of the researcher was to make available to all co-teachers of each district the opportunity to participate in this study.

Teacher

An informed consent form (see Appendix N) was given to voluntary participants to sign and date. Participants were informed of approximate time required to complete questionnaire(s). Participants were offered a honorarium

for their participation in this study. The demographic questionnaire asked participants to indicate whether they would be willing to participate in an interview. A date and time that was convenient for each participant was scheduled if an interview was necessary. The participant was assured that all information would remain confidential and that she or he could withdraw at any time during the study.

Instrument Design

A review of the literature revealed that an appropriate instrument to use in the study did not exist. A scarcity of studies on co-teaching between general and special educators were reviewed with respect to the type of instruments used. However, no instruments in studies were found that closely resembled the research questions of this study. Through a three-step process, questionnaires were developed to gather demographic data, investigate co-teachers' perceptions on components and characteristics necessary for co-teaching, and examine co-teachers' beliefs about the co-teaching process. The first step involved conducting a pilot study (see Appendix A,B,C,D,E, and F). Information and the experience of conducting a pilot study assisted in the development of more appropriate instruments to be used in the actual study. The demographic questionnaire used in this study (see Appendix G) was similar to the demographic questionnaire used in the pilot study, but is much more extensive. The demographic questionnaire focused on identifying background information and current data with respect to teaching. Specific questions on co-teaching were also included. Participants were asked to provide their name, their

school, and their co-teacher's name on the demographic questionnaire. This information was needed to assure that co-teaching pairs were properly grouped and that the data of pairs could be analyzed accurately. Also, the names of participants were needed for those individuals volunteering to participate in the qualitative portion of the study.

In the second step, the literature was reviewed to generate survey instruments. Based on a content analysis of 17 non-empirically based articles (see Chapter Two, Tables 7,8, and 9) and six studies (see Chapter Two, Table 4) 19 items were categorized as components and characteristics of co-teaching. In addition, two items were added by the researcher based on her experience as a co-teacher. These two items were believed relevant to the study, but had not previously been identified by earlier authors. A total of 21 items were categorized into three subsets. These subsets were a) resources for co-teaching, b) compatibility issues of co-teaching, and c) miscellaneous factors of co-teaching. Participants selected a value range of "not important" (1) to very important (5) for each of the 21 items in the first questionnaire (see Appendix H) entitled "Components and Characteristics of Co-Teaching" (CCCT).

A second Likert type questionnaire, "Co-Teachers' Perceptions On Their Effectiveness In Co-teaching (CPEC) was included to assess the participants' perceptions on the effectiveness of their co-teaching and what characteristics and components of co-teaching are necessary (see Appendix J). The rationale for collecting this data was to address the research question of whether co-teachers significantly differentiate themselves when reporting level of

effectiveness in co-teaching. If differences in level of effectiveness were observed, the researcher could then investigate factors contributing to the level of effectiveness. The items of the CPEC were developed after a review of the literature and after completion of the pilot study. Participants were asked to select a value range of "strongly disagree" (1) to "strongly agree" (5) for each of the 15 items.

A rank order questionnaire entitled "Co-Teaching Rank Order" (CTRO) was used as a third instrument in this study (see Appendix I). The purpose of administering the CTRO was a) to explore the similarities and differences between general and special educators, and b) to determine the validity of the instruments. Because the CCCT and the CTRO asked similar questions, but were different in format, the results would indicate how high the association was between these two instruments.

The last instrument used in this study was a qualitative interview (see Appendix K). The interview consisted of 23 open-ended questions. The questions were developed after reviewing the literature and conducting a pilot study. Six of the eight questions used in the pilot study were also included in this study.

The third step involved submitting the instruments to five known experts in the field of special education. Their recommendations as to item content, phraseology, and organization were incorporated into the instruments.

Administration of Instruments

A demographic questionnaire, two Likert-type questionnaires, one rank

order questionnaire and one interview were the instruments administered to participants. The contact person for each district was asked to disseminate a packet containing a cover letter, a letter of consent, and the questionnaires listed above to all teachers currently co-teaching in the district. In some instances, the packets were mailed or hand delivered to co-teachers by the researcher. Participants were given approximately three weeks to complete and return the questionnaire to the building site contact person or the researcher (postage prepaid). If questionnaires were not returned, a second letter or phone call was given to the contact person or volunteer participant to remind them of the importance of their participation in this study.

A preliminary analysis was made of all 84 participants on the demographic questionnaire, the CCCT, CTRO, and CPEC instruments. This information was used to select participants for the qualitative portion of the study. Further description of this analysis and the results are addressed in Chapter Four.

Summary

With the results of a pilot study and an extensive review of the literature, a set of research questions, instruments, and methodologies were proposed. The results of this study may assist educators to identify factors which facilitate and/or inhibit effective co-teaching between special education teachers and general education teachers.

CHAPTER FOUR

Presentation and Analysis of Data

This chapter provides a description and analysis of information collected during the study. The instruments used in this study included one demographic survey, three questionnaires and an interview. This chapter identifies (a) a description of the population and sample, (b) a description of the selection process and sample group for the qualitative portion of the study, (c) specific research questions asked, (d) the instruments used to gather data, (e) the type of data analysis used for each research question, (f) the findings of each research question, (g) further findings of this study, (h) reliability of the data, and (i) validity of the instruments.

The type of data analysis used in this study was presented with respect to the specific research question addressed. Gall, Borg, and Gall (1996) state, "One of the best ways to present the results of statistical or qualitative analyses is to organize them around the study's hypotheses, questions, or objectives" (p. 71). In the actual description of this study, all results of the statistical analyses were organized around the study's research questions. Each research question was stated and directly followed by all pertinent findings. Since this study explored eight research questions, there were eight sections reporting results. Failing in the review of the literature to find any research to set precedence, a .05 alpha level was used to determine statistical significance.

Description of Population

Co-teachers from ten different school districts located in the south-central

region of the United States were included in this study. Both rural and urban school districts serving diverse student populations participated in completing questionnaires and interviews. Of the 10 school districts, four elementary schools, 11 middle or junior high schools, and three high schools were included in this study. The school districts had total certified staff ranging from 64 to 1,301.

Demographic Profile of Sample

One hundred and twenty questionnaires were distributed. Eighty-seven of the questionnaires sent to participants were returned (72%). Three questionnaires were not included in the study because only one member of the co-teaching team returned the questionnaire. The *N* for this study was 84 participants equaling 42 co-teaching pairs. The co-teaching pairs consisted of one general education teacher and one special education teacher currently co-teaching together. No participant could be a member of more than one co-teaching team. Because of the various omissions of information by the participants, the number of participants within each item may vary. For specific demographic information of participants see Table 10 and 11.

Gender

Of the questionnaires returned, 72 participants were female (86%) and 12 were male (14%).

Age

Participants were asked to select from among four age ranges to describe themselves. Eighteen participants (22%) identified themselves as between the

Table 10

*Distribution by Sex, Age, Level of Education,and Number of Years in Teaching

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Distribution by Sex

Gender	F	M	Total
Percent of Teachers	86%	14%	100%

Distribution by Age

Age Range	21-30	31-40	41-50	51 or Above	Total
Percent of Teachers	22%	19%	39%	20%	100%

Distribution by Level of Education

Level of Education	Bachelors	Masters	Total
Percent of Teachers	63%	37%	100%

Number of Years in Teaching

Years	0-5	6-10	11-15	16-20	21-25	26-30	Total
Percent	27%	16%	11%	26%	16%	4%	100%

***NOTE: n = 84 for each table.**

Table 11

*Previous Training, Years With Co-teacher, and Subject Co-taught

Previous Training in Co-teaching

Training	Yes	No	Total
Percent of Teachers	53%	47%	100%

Years Co-Teaching With Current Co-teacher

Years	1	2	3	4	5	6	7	8	Total
Percent	58%	18%	10%	7%	5%	0%	0%	2%	100%

Subject Area Co-taught

Subject	English	Math	Sci.	Hist.	Elem./All	Read.	Total
Percent	29%	24%	23%	15%	7%	2%	100%

Type of Students' Disabilities in Co-Taught Classes

Type	LD	ED	LD/ED/MR/OHI	No Response	Total
Percent	73%	9%	17%	1%	100%

***NOTE: n = 84 for each table unless "No Response" indicated.**

ages of 21-30. Sixteen participants (19%) were between the ages of 31-40. The largest category of participants (39%) fell within the age range of 41-50. Seventeen participants (20%) were over the age of 51.

Level of Education

Fifty-three of the 84 participants (63%) had acquired a Bachelor's degree. Thirty-one of the participants (37%) had acquired a Master's degree.

Teaching Experience

Each participant was asked to identify the category of years they had experience teaching (e.g., 0-5, 6-10 etc.,). The largest percent of participants indicated that they had taught for 5 years or less (27%). Only 4% of respondents identified themselves as having over 26 years of teaching experience.

Previous Training in Co-Teaching

The majority of participants (53%) indicated they had received some type of previous training in co-teaching. Forty-three percent of the participants receiving training were general education teachers and 57% of the participants receiving training were special education. Although 53% seems fairly high, the results of co-teachers reporting training in co-teaching may have been influenced by one specific school district. This school district required all co-teachers to annually attend training. Eighteen of the total 84 participants (21%) were from that one school district. This may account for approximately one half of all participants reporting they had received training in co-teaching.

One item on the demographic questionnaire asked general education

teachers, "As a regular teacher, have you ever had training in more than one course of special education? If yes, please indicate what type of training." Twenty-one of the 42 general education teachers (50%) indicated they had not received additional training in special education. Of the 21 general education teachers who responded "yes," some participants indicated that they had received more than one type of training. The most frequent response that was given as additional training was attending an inservice. Attending a "2-3 day certification" (i.e., OHI, TBI) was selected on three questionnaires. Eight general education teachers indicated they had one to 15 university credit hours in special education; three general education teachers had a degree in special education, and two participants responded with "other" as the type of training they had received.

The responses from the questionnaires indicated that general education teachers had very little experience in the special education room. Only 2 of the 42 general education teachers had previously taught special education as a primary teaching assignment.

Years with Current Co-teacher

The number of years a pair of co-teachers had taught together ranged from one to eight years. The mean of the 42 co-teaching pairs for the number of years a co-teaching pair had taught together was 1.940. The co-teaching pairs were in 100% agreement on the years reported on co-teaching together.

Description of Co-taught Classes

Subject areas co-taught

A variety of subject areas was identified by the 42 pairs of teachers as part of a co-teaching model of instruction currently used. Only the subject the two co-teachers taught together was included in this demographic information. Twenty-nine percent of the respondents co-taught in English, 24% in math, 23% in science, 15% in history, 7% taught in an elementary co-taught class (all subjects), and 2% in reading.

Amount of time co-teachers were in class

One question on the demographic questionnaire asked participants how much time they spent in their co-taught class. Ninety-two percent of the co-teachers remained in their co-taught class full time. One percent responded by saying they spent 3/4 of the class period in the class, four percent of the co-teachers spent 2/3 of the class period in the class, and two percent indicated the time varied.

Type of disabilities included in co-taught classes

Approximately 73% of the co-teachers identified students with disabilities in their co-taught class as having learning disabilities. Nine percent of the co-teachers reported that their class included students with emotional disorders, 17% reported a mixed co-taught class consisting of students with learning disabilities, emotional disorders, mental retardation, and students with other health impairments. One percent of the participants did not respond to this item.

Total number of students with/without disabilities in co-taught classes

The total number of students in each co-taught class ranged from 16 to 34. The mean for the total number of students was 25. The number of students identified as having a disability in each co-taught class ranged from 2 to 19. The mean for the number of students identified with a disability in each co-taught class was approximately 8.

Participants were also asked to indicate if the students without disabilities were considered "typical" students. Of the 83 responses obtained, 18% of the teachers selected no and 82% selected yes." This question attempted to determine whether co-taught classes included in this study were primarily heterogeneous or homogeneous. These specific terms were not used in the questionnaire because of possible difficulty in interpreting the meaning. However, it appears that the majority of teachers believed that their co-taught class was a typical or heterogenous class.

An additional question asked teachers selecting "no" in describing their co-taught class as typical to further describe the students without disabilities. The responses indicated that the remainder of the class consisted of students academically below grade level and/or students with a higher incidence of behavior/discipline problems. "Lack of motivation" was also used to describe the students without disabilities who were in co-taught classes not considered typical.

Grade Levels Co-taught by Participants

Participants included in this study co-taught in a variety of grade levels

from 3rd through 12th grades. Eleven percent of the co-teachers co-taught in 3rd through 5th grades, 61% co-taught a class from 6th through 8th grade, and 28% of the co-teachers co-taught in grades 9 through 12.

Selection Process for Participants Interviewed (Qualitative Study)

To obtain a sample group for the qualitative portion of the study, the demographic questionnaire was used by the researcher to select subjects who were representative of the population. Initial variation of subjects was minimized by selecting participants with similar demographic responses. The appropriateness of restricting sample groups was to limit (when possible) potential intervening variables. This included selecting co-teachers in grades 6 through 12, teaching English, math, or science who were in the co-taught class full time.

Next, the CPEC questionnaire (see Appendix H) administered to all 84 participants was reviewed for potential interviewees. Each participant was asked to self-report his/her level of effectiveness in implementing a co-teaching model. The questionnaire was comprised of 15 items in which participants were to assign a value of 1 (strongly disagree) to 5 (strongly agree). The total number possible for each participant (15 items with maximum of five points each) was 75. Each individual was paired with his/her co-teacher and a sum of each pair was determined.

The process of grouping pairs of co-teachers according to their self-reported level of effectiveness involved several steps. The first step was to determine if differences existed in self-reported level of effectiveness in co-

teaching. After differences were found to exist on the CPEC questionnaire, the 42 pairs were ranked according to the sum of each pair's points. The rank ordered 42 pairs were then divided into three equal groups of 14 pairs. The fourteen pairs scoring the highest on the level of effectiveness were delineated as the high group. The fourteen pairs scoring in the middle of the 42 pairs were delineated as the medium group. The 14 pairs scoring the lowest on level of effectiveness in co-teaching were delineated as the low group. It is important to note that the type of group a pair was assigned (i.e., high, medium, low) was not an indication of the scale used in the CPEC instrument (i.e., "neutral" is 3, "strongly agree is 4), but rather is a delineation of the pairs with respect to each other according to their rank order.

After reviewing the literature, it was determined that a minimum of seven co-teaching pairs be interviewed. In previous qualitative studies, Redditt (1992) interviewed one pair of co-teachers and Carlson and Dietrich (1984) interviewed seven pairs of co-teachers. Nowacek (1992), in a non-empirically based study, interviewed five pairs of co-teachers. Based on these previous studies and the pilot study, seven pairs from the original 42 pairs of co-teachers participating in the quantitative portion of the study were selected to participate in the qualitative portion of this study. The selection included three pairs of co-teachers that rated themselves the highest on the degree of effectiveness in co-teaching. In addition, two pairs that rated themselves as having a medium level of effectiveness and two pairs that rated themselves as having a low level of effectiveness in co-teaching were included. The addition of these four pairs of

co-teachers was to possibly add valuable insight into why some co-teachers experience different levels of effectiveness.

Another criterion for selecting the seven pairs of co-teachers out of the sample of 42 pairs was the amount of discrepancy or variance found within each co-teaching pair. Those pairs reporting the least amount of variance were selected for the sample group for the qualitative portion of the study. The researcher used the above criteria to select pairs to be interviewed. In two cases, the pairs which had the least discrepancy did not wish to volunteer for the interview. In those cases, the next pair with the least discrepancy was requested to participate in an interview until seven pairs consented.

Results of Research Questions

Description of Analysis and Results of Research Question #1: What resources of the co-teaching model do co-teachers perceive as being necessary for implementing a co-teaching model (e.g., common planning, administrative support)?

Two sources of data provided information that was relevant to this research question. The CCCT (see Appendix H) was used to gather quantitative data for this research question. A second source (see Appendix I), was an interview with co-teachers that also provided insight into additional components not identified through the use of the CCCT questionnaire.

A descriptive statistics method was used with the data gathered from the CCCT questionnaire that co-teachers completed. Measures of central tendency identified the most typical or representative scores from the sample. Each

questionnaire item (i.e., components) was presented in both a narrative and table format.

The second source of information that addressed what components co-teachers perceive as necessary for co-teaching was the interview (see Appendix I) of individual co-teachers. The researcher looked for emergent patterns and themes among participants who were interviewed. Because the CCCT questionnaire on co-teaching was based on 19 components previously identified in the literature, and two components added by the researcher, the principal investigator believed that personal interviews with co-teachers provided a deeper understanding of the co-teaching process. The data from the interviews was analyzed through the process of content analysis. Statements from the interviews were coded, matched with similar statements, and assigned to the appropriate category. A frequency count of all similar statements (North, Holsti, Zaninovich, & Zinnes, 1963) was made and is presented in this chapter. The perspectives of co-teachers found through interviews and a descriptive analysis of information from the questionnaire addressed the research question asking what components co-teachers perceive as necessary for co-teaching.

Five components of co-teaching identified in the review of the literature were categorized as "resources" for the purpose of this study. These resources were (a) common planning time for co-teachers, (b) staff development/training prior to implementing co-teaching, (c) administrative support, (d) scheduling of a co-taught class (i.e., am./p.m), and (e) classroom design. Participants selected a value range of 1 (not important) to very 5 (important) for each of the five

resource items. The detailed results, including standard deviations, may be found in Table 12.

Overall, participants identified classroom design as being the least (mean = 3.619) important resource in co-teaching. The resource rated the most important was administrative support (mean = 4.702). Common planning (mean = 4.155) and staff development/training in co-teaching (mean = 4.357) were also rated as important resources.

Interviews with 14 participants were conducted to investigate the perceptions of co-teachers. Co-teachers were asked for their perceptions on what resources are necessary for implementing a co-teaching model of instruction. Content analysis was used to examine responses from the interviews. Statements made by participants were coded, matched with similar statements, and assigned to the appropriate category. A frequency count of all similar statements was made and the numbers following the statements represent the frequency of similar statements found in each category. In some instances, participants provided more than one response or statement. The five categories of the types of statements and frequencies are reported in Table 13. The statements found in Table 13 reflect a pattern of what co-teachers perceived were necessary resources. Of those responses given by participants, the following quotations reflect the themes that were most frequently addressed. With respect to attending an inservice, one high school special education teacher commented,

If you really want to learn how to do it, go into a classroom where it (i.e.,

Table 12

Resources Perceived as Necessary for Co-teaching by Co-teachers

THE IMPORTANCE SCALE

Not Important	Slightly Important	Moderately Important	Important	Very Important
1	2	3	4	5

STATEMENT	n	MEAN	STANDARD DEVIATION
1. Administrative Support	84	4.702	0.597
2. Training in Co-teaching	84	4.357	0.859
3. Common Planning	84	4.155	1.047
4. Time of day for Co-taught Class	83	3.952	1.307
5. Classroom Design	83	3.619	0.993

Table 13

Results of Interviews With Co-teachers on Resources Needed for Co-teaching

CATEGORY/TYPE OF STATEMENTS	Frequency
1. The need for inservice on co-teaching.	
Prior to starting to co-teach, observing a co-taught class and/or talking to teachers that have already co-taught would be important .	9
Inservices or "staff development" would be beneficial.	6
I do not think attending an inservice/workshop would help.	2
Inservice on how to work with a partner and/or resolve differences would be helpful.	2
2. Co-teachers having a common planning time.	
A common planning period would help in co-teaching.	12
Co-teachers need time off together to plan and prepare their class.	4
I do not think that you have to have a common planning period for co-teaching to work.	1
3. Administrative support needed.	
Administrative support is needed when scheduling students so the ratio, total number of students, and type of students is manageable.	6

***NOTE: Participants may have expressed more than one statement.**

Table 13 (Continued)

Results of Interviews With Co-teachers on Resources Needed for Co-teaching

	Administrators need to consider the time of day a co-taught class is scheduled.	3
	Administrators should be supportive and assist when difficulties arise between two co-teachers.	2
4.	Counselor support needed.	
	Counselors can help by scheduling the right balance of students.	6
	Counselors need to be more aware/familiar with co-teaching.	3
	Counselors should help inform parents about co-teaching.	2
5.	Recognizing that time is needed for co-teaching pairs to evolve.	
	Administrators need to allow a team to work together for a period of time.	4
	Co-teachers need to give each other time to adapt to each other.	4

***NOTE: Participants may have expressed more than one statement.**

co-teaching) is being done for a week, not a day, for at least a week, and see how things are done. Then, sit down with the teachers, both the regular and special ed teacher. Talk to them together and separately and let them talk about the pros and the cons.

A second resource, administrative support, was discussed by a middle school special education teacher when she said,

> I think administrative support is critical in this program. That will definitely allow the scheduling that needs to take place. They (i.e.,administrators) have to be supportive of the program where they will honor the ratio and the criteria that makes it an inclusion classroom.

Common planning time was also addressed as a type of administrative support. A middle school general education teacher said,

> After the pairing has been made, the next thing they (i.e., administrators) can do for us is schedule time together. Even doing things like freeing one of the teachers up, like a special ed teacher up from duty sometimes where they could come in at a different times and visit with the regular teacher if we can't get a common prep.

Classroom design did not emerge as a category and as one participant stated, "As far as classroom design, I'm not sure that's a big deal."

Results of Research Question #2: What compatibility components do co-teachers perceive are necessary for implementing a co-teaching model (e.g., teaching styles, discipline procedures)?

The same instruments (see Appendixes H and K) and the same types of

data analysis were used as described in the first research question. The types of data analysis used on information gathered from the instruments should be relevant to answering what characteristics of co-teachers are necessary for implementing a co-teaching model.

The following eight items were identified in the review of literature and were categorized as compatibility characteristics of co-teachers: (a) agreement on classroom discipline, (b) agreement on evaluation of students, (c) co-teachers volunteering to teach together, (d) similar goals in subject content/curriculum for students, (e) communication between co-teachers, (f) establishing roles/responsibilities of co-teachers, (g) flexibility in co-teaching, and (h) similar teaching styles. Each participant selected a value range from 1 (not important) to 5 (very important). Measures of central tendency were used to obtain a mean of each item. The detailed results, including standard deviations, may be found in Table 14. The mean for characteristics of compatibility ranged from a low of 3.321 for similar teaching styles to a high of 4.917 for communication. Co-teachers perceived having similar teaching styles as only moderately important. The items having the highest mean for level of importance were communication between teachers (mean = 4.917) and flexibility (mean = 4.702). It may be noteworthy that the compatibility characteristic of communication between co-teachers had the highest mean of all 21 items administered in the Likert type questionnaire. The remainder of the compatibility characteristics were valued as being important in co-teaching. Statements made by participants were coded, matched with similar statements, and assigned to

Table 14

Compatibility Characteristics Perceived Necessary by Co-teachers

THE IMPORTANCE SCALE

Not Important	Slightly Important	Moderately Important	Important	Very Important
1	2	3	4	5

COMPATIBILITY CHARACTERISTICS	n	MEAN	STANDARD DEVIATION
1. Communication	84	4.917	0.318
2. Flexibility in Co-teaching	84	4.702	0.533
3. Agreement on Discipline	83	4.679	0.519
4. Evaluation of Students	84	4.536	0.569
5. Volunteering to Co-teach	84	4.417	0.715
6. Similar Content/Curriculum Goals	82	4.369	0.655
7. Establishing Roles/Responsibilities	84	4.310	0.728
8. Similar Teaching Styles	83	3.321	0.933

the appropriate category. A frequency count of all similar statements was made and the number following the statements represents the frequency of similar statements found in each category. Eight categories emerged during the interviews related to the compatibility of co-teachers. These categories of statements and frequency are reported in Table 15. Participants may have provided more than one statement.

The statements found in Table 15 were themes related to compatibility between co-teachers. A more personal look at specific responses made by participants included one participant's discussion on selecting co-teachers. He said,

> I think it's very important that certainly they are willing participants. I value their feedback primarily over anything because if they were forced to do it and they absolutely do not want to, you're probably going to be in for a miserable year.

Compatibility in discipline was frequently discussed by participants. One co-teacher explained,

> It's very important as far as the discipline that it probably needs to be set before you go into a classroom teaching because one thing you don't want to do is present a divided front to students. I mean you've got to be in agreement when the class comes in and you have to present yourselves as a team to the class, as equal members of that team to the class. A lot of times it reminds me of a marriage. You have to keep working at it.

Table 15

Results of Interviews With Co-Teachers on Compatibility Issues in Co-Teaching

	CATEGORY/TYPE OF STATEMENTS	FREQUENCY
1.	Selection of Co-teachers	
	Teachers should volunteer and be willing participants.	10
	Teachers should not be forced to co-teach.	7
	Administrators should be involved in selecting co-teachers.	5
	Teachers should mutually agree and consent to co-teaching.	2
	Co-teachers' personalities should be compatible.	2
	A co-teacher should have an open mind/positive attitude.	2
2.	Communication between co-teachers	
	Teachers need to sit down and talk about how the classroom is going to run.	7
	When we disagree, we have to compromise and resolve the problem.	4
3.	Flexibility in co-teaching	
	Both of us have to be flexible.	9
	We have to be able to adapt to each other.	2
4.	Discipline in a co-taught class	
	It's pretty equal, we both do the discipline.	9
	You both have to be consistent.	7
	We support each other.	5

***NOTE: Participants may have provided more than one statement.**

Table 15 (Continued)

Results of Interviews With Co-Teachers on Compatibility Issues in Co-Teaching

CATEGORY/TYPE OF STATEMENTS	FREQUENCY
Discipline is one of the difficult issues.	3
One of us gives more consequences or does more of the discipline.	3
5. Development of curriculum for a co-taught class	
I think that we should come to some understanding or agreement on what curriculum should be used or taught.	10
The state and district tell us what is required for our curriculum.	5
I don't think it makes much difference if we have the same goals when designing curriculum.	3
6. Roles and responsibilities of co-teachers.	
The role of the special education teacher is to provide individual help, modify assignments, and keep students on task.	11
The regular education teacher develops the lesson.	10
The regular teacher's role is primarily to present the lesson.	10
Your roles do change frequently depending on the need of the class.	8
The special education teacher's role is to help the regular teacher see what capabilities a student with a disability has.	5

***NOTE: Participants may have provided more than one statement.**

Table 15 (Continued)

Results of Interviews With Co-Teachers on Compatibility Issues in Co-Teaching

	CATEGORY/TYPE OF STATEMENTS	FREQUENCY
	We both share teaching responsibilities equally.	5
	The special education teacher is like an assistant.	3
7.	Teaching styles of co-teachers.	
	I think it's helpful if co-teachers do not have the same teaching style.	10
	More than one style is best because everyone does not learn the same way.	10
	I think similar teaching styles would help.	2
8.	Evaluating students in co-taught classrooms.	
	We give the same assignments/tests to all students, but modify when needed.	14
	We both share the grading of papers.	9
	We have one grade book for the entire class.	8
	We grade our students separately.	2
	The regular education teacher does all the grading.	2

***NOTE: Participants may have expressed more than one statement.**

Evaluating students was another common theme that emerged from the interviews. One high school special education teacher said,

> We both grade everything. I'll take a stack and she'll take a stack. We also evaluate by both of us doing things while we are actively teaching, like asking questions and having discussions. We have the same expectations for all the students, but just every now and then provide modifications, like extra time, when a student needs it.

Research Question #3: What other miscellaneous factors do co-teachers perceive as necessary for implementing co-teaching (e.g., parental participation)?

In the review of the literature, six miscellaneous factors relating to co-teaching were identified by earlier authors and/or researchers and two were added by the researcher of this study. They were: (a) pilot testing a co-taught class before going school wide, (b) parental participation in co-teaching, (c) maintaining a "typical" (heterogeneous) co-taught class, (d) having a crisis intervention plan for a co-taught class, (e) addressing co-teaching on a student's IEP, (f) providing services/supports in addition to a co-taught class (i.e., independent study, study hall, resource room), (g) developing long range goals/objectives for co-teaching, and (h) student volunteering for a co-taught class . Participants were asked to assign a value from 1 (not important) to 5 (very important) on a Likert type questionnaire. The detailed results, including means and standard deviations, may be found in Table 16.

The lowest mean (mean = 2.393) reflected the perceptions of co-teachers

Table 16

Miscellaneous Components Perceived Necessary by Co-Teachers

THE IMPORTANCE SCALE

Not Important	Slightly Important	Moderately Important	Important	Very Important
1	2	3	4	5

STATEMENT	n	MEAN	STANDARD DEVIATION
1. Provide Additional Service	84	4.310	0.821
2. Long Range Goals	83	4.071	0.818
3. Heterogenous / "Typical Class"	84	3.845	0.963
4. Co-teaching on the IEP	82	3.750	1.028
5. "Pilot" Testing Co-teaching	83	3.536	1.046
6. Crisis Intervention Plan	83	3.202	0.991
7. Student Volunteering	83	2.464	1.265
8. Parent Participation	84	2.393	0.970

on the importance of parental participation in selecting a co-taught model of instruction. The highest mean (mean = 4.310) reflected the perceptions of co-teachers with respect to the need for students with disabilities to be provided services or supports in addition to a co-taught class (i.e., independent study, study hall, resource room). It may be noteworthy that of all 21 items rated by participants, parent participation in selecting a co-taught teaching model had the lowest mean and was perceived as being only "slightly important". Students volunteering for participation in a co-taught class was also viewed as slightly important with a mean of 2.464. All other factors were valued as either moderately important or important.

In the qualitative portion of the study, statements made by participants were coded, matched with similar statements, and assigned to an appropriate category. A frequency count of all similar statements was made and the number following the statements represents the frequency of similar statements found in each category. The frequency of statements may reflect more than one statement by each participant. The results of the interviews revealed 12 categories that were addressed as miscellaneous items. They are reported in Appendix P.

The three categories that were most frequently discussed as miscellaneous factors in co-teaching were the type of students in a co-taught class, services needed for students with disabilities in addition to participation in a co-taught class, and professional growth. On describing the type of co-taught class, one participant said, "They packed us 32 people in there. We also have

some real behavior problems in there. The counselors could have helped out by not putting so many students with problems in one class." Another co-teacher remarked,

> Because that (e.g., heterogenous class) is violated on some campuses, that's why it fails. By sticking an ED kid or MR kid that has no business being in there just because they try to include them, that's not inclusion. It becomes a dumping ground. It will make people hate the program and it will ruin it.

Several participants described services provided in addition to students with disabilities participating in a co-taught class. One co-teacher described her program and said,

> We try very hard to get any of our kids that are in the co-taught class in an independent study class where they can bring their regular work in and work on it there with a lab teacher's help. Sometimes because of vo-tech or sports that can't be done. In that case, we do grade checks every two weeks for the regular classes so we know how they're doing. If they're not doing well, sometimes the coaches will let us pull them out of sports for a day to try and catch them up and put them in Encore (e.g., extra lunch time) or after school, whatever we can do. There is tutoring after school that some of them have gone to. Some of them come in before school.

All participants interviewed had responses to the question, "How has your experience as a co-teacher affected your growth as an educator? One

participant remarked,

> I've grown to see how two people can really work together to benefit a student. It's been interesting to be able to bounce ideas off of another person. . .we just have a good time together. You know teachers just kind of end up in their classrooms just all by themselves and this has brought us out of isolation.

A summary of the qualitative and quantitative results in a comparative format can be found in Table 17.

Research Question #4: What significant similarities and/or differences exist between perceptions of general education teachers (as one group) when compared to perceptions of special education teachers (as a second group) when identifying characteristics and components necessary for co-teaching?

Two sources of data were used to explore the differences and similarities of general and special educators. The first source was the CCCT questionnaire with 21 items (see Appendix H). The results of the CCCT questionnaire, which were on a continuous scale, were analyzed by using t-tests. Each item on the CCCT questionnaire was analyzed for each of the two groups. An alpha level of .05 was used to determine statistical significance. The results were reported in a narrative format. Tables were also used for brevity and clarity of presenting information (see Table 18).

The CTRO questionnaire (see Appendix I) was used as a second source of data to explore the similarities and differences between general and special educators. Descriptive statistics were used to analyze the rank order

Table 17

Summary of Quantitative and Qualitative Results: RESEARCH QUESTION #3

What other miscellaneous factors do co-teachers perceive as necessary for implementing co-teaching?

QUANTITATIVE: (From highest to lowest mean)	QUALITATIVE: Miscellaneous Themes (Highest to lowest frequency)
1. Provide Additional Service	1. Professional Growth
2. Long Range Goals	2. Provide Additional Service
3. Heterogenous / "Typical Class"	3. Selection of Students (Process)
4. Co-teaching on the IEP	4. Facilitating Factors
5. "Pilot" Testing Co-teaching	5. Advantages of Co-Teaching
6. Crisis Intervention Plan	6. Disadvantages of Co-Teaching
7. Student Volunteering	7. Parent Participation
8. Parent Participation	8. Inhibiting Factors
	9. Student Ratio Recommended
	10. Changes Due to Subject/Partner
	11. Type of Students
	12. Pilot Testing Co-Teaching

*NOT ADDRESSED IN PREVIOUS LITERATURE

Table 18

Perceptions of General Educators Compared to Special Educators

THE IMPORTANCE SCALE

Not Important	Slightly Important	Moderately Important	Important	Very Important
1	2	3	4	5

Statement	Teacher	Mean	Standard Deviat.	*P* Value
1. Common Planning	General	4.048	1.168	*p* = 0.352
	Sp.Ed.	4.262	0.912	
2. Training/Inservice	General	4.262	0.912	*p = 0.313*
	Sp.Ed.	4.452	0.803	
3. Administrative Support	General	4.643	0.692	*p = 0.364*
	Sp.Ed.	4.762	0.484	
4. Time of Class	General	3.857	1.372	*p = 0.508*
	Sp.Ed.	4.048	1.248	
5. Classroom Design	General	3.619	0.962	*p = 1.000*
	Sp.Ed.	3.619	1.035	
6. Agree on Discipline	General	4.619	0.492	*p = 0.296*
	Sp.Ed.	4.738	0.544	
7. Student Evaluation	General	4.548	0.550	*p = 0.849*
	Sp.Ed.	4.524	0.594	
8. Volunteer Co-teacher	General	4.381	0.731	*p = 0.650*
	Sp.Ed.	4.452	0.705	

Table 18 (Continued)

Perceptions of General Educators Compared to Special Educators

STATEMENT	Teacher	Mean	Standard Devia.	*P* Value
9. Goals in Curriculum	General	4.452	0.633	*p = 0.246*
	Sp.Ed.	4.286	0.673	
10. Communication	General	4.881	0.395	*p = 0.308*
	Sp.Ed.	4.952	0.216	
11. Teaching Styles	General	3.214	0.898	*p = 0.296*
	Sp.Ed.	3.429	0.966	
12. Roles/Responsibilitie	General	4.214	0.750	*p = 0.233*
	Sp.Ed.	4.405	0.701	
13. Flexibility	General	4.667	0.570	*p = 0.542*
	Sp.Ed.	4.738	0.497	
14. Pilot Testing	General	3.524	1.065	*p = 0.918*
	Sp.Ed.	3.548	1.041	
15. Parent Participation	General	2.643	0.983	**p = 0.017*
	Sp.Ed.	2.143	0.899	
16. Heterogenous Class	General	3.810	0.994	*p = 0.736*
	Sp.Ed.	3.881	0.942	
17. Crisis Intervention	General	3.357	0.958	*p = 0.154*
	Sp.Ed.	3.048	1.011	
18. Co-teach. on IEP	General	3.738	0.857	*p = 0.916*
	Sp.Ed.	3.762	1.185	
19. Volunteer Students	General	2.571	1.192	*p = 0.441*
	Sp.Ed.	2.357	1.340	
20. Additional Services	General	4.238	0.878	*p = 0.429*
	Sp.Ed.	4.381	0.764	
21. Long Range Goals	General	4.143	0.751	*p = 0.427*
	Sp.Ed.	4.000	0.883	

questionnaire. A frequency count was made of each item contained in the questionnaire. The researcher separated the results into two groups, one of general education teachers and one of special education teachers . The results were reported in narrative and table format (see Table 19) from the highest mean to the lowest mean for each of the two groups (i.e., general educators and special educators). This information addresses the research question asking for differences and/or similarities between general and special educators with respect to what characteristics and components are necessary for co-teaching to be successful..

As a "sidebar," a comparison of the CCCT questionnaire and the CTRO questionnaire was completed by the researcher. Because the two instruments asked similar questions of the comparison, but were in different formats, the results would indicate how high the association is between the two instruments. This was addressed under "Instrument Validity." By using t-tests, descriptive statistics and personal interviews, it was anticipated that through this triangulation process the credibility of this study would be strengthened.

Only one item out of 21 indicated statistical significance at the .05 alpha level between general educators and special educators. This item asked participants to assign a value to "parental participation in selecting a co-teaching model." The mean of general education teachers was 2.643. The mean of special education teachers was 2.143. Both general and special educators perceived this item as only slightly important and overall general educators rated this item the second lowest mean of all 21 items. Special education teachers

Table 19

Rank Order of Likert Type Questionnaire for General and Special Educators

General Educators

STATEMENT	RANK ORDER	MEAN
Communication Between Teachers	1	4.881
Flexibility in Co-teaching	2	4.667
Administrative Support	3	4.643
Agreement of Classroom Discipline	4	4.619
Agreement on Evaluation of Students	5	4.548
Similar Content/Curriculum Goals	6	4.452
Volunteering to Co-teach	7	4.381
Training/Inservice in Co-teaching	8	4.262
Services in Addition to Co-taught Class	9	4.238
Establishing Roles/Responsibilities	10	4.214
Developing Long Range Goals	11	4.143
Common Planning Time	12	4.048
Time of Day Co-taught Class is Taught	13	3.857
Heterogenous Class	14	3.810
Co-teaching Addressed on the IEP	15	3.738
Classroom Design	16	3.619
Pilot Testing Co-taught Class	17	3.524
Crisis Intervention Plan	18	3.357
Similarity in Teaching Styles	19	3.214
Parental Participation	20	2.643
Student Volunteering for Co-taught Class	21	2.571

Table 19 (Continued)

Rank Order of Likert Type Questionnaire for General and Special Educators

Special Educators

STATEMENT	RANK ORDER	MEAN
Communication Between Teachers	1	4.952
Administrative Support	2	4.762
Flexibility in Co-teaching	3.5	4.738
Agreement of Classroom Discipline	3.5	4.738
Agreement on Evaluation of Students	5	4.524
Training/Inservice in Co-teaching	6	4.452
Volunteering to Co-teach	7	4.452
Establishing Roles/Responsibilities	8	4.405
Services in Addition to Co-taught Class	9	4.381
Similar Content/Curriculum Goals	10	4.286
Common Planning Time	11	4.262
Time of Day Co-taught Class	12	4.048
Developing Long Range Goals	13	4.000
Heterogenous Class	14	3.881
Co-teaching Addressed on the IEP	15	3.762
Classroom Design	16	3.619
Pilot Testing Co-taught Class	17	3.548
Similarity in Teaching Styles	18	3.429
Crisis Intervention Plan	19	3.048
Student Volunteering for Co-taught Class	20	2.357
Parental Participation	21	2.143

rated this item the lowest mean of all 21 items. The probability was significant at the 0.017 level. When looking at the rank order of the means (see Table 19) for each of the two groups, several similarities exist. Both groups agreed that communication, administrative support, flexibility in co-teaching, agreement on classroom discipline, and agreement on evaluation of students were the top five items out of 21 valued the highest according to mean scores. General education teachers and special education teachers also agreed on the five items that were valued the least according to mean scores. These items included parental participation in selecting a co-teaching model, students volunteering for participation in a co-taught class, similarity in teaching styles of co-teachers, the need for a crisis intervention plan, and pilot testing a co-taught class before going school wide.

Research Question #5: Do pairs of co-teachers differentiate themselves by self-reporting level of effectiveness in implementing a co-teaching model?

The CPEC questionnaire (see Appendix J) was used to collect information from co-teachers. Each participant was asked to self-report his/her level of effectiveness in implementing a co-teaching model. The questionnaire was comprised of 15 items in which participants were to assign a value of 1 (strongly disagree) to 5 (strongly agree). The total number possible for each participant (15 items with a maximum of five points each) was 75. Each individual was paired with his/her co-teacher and a sum of each pair was determined. A total of 150 points were possible for each pair. The results of 42 pairs of co-teachers ranged from a low of 101 points to a high of 150 points.

The 42 pairs were then ranked according to the sum of each pair's points. The rank ordered 42 pairs were then divided into three equal groups of 14 pairs (see Table 20). The first group that scored the highest on self-reporting level of effectiveness in co-teaching had sums ranging from 138 to 150. The mean of the highest group was 145 points. The second group, or middle group, had co-teaching pairs with sums ranging from 126 to 136. The mean of this group was 131. The third group that scored the lowest on self-reporting level of effectiveness in co-teaching had sums of co-teaching pairs ranging from 101 to 125. The mean of the lowest scoring group was 116.

An ANOVA was conducted to determine if the three groups were significantly different at the 0.05 *p* level (see Table 21). All three groups indicated a $p < .01$ demonstrating that self-reported levels of effectiveness were significantly different among the three groups. Also, an ANOVA was performed to determine whether the discrepancies of one group (i.e., self-reporting a high level of effectiveness in co-teaching) may be significantly different from another group. Although no statistical significance was found at the 0.05 *p* level, two groups did approach statistical significance. The group self-reporting a high level of effectiveness and the group self-reporting a low level of effectiveness in co-teaching had a *p* value of 0.070.

Research Question #6: If co-teachers self-report different levels of effectiveness in implementing a co-teaching model, what factors regarding effectiveness of co-teaching significantly differentiate the groups?

Table 20

Co-teaching Pairs' Perceived Level of Effectiveness in Co-teaching

Group Reporting Lowest Level

PAIR #	SUM POINTS
1	101
2	105
3	105
4	110
5	110
6	115
7	118
8	119
9	122
10	122
11	123
12	124
13	125
14	125

Group Reporting Medium Level

PAIR #	SUM POINTS
15	126
16	128
17	128
18	130
19	130
20	132
21	132
22	133
23	133
24	133
25	135
26	135
27	136
28	136

Group Reporting Highest Level

PAIR #	SUM POINTS
29	138
30	139
31	140
32	141
33	143
34	143
35	144
36	147
37	148
38	148
39	150
40	150
41	150
42	150

Table 21

ANOVAS: (1) Group Type/Differences Between Groups

(2) Group Type/Mean Differences of Pairs Within Groups

GROUP TYPE AND DIFFERENCES BETWEEN GROUPS

Group	Mean Total Points of Pairs Per Group	Standard Deviation
High	145	5.899
Medium	131	3.461
Low	116	8.321

Group	High	Medium	Low
High	$p = 1.000$		
Medium	$*p = 0.000$	$p = 1.000$	$*p = 0.000$
Low	$*p = 0.000$	$*p = 0.000$	$p = 1.000$

ANOVA RESULTS ON GROUP TYPE AND WITHIN GROUP VARIANCE

Group	Mean Discrepancy of Pairs Per Group	Standard Deviation
High	2.429	2.472
Medium	5.714	4.428
Low	7.286	8.306

Group	High	Medium	Low
High	$p = 1.000$		
Medium	$p = 0.281$	$p = 1.000$	
Low	$p = 0.070$	$p = 0.741$	$p = 1.000$

An ANOVA was used to determine whether discrepancies (dependent variable) existed among the three different groups (independent variable) on each item of the CPEC questionnaire (Appendix J). The results of the ANOVA indicated the amount of between-groups variance in individuals' scores with the amount of within-groups variance. Gall, Borg, and Gall (1996) explain, "If the ratio of between-groups variance to within-groups variance is sufficiently high, this indicates that there is more difference between the groups in their scores on a particular variable [i.e., questionnaire item] than there is within each group" (p. 392). The results of the ANOVA were presented in narrative and table format. Descriptive statistics were given to indicate the difference in mean scores and standard deviations of each questionnaire item. This information may be valuable in identifying what factors contribute to the effectiveness of the co-teaching model of instruction.

An ANOVA was used to determine whether statistical significance occurred between the three groups (i.e., group reporting the highest, medium or lowest level of effectiveness in co-teaching) on each item of the CPEC questionnaire. A matrix of pairwise comparison probabilities using the Tukey procedure was implemented and may be found in Table 22. The Tukey procedure was selected as a conservative method for calculating probabilities.

Overall, significant differences were found between the group self-reporting a high level of effectiveness in co-teaching and the group self-reporting a low level of effectiveness on 13 of the 15 items. Also, the group self-reporting a low level of effectiveness in co-teaching was significantly different

Table 22

ANOVA Results: Significant Findings on Level of Effectiveness

Significant Findings on Co-teachers' Perceptions of Their Effectiveness

STATEMENT	DF	F-Ratio	High Mean	Medium Mean	Low Mean	Overall *p*	Significant Group(s)	*p* value
Management of student behavior	2	7.171	4.536	4.679	4.036	0.001	high/low med/low	0.017 0.002
Defining roles/ responsibilities	2	10.122	4.643	4.357	3.821	0.000	high/low med/low	0.000 0.014
Student expectations	2	5.644	4.714	4.429	4.214	0.005	high/low	0.004
Evaluating student progress	2	3.778	4.643	4.393	4.214	0.027	high/low	0.021
Flexibility in co-teaching	2	3.950	4.714	4.714	4.321	0.023	high/low med/low	0.045 0.045
Balance academic needs	2	3.792	4.464	4.500	4.071	0.027	med/low	0.040
Sharing knowledge/skills	2	12.472	4.714	4.643	4.000	0.000	high/low med/low	0.000 0.000
Preparing lessons materials	2	12.823	4.286	4.143	3.214	0.000	high/low med/low	0.000 0.000

Table 22 (Continued)

ANOVA Results: Significant Findings on Level of Effectiveness

Significant Findings on Co-teachers' Perceptions of Their Effectiveness

STATEMENT	DF	F-Ratio	High Mean	Medium Mean	Low Mean	Overall *p*	Significant Group	*P* value
Making decisions together	2	13.137	4.643	4.607	3.821	0.000	high/low med/low	0.000 0.000
Equal workload	2	15.861	4.286	4.107	3.036	0.000	high/low med/low	0.000 0.000
Organizational skills	2	3.078	4.393	4.286	4.000	0.051	high/low	0.049
Co-teach w/partner again	2	12.835	4.893	4.857	4.107	0.000	high/low med/low	0.000 0.000
Student academic needs	2	7.773	4.786	4.500	4.250	0.001	high/low	0.001
Experience is successful	2	14.717	4.857	4.750	4.107	0.000	high/low med/low	0.000 0.000

from the group self-reporting a medium level of effectiveness in 10 of the 15 items.

When analyzing the differences found between the group rating themselves the most effective in co-teaching and the group rating themselves the least effective, seven of the 13 items had a *p* value equal to or less than 0.001. These items included, (a) as a co-teacher, I believe we are successful in our attempts to define our roles and responsibilities, (b) as co-teachers, I believe we are successful in sharing knowledge and skills with each other, (c) As co-teachers, I believe we are successful in preparing lessons and materials together, (d) as co-teachers, I believe we are successful in being responsible for an equal amount of the workload, (e) as co-teachers, I believe we are successful in making decisions together, (f) if given the option, I would want to continue co-teaching with the same co-teacher, and (g) overall, I would say that my co-teaching experience is successful.

When analyzing the differences found between the group rating themselves the least effective in co-teaching and the group rating themselves as having a medium level of effectiveness, the following items had a *p* value less than 0.01: (a) as co-teachers, I believe we are successful in sharing knowledge and skills with each other, (b) as co-teachers, I believe we are successful in preparing lessons and materials together, (c) as co-teachers, I believe we are successful in making decisions together, (d) as co-teachers, I believe we are successful in being responsible for an equal amount of the workload, (e) if given the option, I would want to continue co-teaching with the same co-teacher, and

(f) overall, I would say that my co-teaching experience is successful. All of the items found to be significantly different between the group self-reporting the lowest level of effectiveness and the group self-reporting a medium level of effectiveness were the same as those items found to be significantly different between the group self-reporting the highest level of effectiveness and the group self-reporting the lowest level of effectiveness in co-teaching.

Research Question #7: If co-teachers self-report different levels of effectiveness in implementing a co-teaching model, what resources, compatibility components, and/or miscellaneous factors of co-teaching significantly differentiate the groups?

Using the information gathered from the questionnaires on resources, compatibility components, and miscellaneous factors, an ANOVA was conducted on the three groups' self-reporting level of effectiveness in co-teaching. Overall, of the 21 items on the CCCT questionnaire, five items indicated statistical significance at the 0.05 *p* level. These five items included, (a) co-teachers' agreement on the evaluation of students, (b) parental participation in selecting a co-teaching model, (c) a crisis intervention plan for a co-taught class, (d) students with disabilities being provided services/support in addition to the co-taught class (i.e., independent study, study hall, resource room), and (e) development of long range goals/objectives for co-teaching. An extended printout of results may be found in Table 23.

Research Question #8: If co-teachers self-report different levels of effectiveness in implementing co-teaching, what is the difference in the amount of discrepancy

Table 23

ANOVA Results: Level of Effectiveness and 21 Variables on Likert Questionnaire

STATEMENT	DF	F-Ratio	Overall *p*	Significant Group	High Mean	Medium Mean	Low Mean	*P* value
Common planning	2	0.299	0.742					
Training/Inservice	2	0.623	0.539					
Administrative support	2	0.629	0.535					
Time of class	2	0.713	0.493					
Classroom design	2	1.327	0.271					
Agreement on discipline	2	1.617	0.205					
Student evaluation	2	4.680	0.012	high/med	4.286	4.714		0.012
Volunteering to co-teach	2	2.332	0.104					
Similar curriculum goals	2	0.774	0.465					
Communication	2	1.546	0.219					
Similar teaching styles	2	10152	0.321					
Roles/Responsibilities	2	1.668	0.195					

Table 23 (Continued)

ANOVA Results: level of Effectiveness and 21 Variables on Likert Questionnaire

STATEMENT	DF	F-Ratio	Overall *p*	Significant Group	High Mean	Medium Mean	Low Mean	*P* value
Flexibility in co-teaching	2	0.583	0.128					
Pilot testing co-teaching	2	1.622	0.204					
Parent participation	2	6.495	0.002	high/low high/med	1.893	2.714	2.571	0.018 0.003
Heterogenous Class	2	0.469	0.627					
Crisis intervention plan	2	4.245	0.018	high/med	2.786	3.500		0.018
Co-teaching on IEP	2	1.682	0.192					
Students volunteering	2	2.520	0.087					
Additional services/support	2	3.138	0.049	high/low	4.571		4.036	0.038
Long range goals	2	4.321	0.016	high/low high/med	3.714	4.250	4.250	0.034 0.034

found between general education teachers and special education teachers of one group when compared to discrepancies found in a second or third group?

An ANOVA was the type of data analysis used. The discrepancies were the dependent variable and the type of teacher (e.g., general educator in group reporting low level of effectiveness in co-teaching) within a subgroup was the independent variable. For example, the researcher attempted to determine whether co-teachers who self-report low levels of effectiveness also have a larger discrepancy between mean scores (general educators compared to special educators). This information could be helpful in deciphering why some co-teachers perceive their co-teaching as effective while others do not.

The results of the questionnaire asking participants to self-report level of effectiveness in co-teaching was analyzed so that the amount of discrepancy between each pair on all 15 items could be determined. The mean discrepancy found between the general educator and the special educator of the group self-reporting the highest level of effectiveness was 2.357. The mean discrepancy found between the general educators and the special educators of the group self-reporting a medium level of effectiveness in co-teaching was 5.786. The mean discrepancy found between the general educators and the special educators of the group self-reporting the least amount of effectiveness in co-teaching was 7.286. Although a difference is indicated, the results of the ANOVA indicate no statistical significance occurred between groups. The lowest *p* value was of the group self-reporting the highest level of effectiveness

compared to the group reporting the lowest ($p = 0.064$). For a printout of extended results see Table 24.

Further Results

The results of this study provide additional information beyond the results addressing each research question. Further data was collected for purposes of addressing what components and characteristics are necessary for co-teaching in addition to those items identified by previous authors, the pilot study or the researcher. ANOVAs and Pearson Chi-Squares were conducted on variables taken from the demographic questionnaire. No statistical significance was found (see Table 25) when an ANOVA was conducted measuring the type of groups (i.e., group perceiving themselves with a high, medium, or low level of effectiveness in co-teaching) with (a) participation in previous co-teaching training/inservice, (b) type of students in a co-taught class (i.e., heterogeneous, homogeneous, at risk), and (c) the level of education (i.e., Bachelors, Masters).

Two variables were found to have statistical significance. The first was the number of years a co-teaching pair had taught together. Specifically, statistical significance ($p = 0.008$) was found between the group self-reporting a high level of effectiveness and the group self-reporting a low level of effectiveness in co-teaching when considering the number of years the pair had co-taught together. An ANOVA was used to obtain these results. For a printout of extended results see Table 26.

A Pearson Chi-Square was used to measure significance for the second variable, subject co-taught, with the three groups self-reporting different levels of

Table 24

ANOVA Results: Research Question #8

Level of Effectiveness Groups: Discrepancy of General and Special Educators

GROUP	Mean Discrepancy (Gen/Sp)	Standard Deviation
High	2.357	2.341
Medium	5.786	4.441
Low	7.286	8.306

Results of ANOVA

SOURCE	DF	F-Ratio	Overall *p*	Signif.Grp
Effectiveness Level	2	2.846	0.070	None

Result of Tukey Multiple Comparisons

GROUP	HIGH	MEDIUM	LOW
HIGH	1.000		
MEDIUM	0.250	1.000	
LOW	0.064	0.760	1.000

Table 25

Futher Results: Pearson Chi-Square (No significance found)

Level of Effectiveness and Training in Co-teaching

Training	% of High Group	% of Medium Group	% of Low Group	*P*
No	39.29	53.57	50.00	
Yes	60.71	46.43	50.00	
Total	100	100	100	0.538

Level of Effectiveness and Heterogenous Class

Heterog	% of High Group	% of Medium Group	% of Low Group	*P*
No	21.43	21.43	10.71	
Yes	78.57	78.57	89.29	
Total	100	100	100	0.482

Level of Effectiveness and Level of Education

Education	% of High Group	% of Medium Group	% of Low Group	*P*
Bach.	71.43	57.14	60.71	
Mast.	28.57	42.86	39.29	
Total	100	100	100	0.514

Table 26

Other Results: Significance Found

Level of Effectiveness and Years With Same Co-teacher

SOURCE	DF	F-Ratio	Overall *p*
Effectiveness Level	2	4.923	0.010

Results of Tukey Multiple Comparison

GROUP	HIGH	MEDIUM	LOW
HIGH	1.000		
MEDIUM	0.090	1.000	
LOW	*0.005	0.625	1.000

Level of Effectiveness and Subject Taught: Pearson Chi-Square

SUBJECT	% of High Group	% of Medium Group	% of Low Group	*P*
English	66.67	23.81	25.00	
Math	14.29	33.33	50.00	
Science	19.05	42.86	25.00	
Total	100	100	100	0.013

effectiveness in co-teaching. Before the Pearson Chi-Square could be conducted, any cell having a frequency of less than five occurrences had to be omitted. To include sparse cells that are more than one-fifth of the fitted cells would suggest that significance tests are suspect (Berk, 1994). This included eliminating elementary education, reading, and history as subjects co-taught. The remaining subjects that were included in the Pearson Chi-Square were English, math, and science. The Pearson Chi-Square indicated a *p* of 0.013 when analyzing these three subjects with the level of effectiveness in co-teaching each group reported. For an extended printout of these results, see Table 25.

Two questions were included in the demographic questionnaire that provided additional information about co-teaching programs. The first question asked participants, "In your opinion, when comparing a co-taught class to a regular class, do students with disabilities experience greater academic success, similar academic success, or less academic success." Seventy percent of the respondents selected greater academic success, 27% selected similar academic success, and 3% selected less academic success.

The second question asked, "In your opinion, when comparing a co-taught class to a regular class, do students without disabilities experience greater academic success, similar academic success, or less academic success." Forty-five percent of the co-teachers selected greater academic success, 54% selected similar academic success, and 1% selected less academic success. Although these two questions address what co-teachers'

opinions are on the effects of co-teaching, further studies investigating the effects of co-teaching on students would need to be conducted to obtain actual achievement data.

Reliability (Qualitative)

Inter-rater reliability was calculated for the qualitative portion of this study. After initial development of the content classification system, one individual was trained by the principal investigator of this study in using the category coding system. This individual had a Ph.D. in special education and had experience working in the field of special education. Both he and the principal investigator of this study independently analyzed the content of three interviews using the category content system. Using Scott's (as cited in Gall, Borg, & Gall,1996) inter-rater reliability formula, the principal investigator determined that the reliability of their coding was 92% in agreement.

Reliability (Quantitative)

Inter-rater reliability was also calculated for the quantitative portion of this study. A doctoral student in special education with experience in the field of special education was used as an observer for reliability purposes. Reliability was measured on participant responses of Likert type questionnaires and the rank order questionnaire. An individual with a Ph.D. in special education served as a second observer for reliability purposes on (a) the difference between mean scores of general education teachers and special education teachers (t-tests), (b) discrepancies of co-teaching pairs, (c) discrepancies found between groups of co-teachers (ANOVA) , and (d) the correlation of the questionnaire using rank

order responses to the results of the Likert type questionnaires. Inter-rater reliability on all observations of participant responses (14 opportunities for disagreement) was 100% in agreement between the principal investigator and the observer. Inter-rater reliability on observations of results obtained from t-tests, ANOVAs, chi square tests and observed discrepancies (35 opportunities for disagreement) was 100% in agreement between the principal investigator and the observer.

Validity of Instruments

The rank order questionnaire was used for two purposes. The first was to assess the similarities and differences between general education teachers and special education teachers on the components and characteristics necessary for co-teaching. The second purpose was to determine whether participants would express similar opinions on a questionnaire of the same construct as the Likert type questionnaire, but using a different type of measurement. Both the Likert type questionnaire and the rank order questionnaire asked participants to assign a value to the 21 variables previously identified in the review of the literature as being necessary for co-teaching. A Pearson Correlation Matrix and a Spearman's rho were conducted on the two questionnaires. It should be noted that four rank order questionnaires were not included in the results due to participants misunderstanding the directions. Also, six participants commented on the rank order questionnaire being too difficult and that too many items could be valued the same. Overall, the Pearson Correlation Matrix indicated a -0.391 correlation between items on the Likert type questionnaire and items on the rank

order questionnaire. This indicated a low negative correlation between the two questionnaires. The Spearman rho was also used because the data collected from the rank order questionnaire was in the form of ranks. The results were consistent with the Pearson Correlation matrix. The Spearman rho indicated a -0.351 relationship between the two questionnaires. The ability of the rank order questionnaire to predict the results of the Likert type questionnaire appears weak.

Summary

The results of co-teacher's perceptions on what components and characteristics are necessary to implement a co-teaching model of instruction were presented. The quantitative analysis of resources, characteristics of compatibility, and other miscellaneous factors indicated co-teachers perceive administrative support, communication between co-teachers, flexibility, and the need for support services other than co-taught classes (i.e., independent study, study hall) as being the most important items necessary for co-teaching. Those items having the lowest means and indicating the least importance in co-teaching were classroom design, similar teaching styles, and parental participation. The qualitative portion of the study was similar to the quantitative results in that similar categories and frequency of statements were reported upon by participants. When comparing similarities and differences between perceptions of general education and special education teachers, surprisingly, only 1 of the 21 items indicated statistical significance. This item asked participants to rate the importance of parent participation. Although both groups

rated this item as slightly important, the general educators believed parent participation was more important (mean = 2.643) than the special educators (mean = 2.143). The probability was significant at the 0.017 level.

Pairs of co-teachers did self-report different levels of effectiveness in implementing a co-teaching model. With a maximum of 150 points possible, co-teaching pairs scored from 101 to 150 points. All of the items that were found to be significantly different between the least effective group and the group having a medium level of effectiveness were the same as those items found to be significantly different between the highly effective group and the least effective group. These factors included attempts to define roles and responsibilities, sharing knowledge and skills with each other, preparing lessons and materials together, being responsible for equal amounts of the workload, making decisions together, wanting to continue co-teaching with the same co-teacher, and believing that the co-teaching experience was successful.

Co-teachers self-reporting different levels of effectiveness in co-teaching also indicated different perceptions on what specific resources, compatibility components, and miscellaneous factors are necessary for co-teaching. Overall, the five items having statistical significance were co-teachers' perception of level of importance on evaluation of students, parental participation in selecting a co-teaching model, the need for a crisis intervention plan for a co-taught class, the need for students with disabilities having services/supports in addition to co-taught class (i.e., independent study, study hall, resource room), and developing long range goals/objectives for co-

teaching. The group self-reporting the highest level of effectiveness in co-teaching believed that evaluation of students, parental participation in selecting a co-teaching model, the need for a crisis intervention plan for a co-taught class, and long range goals/objectives were not as important as those groups self-reporting the lowest and medium level of effectiveness in co-teaching. The only item that indicated a higher level of importance in co-teaching with the group self-reporting the highest level of effectiveness in co-teaching was the need for services/supports in addition to co-taught class.

The last research question asked if the discrepancies between general and special educators of one group (i.e., self-reporting a high level of effectiveness) differed significantly from the discrepancies between general and special educators of a different group (i.e., self-reporting a low level of effectiveness). Although a difference is indicated, the results of the ANOVA indicated no statistical significance occurred between groups. The lowest p value was of the group self-reporting the highest level of effectiveness compared to the group reporting the lowest ($p = 0.064$).

CHAPTER FIVE

Discussions and Conclusions

This chapter provides a discussion of research findings, conclusions based on these findings, limitations of the study, and implications of findings for practice and future research.

Research Findings and Conclusions

Research Question #1: What resources of the co-teaching model do co-teachers perceive as being necessary for implementing a co-teaching model (e.g., common planning time, administrative support)?

Discussion. Co-teachers participating in this study seemed to validate the findings of previous authors and researchers on the identification of resources necessary for implementing a co-teaching model of instruction. Particular value from participants in this study was placed upon the need for administrative support. The type of administrative support described as necessary by co-teachers was selection of co-teachers and the maintaining of heterogeneous co-taught classes with a manageable number of students.

Although co-teachers seemed to agree that an inservice or training in co-teaching would be important, no consensus was reached on what type of training or inservice teachers should receive. Co-teachers interviewed expressed the strongest interest in doing "on-site" inservices by observing co-teaching programs already in existence. Surprisingly, 53% of the participants indicated they had received training or an inservice in co-teaching. This may have been influenced by one school district that mandated training in co-teaching.

Eighteen of the total 84 participants (21%) were from that one school district. The remaining 32% were co-teachers who had received training while employed in other school districts.

Although a common planning period was valued as important, according to results of the CCCT questionnaire, most co-teachers interviewed seemed to plan their co-taught class before, after, or in between classes. Also, a common planning period was strongly suggested by participants interviewed, especially for co-teaching teams in their first year. Co-teachers interviewed indicated the longer they had been teaching together, the less preparation they needed together.

Resource items that were suggested in the literature (see Table 8), but were not highly valued by co-teachers participating in this study were classroom design and time of day a co-taught class was offered. Co-teachers infrequently discussed these two items and they received the lowest mean on level of importance. These two resources appeared to be the least possible to rearrange, and co-teachers commented that the "master schedule dominated when and where a class was taught." It appears that the majority of co-teachers in this study believe that the physical layout of a co-taught classroom and the time of day the class is taught is not important. Although most teachers may enjoy having a classroom that is physically conducive for teaching and learning and would agree that having class in the morning is beneficial for students and teachers, these two factors were not deemed necessary for co-teaching to be successful.

Two themes that emerged during the qualitative portion of this study that were not identified by previous authors were support from school counselors and time for co-teaching relationships to evolve. In this study, co-teachers believed counselors could act as a resource in informing parents about co-teaching and scheduling of students. Three participants who were interviewed suggested that counselors become more familiar with the concept and practice of co-teaching. The co-teachers seemed to value the role of the counselor, but believed their participation in the co-teaching model needed to be enhanced.

Research Question #2: What compatibility components do co-teachers perceive are necessary for implementing a co-teaching model (e.g., teaching styles, discipline procedures)?

Discussion. The issue of compatibility in co-teaching was the area that generated the most discussion (see Table 15) during the interview portion of this study and had the highest mean scores on the CCCT questionnaire (see Table 14). Co-teachers clearly identified all items related to compatibility as "important" on the questionnaire with four of the eight items approaching "very important." In the results of the questionnaire and the interviews, participants seemed to have more of a consensus on the importance of compatibility and a description of compatibility characteristics. Co-teachers completing the questionnaire identified communication as the most substantially significant (mean = 4.917) of all 21 items included in the CCCT questionnaire. During the interviews, communication was interwoven throughout other themes, such as establishing roles, responsibilities, and discipline. This may suggest that

prospective co-teachers may benefit from discussing how they will communicate effectively with their co-teaching partner and that co-teachers need to prioritize effective communication when interacting with their co-teaching partner.

It appears that co-teachers believe agreement on certain aspects of co-teaching is necessary, but not in all areas. For example, several participants during the interview suggested that co-teachers should agree on discipline and evaluation of students prior to co-teaching together. However, co-teachers did not believe agreement was necessary for teaching styles, curriculum development or establishing firm roles and responsibilities. In fact, co-teachers repeatedly expressed the need for flexibility in these areas. This information may seem inconsistent to some readers, but actually may be insightful to prospective co-teachers. Defining certain aspects of compatibility may be necessary between two co-teachers, while remaining flexible in other areas of compatibility may be recommended. The analogy given by five of the participants that co-teaching is like a marriage demonstrates how complex the relationship between co-teachers may be. The "marriage" appears to be a growing process in which the co-teaching partners need to have made a firm commitment and allowed time for their relationship to evolve.

When observing the results of the mean scores from the CCCT questionnaire, it appears that co-teachers valued "establishing roles and/or responsibilities" as one of the least important ingredients necessary for co-teaching. In contrast, the 14 participants interviewed had more to say about roles and responsibilities of co-teachers than any other theme or category (i.e.,

48 statements). This area of compatibility also had the most disparity with respect to participants' responses. This disparity was evident when co-teachers described the type of role or responsibilities they assumed in co-teaching.

Earlier discussions on the types of co-teaching models (Bauwens & Hourcade, 1991; Bucholtz, Gerbino, & Gorman, 1996; Cohen as cited in Pugach & Wesson, 1995; Friend & Bursuck, 1996; Myers et al., 1990) described a variety of roles and responsibilities that co-teachers may select. Some of the descriptions given by co-teaching pairs interviewed in this study seemed to fit neatly into one of the models described by these earlier authors. It is clear from previous literature and from the results of this study that there is no one model of co-teaching. Although previous literature suggested co-teachers participate in one type of model or assume one type of role, participants in this study suggested it may be necessary for co-teachers to combine two or more types of co-teaching models in order to meet the needs of students. Eight of the participants revealed that their role or responsibilities would change several times during one class period. This unique finding suggests co-teachers may have to use a combination of co-teaching models in order to fulfill the needs of students. For example, co-teachers described situations in which they were using the "One Teach, One Assist" (Friend & Bursuck, 1996) model of co-teaching and then changed to "Small Group Instruction" (Bucholtz, Gerbino, & Gorman, 1996) all within the same class period. The need for change was precipitated by the needs of the students. It seems reasonable that each co-teaching pair must have the ability to communicate and remain flexible to

establish their own personalized model of co-teaching. Although this study only included co-taught classes with two teachers, participants interviewed suggested the possibility of co-teaching with more than two adults in a classroom. This new model of co-teaching may include related service personnel (e.g., speech pathologist) or a second general education teacher. The potential for varying the type of instruction to students could be increased through this type of model.

Research Question #3: What other miscellaneous factors do co-teachers perceive as necessary for implementing a co-teaching model (e.g., parental participation)?

Discussion. Up to this point, the resources (research question #1) and characteristics (research question #2) identified in the literature review as necessary for co-teaching were fairly consistent with the themes that emerged from personal interviews conducted in this study. However, less consistency was found between the six miscellaneous components suggested in the literature and two items added by the researcher (research question #3) when compared to results from interviews in this study. Only three of the six items evolved as themes during the interviews. These three areas were parent participation, maintaining a typical (heterogeneous) class, and students with disabilities being provided services in addition to co-taught classes. The results of personal interviews conducted in this study revealed two additional themes. The first was the selection of students for a co-taught class. Previous literature discussed appropriate ratios and types of students to be included in co-taught classes. The participants interviewed in this study provided more specific

information on how students were selected. The majority of co-teachers interviewed stated that the IEP team determined whether a student with a disability would participate in a co-taught class. The majority of co-teachers also indicated that students without disabilities were selected randomly. Three of the ten school districts had implemented co-teaching as a model for total inclusion. This raises an ethical question of whether students with disabilities are truly provided an individualized program if co-teaching is being used as the only type of service delivery. In reviewing the demographic information, it is clear that some co-taught classes had more than 10 students with disabilities. In fact, three participants interviewed discussed the reason for using co-teaching was to "get around the state and federal guidelines" which limit the number of students with a disability in a resource room to 10. Also of concern is whether students with disabilities are being provided the opportunity to participate in IEP meetings to determine the type of program they will receive. This area will be further discussed when co-teachers describe the need for services in addition to co-taught classrooms.

A second area that did not appear in the literature review was how roles and responsibilities change according to the subject/content taught or a change in partners. Although this was touched upon earlier when co-teachers discussed flexibility, additional insight was gained by co-teachers who have already experienced these situations. It may be important to reveal these insights to allow prospective co-teachers the ability to recognize and plan for these changes. Three co-teachers interviewed had been assigned different subjects

or different partners due to changes in job assignment. These participants described the change as "overwhelming" and requiring a person to "switch personalities." A discussion on the subject taught and years experience with a co-teacher are included in the "further findings" section of this chapter.

Of all the miscellaneous items included in the questionnaire or discussed by participants interviewed, the item valued as the most important and discussed most frequently was the need for students with disabilities to have services in addition to co-taught classes. These services may include resource rooms, independent study, or other related services deemed necessary by the IEP team. It is clear from the evidence in this study that co-teachers perceived a need for students with disabilities to have other options available to receive services.

Research Question #4: What significant similarities and/or differences exist between perceptions of general education teachers (as one group) when compared to perceptions of special education teachers (as a second group) when identifying characteristics and components necessary for co-teaching?

Discussion. One of the more surprising results of this study was how similar the responses were between general education teachers and special education teachers. Only 1 of the 21 items on the questionnaire indicated statistical significance. This item was parent participation in selecting a co-teaching model of instruction. Although both groups of educators rated parent participation as slightly important, there was a significant difference in how each

group perceived parent participation. A curious finding was the fact that it was the general educators who more highly valued parent participation in selecting a co-teaching model (mean = 2.643) than did special educators (mean = 2.143). Prior to these results, speculation might have been that special educators would perceive parental participation as more important than general educators. With the involvement of parents in IEPs and the individualized programs provided students with disabilities, it would seem reasonable that special educators would value the need for parent participation to a higher degree than general educators. Possible explanations for this finding would be truly speculative. Two special educators conveyed during the interviews that they hesitated to address co-teaching on the IEP. They believed it would "tie their hands" if co-teaching could not be offered because of scheduling or other conflicts. The majority of co-teachers interviewed did describe ways of informing parents about co-teaching. They used letters, school open house, parent-teacher conferences and IEP/Review of Placement meetings to describe their co-taught program to parents. Further explanation for why general educators valued parent participation more than special educators may need to be addressed in future studies.

The rank order questionnaire also indicated similarities between general educators and special educators. Both groups ranked the same five components the highest (i.e., communication between co-teachers, administrative support of a co-teaching model, flexibility in co-teaching, agreement on classroom discipline, and agreement on evaluation of students)

and the same five components ranked the lowest (parent participation, students volunteering, similarity in teaching styles, the need for a crisis intervention plan, and pilot testing a co-taught class).

Research Question #5: Do pairs of co-teachers significantly differentiate themselves when self-reporting level of effectiveness in implementing a co-teaching model?

Discussion. Considerable thought was given whether different groups of co-teaching pairs could be established that may contribute to the findings of this study. The principal investigator believed by having participants self-report their level of effectiveness in co-teaching, educators could gain insight into what factors contributed or inhibited the level of perceived effectiveness. Could these differences in perceived effectiveness in co-teaching lead to a better understanding of what is necessary for co-teaching? Warren (1976) cautions that as much, if not more, attention must be given to the mechanics of instituting an innovation as is given to the purpose for its introduction. It does not seem enough to pay attention only to the mechanics found in co-teaching models in which co-teachers perceived themselves effective. By including co-teachers who reported different levels of effectiveness in co-teaching, a greater depth of understanding of the co-teaching process may be attained.

A review of the literature did not indicate any theoretical foundation for how to differentiate co-teaching pairs according to perceived level of effectiveness in co-teaching. Also, the researcher attempted to maintain as high an *N* as possible when separating the co-teaching pairs into groups. The

process of grouping pairs of co-teachers according to their self-reported level of effectiveness involved several steps. The first step was to determine if differences existed. After differences were found to exist, an equal sample of 14 co-teaching pairs were assigned to each of the three groups. The researcher looked for natural breaking points that would also result in similar sample sizes. These groups were delineated as reporting a high, medium, or low level of effectiveness in co-teaching. The next step involved trying to determine whether the differences of these three groups were statistically significant. The results of an ANOVA indicated that all three groups did have significant differences with a 0.00 *p* level. The last step involved selecting pairs to be interviewed. Seven pairs were selected based on the least amount of variance within each pair and the willingness to participate in an interview.

The delineation of these three groups was also substantiated by the results of an ANOVA and three items on the self-reporting effectiveness questionnaire. The first item asked, "If given the option, I would want to continue co-teaching with the same co-teacher." The results of the ANOVA indicated a *p* value of 0.000 between the "high group" and the "low group" and a *p* value of 0.000 between the "low group" and the "middle group". Co-teachers' responses were statistically significant when observing the type of group with the desire to continue co-teaching. Those participants choosing to continue their co-teaching were highly correlated with co-teachers reporting high levels of success in co-teaching. The co-teachers indicating that they did not want to continue co-teaching, did in fact report lower levels of effectiveness in co-teaching.

The second item supporting the delineation of the three groups asked participants to respond to, "As a co-teacher, I believe that I have been effective in students' academic achievement." Again, the response selected had a strong correlation with the type of group they had been assigned. Statistical significance was found between the "high group" and the "low group" ($p = .001$).

The third item supporting the delineation of the three groups asked participants to respond to, "Overall, I would say that my co-teaching experience is successful." A p value of 0.000 was found between the "high" and "low" group. Also, a p value of 0.000 was reported between the "medium" and "low" group.

It may seem obvious that a co-teaching pair rating themselves as low in level of effectiveness in co-teaching would also select not to co-teach again. The significance occurs when these pairs are assigned to a group, and that as a group the significance is even more powerful. The fact that the groups were significantly different supports the answer to the research question asking if differences exist. This allowed the researcher to delve into further questions, such as, do co-teaching pairs self-reporting different levels of effectiveness perceive similar or different beliefs in what is necessary for co-teaching?

Research Question #6: If co-teachers self-report different levels of effectiveness in implementing a co-teaching model, what factors regarding effectiveness of co-teaching significantly differentiate the groups?

Discussion. After determining that differences between co-teaching pairs did exist, the next step was to determine where these differences in perception

of effectiveness occurred. The results of the ANOVA indicated that co-teachers in all three groups responded to questions by selecting "agree" in 11 of 15 items. The "low" group responded to 4 items by selecting "neutral" in describing their level of effectiveness. There was statistical significance found between at least two groups in 14 of the 15 items. This study has established that differences did occur and in what areas co-teachers believed they were or were not effective. Tables 22 and 23 provide a summary of what factors were associated with the self-reported level of effectiveness. These differences in perceptions of effectiveness in co-teaching can now lead to the next question of identifying what is necessary for co-teaching to be implemented. Did co-teachers in this study having different levels of effectiveness also have similar or different beliefs on what do co-teachers perceive as necessary for co-teaching? If similarities did exist, can the level of importance associated with certain components be the reason for co-teachers differing on their perceived level of effectiveness in co-taught classrooms? The next question may provide insight into understanding what co-teachers perceived as necessary to implement a co-teaching model of instruction.

Research Question #7: If co-teachers self-report different levels of effectiveness in implementing a co-teaching model, what resources, compatibility components, and/or miscellaneous factors of co-teaching significantly differentiate the groups?

Discussion. None of the five resources were statistically significant when pairs of co-teachers were assigned to groups based on their self-reported level

of effectiveness in co-teaching. Although statistical significance was not demonstrated between the three groups, the participants in this study did indicate that administrative support, training, and common planning were "important" resources in co-teaching. These same areas also emerged as themes in the qualitative portion of the study.

The overall results of this research question were difficult to interpret. Although statistical significance was observed in 5 of the 21 items dealing with compatibility and miscellaneous items, 4 of the items did not demonstrate a higher mean with a higher level of perceived effectiveness. For example, the agreement in evaluating students was found to be significant ($p = .012$) between the "high" and "medium" group. The mean for the level of importance that the "high" group reported was 4.286, while the mean reported by the "middle" group was 4.714. However, this implies the higher a co-teaching pair perceived their effectiveness in co-teaching, the more likely they were to assign a lower level of importance with respect to co-teachers agreeing on the evaluation of students. A similar situation was observed with the level of importance assigned to parent participation, crisis intervention plans, and the need for co-teachers to develop long range goals. What this may suggest is that co-teachers experiencing a higher level of perceived effectiveness were able to recognize through their experience areas that were not as important for implementing a co-teaching model of instruction.

One component that resurfaces throughout this study was the need for students with disabilities to have available services/supports in addition to co-

taught classes. This was found to be statistically significant ($p = 0.038$) and is consistent with results obtained earlier in the study. The significant difference was found between the group self-reporting a high level of effectiveness in co-teaching and the group reporting a low level. The mean for the "high" group was 4.571 and the mean for the "low" group was 4.036. As the level of importance (mean) increased, so did the level of perceived effectiveness by co-teachers or vice versa.

Research Question #8: If co-teachers self-report different levels of effectiveness in implementing co-teaching, what is the difference in the amount of discrepancy found between general education teachers and special education teachers of one group when compared to discrepancies found of a second or third group?

Discussion. No significant findings were found in this research question. The results were consistent with those findings discussed earlier in the third research question. It appears that participants in this study did not indicate differences that could be attributed to the type of teacher (i.e., general educator, special educator).

Further Findings and Discussion

The research questions investigated in this study were primarily derived after an extensive review of the literature. Two unique findings, which were not anticipated, may offer valuable insight into what factors contribute to the effectiveness of a co-teaching model. Both findings were obtained because of information completed by participants in the demographic questionnaire. The first finding suggested that the number of years a co-teaching pair had been

teaching together was highly associated with the co-teachers' perceived level of effectiveness in a co-taught class. In looking at the results of an ANOVA (see Table 26), statistically significant differences ($p = 0.005$) were found between participants self-reporting a high level of effectiveness in co-teaching and participants self-reporting a low level when years co-taught together was factored into the analysis. The mean years taught together by participants in the "high" group was 2.607. The mean years taught together by participants in the "medium" group was 1.786 and the mean for the "low" group was 1.429. This finding lends credence to those co-teachers who discussed the need for time to allow the co-teaching relationship to evolve. Of particular practical significance would be the support administrators could provide by allowing co-teaching teams to continue without having to change partners. This relationship between years taught together and perceived effectiveness was not discussed in previous literature.

The second finding suggested that participants teaching in the area of English, math, and science were significantly different when level of effectiveness was considered. A Pearson-Chi Square indicated a p value of 0.013. Without conducting further research, it is difficult to speculate why the subject taught maybe associated with the level of effectiveness co-teachers had about their co-teaching. Why is it that 67% of the "high" group taught English, while only 24% of the "low" group taught English? The same question may be asked when we observe that 50% of the "low" group taught math, while only 14% of the "high" group taught math? Although no explanation can be given, one

possibility is the subject of English may be more oriented toward verbal instruction and student participation. Co-teachers in English may find it more rewarding because their role requires more interaction with students. A second possibility is that special education teachers may feel more comfortable or effective in teaching English than other subject areas. This area will remain unanswered until further research is explored.

Also noteworthy were those areas found that did not have significance. These included the level of education (i.e., bachelors, masters) participants had attained and whether or not participants had received training in co-teaching. Neither of these factors indicated statistical significance when teachers self-reported their level of effectiveness in co-teaching.

Limitations of This Study

The limitations of this study are evident. The quasi-experimental design did not allow for the identification and control of all existing variables. Certainly, the investigator could not control for or separate intervening variables, such as whether co-teachers were "forced" to co-teach or whether they volunteered.

It is clear that communication and flexibility were characteristics identified as important ingredients in co-teaching. What is not clear is how to measure teachers' ability to communicate or their level of flexibility. Identifying these characteristics as necessary for co-teaching is a far cry from describing how to determine whether they exist in an individual or, if they don't exist, how to enhance these characteristics.

An additional limitation in this study would be the lack of standardized

instruments to assess the perceptions of co-teachers. However, the items selected for the questionnaires and the structured interviews were based on existing literature and a pilot study. Additional studies need to be replicated on a broader scale to corroborate results before generalized statements can be offered.

Another possible limitation may be that the participants in this study were volunteers and their responses may be different from co-teachers unwilling to participate in a study. It should also be noted that although attempts were made to randomly select school districts, co-teaching is not a standard service delivery option for students with disabilities and some researcher bias may have occurred with the four districts selected by the researcher. The sample in this study may not be representative of the general population of co-teachers.

Last, it must be mentioned that although participants volunteered for this study, co-teachers interviewed may have been reluctant to discuss certain aspects of their co-teaching partnership. Because the nature of the interview asked participants to describe personal aspects of their co-teaching experience, some participants may have been hesitant to divulge information they perceived as delicate. In particular, those co-teachers discussing a negative co-teaching experience may have been suspect to how the findings of the study would be used. This may have altered their responses.

Implications for Practice and Further Research

Implications for Practice

The results of this study may generalize to other co-teachers located in a

similar geographical area in grades 6 through 12 who teach English, math, or science. The practical significance may also be of interest to parents, administrators, preservice teachers, prospective co-teachers, and those involved in the development of policy and procedures for students with disabilities. The results of this study are not intended to evaluate the effectiveness of co-teaching, but rather to broaden the knowledge base of those interested in providing alternative services in inclusive environments. Awareness of what resources and compatibility characteristics are necessary for co-teaching is only the beginning. The skills discussed in this study (communication, ability to be flexible, etc.) can not be observed in isolation, but instead, will need to be practiced in the environment in which they are to be implemented.

Implications for Further Research

Several areas remain unaddressed or unanswered with respect to co-teaching. Additional studies could address such questions as (1) what other types (new to the field) of co-teaching models may be effective, (2) what type of services/supports can students with disabilities benefit from in addition to participating in co-taught classes, (3) how can parent participation be increased, (4) how can administrators accommodate the necessary resources for co-teaching, (5) what procedural safeguards and/or policies can enhance the effectiveness of co-teaching as a service delivery option, (6) what types of training/inservice would be of most benefit to prospective co-teachers, (7) would groups self-reporting different levels of effectiveness in co-teaching also differ in the qualitative results of a study, (8) does co-teaching broaden the instructional

skills of co-teachers, (9) does co-teaching increase teachers' and students' acceptance of diversity in students, and (10) how can co-teaching relationships be sustained? Further research is needed to intensively and systematically investigate these critical aspects of co-teaching.

Summary

The purpose of this study was to identify what components and characteristics of the co-teaching model of instruction do co-teachers perceive as necessary for implementing the model. This study focused on general educators co-teaching with special educators in providing co-teaching as a service delivery option for students with disabilities in inclusive environments.

The literature review included the following components of co-teaching: a) definitions of co-teaching, b) historical background, c) types and descriptions of co-teaching models, d) previous research including two qualitative, two quantitative, one mixed study, and one single subject study, e) synthesis of 17 non-empirically based articles, f) factors facilitating or inhibiting the co-teaching model, and g) advantages and disadvantages of implementing a co-teaching model of instruction. Nineteen variables were identified from the review of the literature and were grouped into three categories. The first category, resources, consisted of five components suggested by authors as necessary for co-teaching. Resources were described as elements of co-teaching that districts and/or building sites would need to allocate for the model to exist. Two variables were added by the researcher to make a total of 21 variables investigated in this study. These two variables were a) providing services/supports in addition to

co-taught classes for students with disabilities (i.e., independent study) and b) students volunteering for co-taught classes. The second category was compatibility issues of co-teachers and a review of the literature indicated eight characteristics of co-teachers that are necessary for co-teaching. The third category was miscellaneous factors and included six components necessary for co-teaching. Specifically, no empirical studies could be found that investigated what co-teachers perceive as necessary for implementing a co-teaching model.

Data from the study was obtained from two sources. Eighty-four participants (42 co-teaching pairs) returned one demographic survey, 2 Likert type questionnaires, and 1 rank order questionnaire. The second source of data was obtained from 14 participants (7 co-teaching pairs) that volunteered for an interview. This mixed design (quantitative and qualitative) was used to investigate 8 research questions. The research questions focused on: (a) what resources for the co-teaching model do co-teachers perceive as necessary for implementing co-teaching (e.g., common planning, administrative support), (b) what compatibility components do co-teachers perceive are necessary for implementing a co-teaching model (e.g., teaching styles, discipline procedures), (c) what other miscellaneous factors do co-teachers perceive as necessary for implementing co-teaching (e.g., parental participation), (d) what similarities and/or differences exist between perceptions of general education teachers (as one group) when compared to perceptions of special education teachers (as a second group) when identifying characteristics and components necessary for co-teaching, (e) do pairs of co-teachers significantly differentiate themselves

when self-reporting level of effectiveness in implementing a co-teaching model, (f) if co-teachers self-report different levels of effectiveness in implementing a co-teaching model, what factors on effectiveness of co-teaching significantly differentiate the groups, (g) if co-teachers self-report different levels of effectiveness in implementing co-teaching, what resources, compatibility components, and/or miscellaneous factors of co-teaching significantly differentiate the groups, and (h) if co-teachers self-report different levels of effectiveness in implementing co-teaching, what is the difference in the amount of discrepancy found between general education teachers and special education teachers of one group when compared to discrepancies found of a second or third group.

This research supports the results of other studies and non-empirically based articles which attempted to identify components and characteristics necessary for co-teaching. Co-teachers in this study identified administrative support, common planning, communication, flexibility, and maintaining a heterogenous class as the primary components necessary for co-teaching. Areas that were not discussed by earlier authors, but were found in this study to be associated with co-teachers self-reporting a high level of effectiveness in co-teaching included: a) the longer co-teaching pairs teach together, the higher the perceived level of effectiveness in their co-teaching, (b) teaching English in a co-taught class appears to be associated with co-teachers self-reporting higher levels of effectiveness in co-teaching when compared to math or science, and (c) providing additional services/programs for students with disabilities in co-

taught classes (i.e., independent study, study hall, etc.,) appears to be associated with co-teachers self-reporting higher levels of effectiveness in co-teaching.`

Concluding Remarks

Traditionally, special education teachers have provided educational services for students with disabilities in segregated classrooms. With the new emphasis on inclusion and the increasing diversity of students in general education settings, it has become necessary for general and special educators to more effectively collaborate in educating all students. Educators who are willing to form partnerships, such as in co-teaching, may find increased achievement for students and continued professional growth for themselves. The co-teaching model appears to be an option that promotes the education of students with disabilities, without the label and stigma that have been so closely associated with segregated environments.

Because of the diversity in defining and implementing a co-teaching model of instruction, it was necessary to explore the process and not the effects of this service delivery option for students with disabilities. By exploring co-teachers' perceptions on the process of co-teaching, the investigator hoped to delineate the components necessary for implementing an effective co-teaching model of instruction.

It is hoped that the findings of this study may assist school districts, universities, and parents in designing and implementing this innovative teaching model. By understanding the process of implementing a co-teaching model,

educators may maximize the benefits for all students in general education environments.

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Appendix A

Description and Results of Pilot Study

The participants of the pilot study were six males and three females; the age range was from 31 to 50; the levels taught included grades six through twelve; the length of time that teams had co-taught together ranged from one to five years; number of years in the teaching profession ranged from two years to 24 years; the level of education ranged from Bachelors to Masters; six of the participants were general education teachers and three were special education teachers (comprising a total of three teams); each special education teacher co-taught with two different general education teachers; subjects co-taught included Language Arts/English, Algebra/Math, World History/Civics, and Biology.

The research designs used in the pilot study consisted of a descriptive statistics method and a qualitative (interview) design. All participants were asked to complete a demographic questionnaire (see Appendix A), a self-reporting ability inventory (see Appendix B), a checklist describing the co-teaching environment (see Appendix C) and an interview consisting of eight questions (see Appendix D).

A Likert-type format was used for the self-reporting ability inventory. Each item asked the participant to rate from "none" (1) to "extensive" (5) their perception on the amount of skill or knowledge a co-teacher should have in a particular area, as well as the amount of knowledge or skill she or he currently had in each area. The most significant results of the self-reporting ability inventory indicated the following perceptions of the nine co-teachers: (1) co-

teachers reported the lowest mean score of 3.0 on amount of knowledge or skill they currently had with respect to the referral process, assessment, procedural safeguards/laws, IEP's and least restrictive environment (2) the highest mean score reported by co-teachers was a 4.8 and reflected the level of knowledge or skill a co-teacher should have in modifying for students with disabilities. This particular question also showed the largest discrepancy between what knowledge and skill a co-teacher should have in modifying compared to what knowledge and skill they did have in providing modifications for students with disabilities. In four of the five questions, participants indicated a need for more knowledge and skill development. Only one question, "Ability to communicate with school personnel on student needs" showed no discrepancy between what knowledge and skills co-teachers should have compared to what they actually had.

In summarizing the self-reported ability inventory, co-teachers' perceived a need for more knowledge and skill in utilizing a co-teaching model of instruction in four of five areas. This particular questionnaire is extremely limited in scope and areas identified as needing increased knowledge and skill development are restricted to only those areas the researcher asked that the participant respond. Certainly, additional areas in co-teaching may and should be addressed when assessing teachers' perceptions on co-teaching.

The second questionnaire in the pilot study asked each participant to identify words describing his/her own teaching style and then indicate

which words described their co-teaching partner's style of teaching. A summary of the frequency counts for each teaching style characteristic can be found in Table 10. Overall, teachers reported consistency in identifying characteristics of their own teaching style as well as their partner's. The frequency of each item ranged from zero to nine. Out of the 28 characteristics listed by the researcher, co-teachers selected the following characteristics most frequently for themselves and their partners: (a) flexibility, (b) dependability, (c) maintaining a sense of humor, (d) student oriented, (e) laid back, (f) values individual differences, (g) patience, and (h) learning from experience. Those characteristics reporting the least frequency in describing co-teachers' teaching styles were: (1) uses lesson plans only, (2) disciplinarian, (3) competitive, (4) creative, (5) prefers quiet classroom, (6) linear teaching style, (7) uses lecture and notes (8) authoritative, and (9) prefers routine. The remaining characteristics either were neutral or showed a large discrepancy between teachers rating themselves and rating their co-teachers.

The results of the checklist are limited only to describing characteristics of teaching styles which were suggested by the researcher. Certainly, additional characteristics may and should be considered. Also, the results of the questionnaires were not analyzed according to type of teacher responding (i.e., general educators, special educators) or by comparing results of each pair of co-teachers. The use is simplistic in that only the frequency of characteristics was measured.

A naturalistic interview (see Appendix D) was also included in the pilot study. Eight questions were asked of each participant. Personal interviews were audio-taped and later transcribed. The following categories emerged from the transcribed interviews: (1) expressed concerns of co-teachers, (2) benefits of co-teaching, and (3) suggestions and/or strategies for co-teaching. The concerns expressed by co-teachers included teacher compatibility, role ambiguity, workload, and evaluating students. The benefits expressed by co-teachers included increased individual time given to students, increased socialization between students with and students without disabilities, and teachers helping each other to become better teachers. A third category to emerge from the interviews was what co-teachers suggested as necessary for co-teaching. All six participants stated that an inservice/workshop would have been beneficial prior to co-teaching with specific preconditions. This necessity issupported in the literature. To overcome some obstacles, staff development efforts are necessary. Special educators and general education teachers should be trained to work with others in a team situation (Bean, 1985; Bean & Eichelberger, 1979). Participants currently finishing their first year of co-teaching reported that initial concerns regarding cooperation lessen when teams of participants: (a) are given training in cooperative teaching, (b) gain experience with arrangements, and (c) develop individualized guidelines specific to their programs (Bauwens, Hourcade, & Friend, 1989). As these conditions occur, teachers become more comfortable about co-teaching.

A second need identified in the pilot study was the need for administration and counselor support. Specifically, the support from administrators and counselors was stated as essential in designing the classroom composition. Several of the participants in the pilot study also identified scheduling as a definite need for co-teaching to be effective. Different authors (Reynolds & Volkmar, 1984; Thomas & Jackson, 1986) have suggested that a class should have a "significant" percent of students with learning disabilities so that the special education teacher's time is utilized effectively. However, it should not be overloaded so that it becomes a self-contained or remedial class. As Armbruster and Howe (1985) state, "It is imperative that such team-taught classes consist of a mix of learners who will benefit individually and have the potential to positively influence one another" (p.82). Also, administrative support is needed in providing co-teachers scheduled planning time. Building principals can either assign the same preparation or arrange for a predetermined release time. Studies have shown that once preparation time has been provided, the necessity for lengthy planning sessions is minimal (Bauwens et al., 1989).

A third area that teachers discussed as necessary for co-teaching that seemed to be more of an undertone, was the need for a commitment. Participants repeatedly stated that both teachers need to be committed, able to support each other and somewhat flexible. One general education teacher (participant #1) gave an example, "We can continue to do this, but let's add this" in describing how the two teachers would show flexibility and work through ideas

together. Participant #4 (not an advocate of co-teaching) did recognize the commitment needed. She said, "If there is truly a benefit of this co-teaching, then both teachers should be in there full-time, because both teachers have an obligation to those kids".

The implications for future social validity of this pilot study are limited only to the subjects who participated. The sample that participated in the pilot study is much too small to provide a significant representation of any population. This pilot study assisted in providing specific research questions to be addressed (see Addendum K), instruments that can more accurately gather data, and results that may be more precise in assessing components and characteristics necessary for co-teaching. Specifically, this pilot study revealed a need for instruments that can contribute data specific to individual co-teachers, co-teaching pairs, and/or different types of co-teachers (i.e., general education teachers, special education teachers). The different methods of analyzing data will provide similarities and differences that may or may not exist. A more extensive questionnaire on co-teachers' self-reporting level of effectiveness may provide valuable information on what factors contribute to the different levels. Probably of most usefulness from the pilot study was the insight gained during the personal interviews. Prior to the pilot study being conducted, strong speculation on whether or not co-teachers would be reluctant to discuss their co-teaching experience was a strong concern. However, the interviews revealed that co-teachers willingly responded with concerns and benefits of co-teaching.

Even co-teachers who reported a "negative" co-teaching experience seemed willing to openly discuss and describe their situation. A much more extensive interview than the one used in the pilot study is needed to obtain more complete information on the perceptions of co-teachers.

Appendix B

Pilot Study Demographic Questionnaire

NAME_____MALE___FEMALE____

MARK WHICH AGE GROUP APPLIED TO YOU

___20-25 ___26-30 ___31-35 ___36-40 ___41-50 ___51 or above

CERTIFICATION_____HIGHEST

DEGREE_____

Have you ever been certified in special

education?_____When?_____

How long?_____What

Categories?_____

Subject areas of teaching experience Number of years in each

_____

_____

TOTAL YEARS OF TEACHING EXPERIENCE_____

How many school districts have you worked in?_____How many states_____

What grade levels?_____Number of years in each grade?_____

Team teaching is defined as special educators working with general educators in general classrooms.

Have you had any training in team teaching?_____What type?_____

What subject are you currently team teaching?_____How many students?_____

How many years have you team taught?_____How many different teams?_____

What subjects do you feel could be taught in a team teaching setting?

Appendix C

Pilot Study Self-Reporting Ability Inventory

Using the scale below, indicate the level of skill of knowledge you have for your job as a team teacher. (Team teaching is defined as special educators working with general educators in general classrooms). Also, indicate which skills should be required for a teacher to most effectively be a member of a team.

SCALE:

1 = none 2 = minimal 3 = moderate 4 = considerable 5 =extensive

	SHOULD HAVE	DO HAVE
1. Knowledge of referral process used to place students with special needs in special programs, understanding of assessment, laws, IEP's and least restrictive environment.	_____	_____
2. Knowledge of how to implement modifications for students with special needs in general education classrooms.	_____	_____
3. Willingness to make modifications for students with special needs.	_____	_____
4. Ability to ensure student success in your classroom.	_____	_____
5. Ability to communicate with school personnel on student needs.	_____	_____

Appendix D

Pilot Study: Checklist of Team-Teaching Characteristics

Check the words that best describe YOUR team-teaching style.
(Check all that apply)

1.___structured
2.___laid back
3.___organized
4.___flexible
5.___disciplinarian
6.___values individual differences
7.___precise
8.___creative
9.___competitive
10.___humorous
11.___in control
12.___consistent
13.___uses many different activities
14.___student oriented
15.___prefers quiet classroom
16.___linear teaching style
17.___"hands on" teaching methods
18.___lecture/notes
19.___dependable
20.___enjoys collaboration with teachers
21.___encourages student expression
22.___spontaneous
23.___use lesson plans only
24.___learn from experience
25.___learn from formal training
26.___authoritative
27.___prefers routine
28.___patient

Appendix D (Continued)

Pilot Study: Checklist of Team-Teaching Characteristics

Check the words that best describe your team teaching PARTNER

(Check all that apply)

1.___structured

2.___laid back

3.___organized

4.___flexible

5.___disciplinarian

6.___values individual differences

7.___precise

8.___creative

9.___competitive

10.___humorous

11.___in control

12.___consistent

13.___uses many different activities

14.___student oriented

15.___prefers quiet classroom

16.___linear teaching style

17.___"hands on" teaching methods

18.___lecture/notes

19.___dependable

20.___enjoys collaboration with teachers

21.___encourages student expression

22.___spontaneous

23.___use lesson plans only

24.___learn from experience

25.___learn from formal training

26.___authoritative

27.___prefers routine

28.___patient

Appendix E

Pilot Study Interview

Q: Do you believe that team-teaching can benefit students with disabilities? Why or why not?

A:

Q: Do you believe team-teaching can benefit regular students? Why or why not?

A:

Q: How do you see the role as a regular teacher in team-teaching?

A:

Q: How do you see the special education teacher's role in team-teaching?

A:

Q: How often do you believe the special education teacher should be in the regular class during team-teaching (i.e., full-time, daily-but not the entire period, 2-3 times per week)?

A:

Q: Are there services that can be provided from counselors, administrators, parents etc. that you feel could assist in making the team-teaching model successful?

A:

Q: Do you believe an inservice/workshop would be beneficial in preparation of team-teaching?

A:

Q: Do you believe it necessary for both teachers to volunteer?

Appendix F

Results of Pilot Study: Checklist of Co-Teaching Characteristics

---

Check the words that best describe **YOUR** co-teaching style.

(Check all that apply)

1. 8 flexible
2. 7 humorous
3. 6 values individual differences
4. 6 uses many different activities
5. 6 dependable
6. 6 patient
7. 5 laid back
8. 5 student oriented
9. 5 spontaneous
10. 5 learn from experience
11. 4 structured
12. 4 organized
13. 4 in control
14. 4 consistent
15. 4 "hands on" methods
16. 4 enjoys collaboration with teachers
17. 4 encourages student expression
18. 4 prefers routine
19. 3 creative
20. 3 prefers quiet class
21. 3 lecture/notes
22. 2 disciplinarian
23. 2 linear teaching style
24. 2 authoritative
25. 1 competitive
26. 0 precise
27. 0 lesson plans only
28. 0 prefer formal training

*** NOTE: The frequencies of each item are arranged from highest to lowest.**

Appendix F (Continued)

Results of Pilot Study: Checklist of Co-Teaching Characteristics

---

Check the words that best describe your co-teaching **PARTNER'S** style.

(Check all that apply)

1. 9 flexible
2. 8 enjoys collaboration
3. 8 patient
4. 7 values individual differences
5. 7 humorous
6. 6 laid back
7. 6 student oriented
8. 6 dependable
9. 5 organized
10. 5 in control
11. 5 consistent
12. 5 "hands on" teaching methods
13. 5 encourages student expression
14. 5 learns from experience
15. 4 prefers quiet classroom
16. 3 structured
17. 3 disciplinarian
18. 3 precise
19. 3 creative
20. 3 use different activities
21. 3 linear teaching style
22. 3 prefer formal training
23. 3 prefers routine
24. 2 lecture/notes
25. 1 competitive
26. 1 spontaneous
27. 1 authoritative
28. 0 lesson plans only

*** NOTE: The frequencies of each item are arranged from highest to lowest.**

Appendix G

TEACHER DEMOGRAPHICS QUESTIONNAIRE

(Complete only if currently co-teaching)

1. Male_____ Female_____

2. Please specify your age range. a. __21-30 b.__31-40
   c.__41-50 d.__51 or above

3. What is your level of education? a. __Bachelors b.__Masters c.__Doctorate

4. In what area(s) do you currently have a standard certificate?

5. How many years of teaching experience do you have?
   a. __0-5 b.__6-10 c.__11-15 d.__16-20 e.__21-25
   f.__26-30 g.__31-35 h.__36-40 i.__40 or above

6. What grade level(s) do you currently teach? (Check all that apply)
   a. __preschool b.__K c.__1 d.__2 e.__3 f.__4
   g.__5 h.__6 i.__7 j.__8 k.__9 l.__10 m.__11 n.__12

7. What is your primary teaching assignment? If you select b, skip to # 11.
   a.__regular education teacher b. __special education teacher

8. If you are a regular education teacher, what subject(s) do you teach?
   a.__English b.__History c.__Language Arts d.__Math
   e.__Science f.__Social Studies g.__Elementary (all subjects)
   h.__preschool i.__other (Please identify)

9. As a regular teacher, have you ever had training in more than one course of special education? ___yes __no If yes, please indicate what type:
   a. __inservice b. __2-3 day certification (i.e., OHI) ___c. 1-15 credit hrs.
   d.__degree in special education e.__other (specify)_____

10. As a regular teacher, have you ever taught special education as your primary teaching assignment __yes ___no If yes, how many years?____

11. If you are a special education teacher, do you primarily teach students with:

a.__LD b.__ED c.__MR d.__other (Please identify)_____

INFORMATION ON CO-TEACHING (Regular & Special Educators)

Co-teaching may be defined as: Regular and Special Education Teachers blending students with disabilities and students without disabilities together in a co-taught class.

12. Did you receive training in co-teaching? ___yes ___no If yes, what type?
    a. __inservice b.__visited/observed co-taught class(es) c.__university (credit) d. __other (please describe)

13. How long have you been co-teaching with your current co-teacher? _____
    (If you co-teach with more than one teacher, please identify length of teaching with each)

    Co-Teacher #1_____ Co-Teacher #2_____ Co-Teacher #3____

14. What subject(s) do you co-teach?
    a.__English b.__History c.__Language Arts d.__Math
    e.__Science c.__other (Please identify_____)

15. How many total students are in the co-taught class? _____
    (If you co-teach in more than one class, please give number of students per class)

    Co-Taught Class #1_____Co-Taught Class #2_____ Co-Taught Class #3____

16. Of these students, how many are students identified with disabilities? _____

Co-Taught Class #1_____ Co-Taught Class #2_____ Co-Taught Class #3____

17. Do you consider the students without disabilities as primarily "typical" students?

Co-Taught Class #1 ___yes ___no Co-Taught Class #2___yes ___no Co-Taught Class #3___yes ___no

18. If you answered no to question number 17, how would you describe the remainder of the class?

_____academically below grade level

_____higher incidence of behavior/discipline problems

_____other (please describe briefly)

19. As a co-teacher, how often are you in the co-taught class? (i.e., entire session, 3 days out of five, ½ of each session)

Co-Taught Class #1 _____ Co-Taught Class #2_____ Co-Taught Class #3_____

20. In your opinion, when comparing a co-taught class to a regular class, do students **with** disabilities experience:

__a. greater academic success __b. similar academic success __c. less academic success

21. In your opinion, when comparing a co-taught class to a regular class, do students **without** disabilities experience:

__a. greater academic success __b. similar academic success __c. less academic success

22. Does the entire school do co-teaching? ___yes ___no

The information will be kept confidential and at no time will you be identified by name. This information is necessary to conduct a data analysis of the results. A small reimbursement is provided. Please be assured that the information will not be shared with anyone. I very much appreciate you efforts and time and am hopeful that the knowledge you share will positively impact teachers and students.

Name_____School Site_____

District_____Subject Co-Taught_____

Name of Co-Teacher_____Grade Level Co-Taught_____

____Regular Teacher _____Special Education Teacher

IF YOU WOULD BE WILLING TO PARTICIPATE IN A RESEARCH STUDY ON CO-TEACHING THAT WOULD INVOLVE A BRIEF INTERVIEW PLEASE PROVIDE THE FOLLOWING: (A small reimbursement for your time will be provided)

NAME_____

SCHOOL_____

WORK PHONE #_____

HOME PHONE #_____(Optional)

Appendix H

QUESTIONNAIRE: RESOURCES, CHARACTERISTICS & MISCELLANEOUS ITEMS

Please rate each item from 1 to 5 by circling your answer.

1= Not Important (NI) 2= Slightly Important (SI) 3 = Moderate (M) 4 = Important (I) 5=Very Important (VI)

RESOURCES	NI	SI	M	I	VI
1. A common planning period/time for co-teachers is:	1	2	3	4	5
2. Staff development/training prior to implementing co-teaching:	1	2	3	4	5
3. Administrative support is:	1	2	3	4	5
4. The scheduling of a co-taught class (i.e., a.m./p.m.) is:	1	2	3	4	5
5. The classroom design is:	1	2	3	4	5
COMPATIBILITY	1	2	3	4	5
6. Co-teachers' agreement on classroom discipline is:	1	2	3	4	5
7. Co-teachers' agreement on evaluation of students is:	1	2	3	4	5
8. A co-teacher volunteering to co-teach is:	1	2	3	4	5
9. Similar goals in subject content/curriculum for students:	1	2	3	4	5
10. Communication between co-teachers is:	1	2	3	4	5
11. Similarity in teaching styles of co-teachers is:	1	2	3	4	5
12. Establishing roles/responsibilities of co-teachers is:	1	2	3	4	5
13. Flexibility in co-teaching is:	1	2	3	4	5

Appendix H (Continued)

Please rate each item from 1 to 5 by circling your answer.

1= Not Important 2= Slightly Important 3 = Moderate 4 = Important 5=Very Important

MISCELLANEOUS FACTORS OF CO-TEACHING	NI	SI	M	I	VI
14. Pilot testing a co-taught class before going school wide is:	1	2	3	4	5
15. Parental participation in selecting a co-teaching model is:	1	2	3	4	5
16. Maintaining a "typical" (heterogeneous) co-taught class is:	1	2	3	4	5
17. A crisis intervention plan for a co-taught class is:	1	2	3	4	5
18. Addressing co-teaching on a student's IEP is:	1	2	3	4	5
19. Students volunteering for participation in a co-taught class:	1	2	3	4	5
20. Students with disabilities being provided services/support in addition to co-taught class (i.e., independent study, study hall, resource room) is:	1	2	3	4	5
21. Developing long range goals/objectives for co-teaching is:	1	2	3	4	5

Appendix I

CO-TEACHER RANK ORDER

Please rank the following items in each section to show which item you consider the most important (number 1) and continue numbering the remaining items using higher numbers to indicate less important. For example, Compatibility should have items ranked from 1 to 8, Resources should have items ranked from 1 to 5, and Miscellaneous Factors should have items ranked from 1 to 8.

COMPATIBILITY (Rank from 1 to 8)

_____Co-teachers' agreement on classroom discipline

_____Co-teachers' agreement on evaluation of students

_____Co-teachers being selected on a volunteer basis

_____Co-teachers having similar goals in subject content/curriculum

_____Effective communication between co-teachers

_____Co-teachers having similar teaching styles

_____Establishing roles/responsibilities of co-teachers

_____Flexibility in co-teaching

****Are there other issues of compatibility that you believe are important? If yes, list.**

RESOURCES (Rank from 1 to 5)

_____Co-teachers having a common planning time

_____Staff development/training on co-teaching prior to implementing the program

_____Administrative support for co-teaching

_____The scheduling of a co-taught class

_____The classroom design

****Are there any other resources that you believe are important that were not included in this section? If yes, please list them?**

MISCELLANEOUS FACTORS OF CO-TEACHING (Rank from 1 to 8)

_____Pilot testing a co-taught class before going school wide

_____Parent participation in selecting a co-teaching model

_____Maintaining a "typical" heterogeneous co-taught class

_____Having available a crisis intervention plan for co-taught classes

_____Addressing co-teaching on a student's IEP

_____Developing long range goals/objectives for co-teaching

_____Student consents to participating in co-taught class

_____Student with disabilities provided additional services (besides co-taught class) for remainder of educational program (i.e., study hall, resource room, independent study, related services)

****Where are additional services (i.e., study hall, resource room) provided?**

****Are there any other miscellaneous factors that you believe are important that were not included in this section? If yes, please list them?**

Appendix J

CO-TEACHERS' PERCEPTIONS ON THEIR EFFECTIVENESS IN CO-TEACHING

Select level of agreement on each item describing your co-teaching situation.

STATEMENT	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I believe our co-teaching is effective in management of student behavior.	1	2	3	4	5
2. As a co-teacher, I believe we are successful in our attempts to define our roles and responsibilities.	1	2	3	4	5
3. I believe our co-teaching is successful in determining student expectations (i.e., participation, written assignments, homework).	1	2	3	4	5
4. I believe our co-teaching is successful in monitoring and evaluating student progress.	1	2	3	4	5
5. I believe we are able to demonstrate flexibility in our co-teaching efforts.	1	2	3	4	5
6. As co-teachers, I believe we balance academic needs of students.	1	2	3	4	5
7. As co-teachers, I believe we are successful in sharing knowledge and skills with each other.	1	2	3	4	5
8. As co-teachers, I believe we are successful in preparing lessons and materials together.	1	2	3	4	5
9. As co-teachers, I believe we are successful in providing assistance and structure for students to complete assignments.	1	2	3	4	5
10. As co-teachers, I believe we are successful in making decisions together.	1	2	3	4	5
11. As co-teachers, I believe we are successful in being responsible for an equal amount of the workload	1	2	3	4	5
12. As co-teachers, I believe we are effective in maintaining organizational skills.	1	2	3	4	5
13. If given the option, I would want to continue co-teaching with the same co-teacher.	1	2	3	4	5
14. As a co-teacher,I believe that I have been effective in students' academic achievement.	1	2	3	4	5
15. Overall, I would say that my co-teaching experience is successful.	1	2	3	4	5

Appendix K

Qualitative Interview

1. How do you believe teachers should be selected for co-teaching?
2. Prior to beginning a co-taught class, what are things a teacher can do to increase co-teaching success? Discuss your beliefs on whether some type of training on co-teaching or possibly starting out on a small scale such as a pilot program would be beneficial.
3. What types of administrative supports do you believe are necessary for a co-taught class (i.e., scheduling of common planning time, classroom/building design, scheduling of students)?
4. What other services do you believe can or should be provided (i.e., counselors, parents)?
5. Describe the make-up of your co-taught class. Let's begin with how many students currently have an I.E.P.? Do you consider the remainder of the class to be "typical" when compared to a general education classroom that is not co-taught?
6. What ratio do you recommend for a co-taught class (i.e., number of students with disabilities, number of students without disabilities, high risk students)?
7. Is parent participation included in your co-teaching program? If yes, discuss how (i.e., participation in selecting co-taught class for child, addressing co-teaching on I.E.P.'s).

8. How important do you believe it is for co-teachers to have similar goals in subject content/curriculum when teaching a class together?
9. Let's talk about the process of how you participate in preparing a lesson for a co-taught class. How much time and how often do you meet with your co-teacher? Do you think you have enough time and support?
10. What role/responsibilities does the general education teacher have in your co-taught classroom?
11. What role/responsibilities does the special education teacher have in your co-taught classroom?
12. Do the roles/responsibilities of the co-teachers change within a class session or do they remain fairly consistent?
13. If you co-teach with more than one teacher or in more than one subject, do you find that the roles/responsibilities remain the same or do you find that the roles/responsibilities change according to subject or partner? How?
14. Describe classroom discipline and management of student behavior in your co-taught classroom. How important is it that co-teachers have similar beliefs when establishing and maintaining classroom discipline?
15. How is student progress evaluated/monitored in the co-taught classroom?
16. Do you believe it is necessary for co-teachers to have similar methods/procedures for evaluating students (i.e., similar grading scales, expectations)?

17. Should teachers in a co-taught classroom have similar instructional methods/ teaching styles (i.e., flexible or uses lesson plans and is routine oriented)? Why or why not?
16. How are students with disabilities selected for participation in a co-taught class (i.e., volunteer, IEP team recommends)?
17. Do students with disabilities participating in a co-taught class have additional support/resources (i.e., independent study, resource room, related services) available to meet the needs for the remainder of their educational program? If so, please describe what kind and where these additional services occur.
18. What other aspects of co-teaching can you suggest as being necessary?
19. Would you say you've had a successful or unsuccessful co-teaching experience? Describe the things that lead to the type of experience you've had.
20. What do you believe are the two or three greatest disadvantages of co-teaching?
21. What do you believe are the two or three greatest advantages of co-teaching?
22. How has your experience as a co-teacher affected your growth as an educator?

Appendix L

Research Questions

1. What resources for the co-teaching model do co-teachers perceive as necessary for implementing co-teaching (e.g., common planning, administrative support)?
2. What compatibility components do co-teachers perceive are necessary for implementing a co-teaching model (e.g., teaching styles, discipline procedures)?
3. What other miscellaneous factors do co-teachers perceive as necessary for implementing co-teaching (e.g., parental participation)?
4. What similarities and/or differences exist between perceptions of general education teachers (as one group) when compared to perceptions of special education teachers (as a second group) when identifying characteristics and components necessary for co-teaching?
5. Do pairs of co-teachers significantly differentiate themselves when self-reporting level of effectiveness in implementing a co-teaching model?
6. If co-teachers self-report different levels of effectiveness in implementing a co-teaching model, what factors on effectiveness of co-teaching significantly differentiate the groups?
7. If co-teachers self-report different levels of effectiveness in implementing co- teaching, what resources, compatibility components, and/or groups? miscellaneous factors of co-teaching significantly differentiate the

8. If co-teachers self-report different levels of effectiveness in implementing co-teaching, what is the difference in the amount of discrepancy found between general education teachers and special education teachers of one group when compared to discrepancies found of a second or third group?

Appendix M

Agency/School Consent Form

Permission to Conduct a Research Project

Agency/School_____Administrator_____

I understand that this study, "Perceptions of Co-teachers: An Exploration of Characteristics and Components Needed for Co-Teaching" is sponsored by the University of Oklahoma, Norman Campus, Educational Psychology Department, Special Education Program. It is directed by a doctoral advisory committee (David Lovett, Ph.D., Chairperson), and the principal investigator, Laura Bixler, M.Ed.. This document serves as permission to conduct this research project in the following location(s):

_____.

The purpose of the research is to determine teachers' perceptions on what characteristics and components are needed to implement a co-teaching model of instruction. General Education and Special Education teachers will be contacted and asked to participate in one or more of the following: 1) complete a demographic questionnaire, 2) complete a questionnaire on co-teaching, and 3) participate in an interview on co-teaching.

The study will require approximately 30 to 45 minutes per questionnaire and/or interview. The principal investigator will meet at the convenience of the participant and will not disrupt employees in the conduct of their duties.

Agency participation in this study is limited to the voluntary participation of direct service staff (teachers currently co-teaching). This study holds no known risks to participants in the study, nor is there any special benefit. Agency participation in this study is voluntary and may be withdrawn at any time. All records of the study will be kept confidential. The agency will not be named, the program location will not be identified and the names of the participants will not appear in any reports, publications or presentations concerning the study.

If I have any questions about this study, I will contact Laura Bixler (405) 672-4705, Dr. David Lovett (405) 325-5974 or the University of Oklahoma Office of Research Administration at (405) 325-4754.

I have read this consent document. I understand its contents and I consent to participation in this study under the conditions described here. I will receive a signed copy of this consent form.

Agency Representative's
Name:_____Date_____

Appendix N

Teacher Consent and Cover Letter

Laura Bixler, M.ED. (Researcher)
200 Burk Way
Del City, OK 73115
Tele.# (405) 672-4705

University of Oklahoma
Educational Psychology Department
Ph.D. Program
Dept. of Special Education (405) 325-5974

Perceptions of Co-Teachers: An Exploration of Characteristics and Components Needed for Co-Teaching

The purpose of this research is to investigate your perceptions on co-teaching. Although several authors have written articles about co-teaching, no studies have actually investigated what co-teachers believe is necessary for the model to be effective. Too many times in Education, we focus on the effects of a particular model of instruction, but not on how the model should be implemented. I hope this study will give you the opportunity to share the knowledge you have acquired through your co-teaching experience.

I am requesting your assistance in completing a set of questionnaires. Before you complete any information, please read and sign the attached letter of consent form. I have designed the instruments so that they are as "user friendly" as possible and assure you that all information will be kept confidential. Much of the information requested requires you to simply respond with a check or circle. There are three instruments. The first is a questionnaire on components and characteristics of co-teaching. The second questionnaire is similar, but asks that you rank order the items. The third questionnaire asks you to self-report your beliefs on your effectiveness in co-teaching.

At a later time, I will be conducting interviews with a small number of co-teaching pairs. This will also be on a volunteer basis and a small reimbursement will be given to compensate for the time and effort.

Knowledge shared is knowledge gained. It is my hope that in talking with co-teachers like you that educators, students, and parents will have a better understanding of co-teaching. I strongly appreciate you and your efforts to once again "teach" me about co-teaching.

Sincerely, Laura Bixler

Teacher Informed Consent

Consent for Voluntary Participation in a Research Project

I understand that this study, "Perceptions of Co-teachers: An Exploration of Characteristics and Components Needed for Co-Teaching" is sponsored by the University of Oklahoma, Norman Campus, Educational Psychology Department, Special Education Program. It is directed by a doctoral advisory committee (David Lovett, Ph.D., Chairperson), and the primary investigator, Laura Bixler, M.Ed. I further understand that this document serves as individual consent for participation in this research project.

The purpose of the research is to find out my perceptions on what characteristics and components are needed to implement a co-teaching model of instruction. The information I give will be used to help document what characteristics of co-teachers and what components (i.e., resources, supports) are needed for co-teaching. As a respondent I will be asked to participate in one or more of the following: 1) complete a demographic questionnaire 2) complete a questionnaire on co-teaching 3 participate in an interview on co-teaching
The study will require approximately 30 to 45 minutes per questionnaire and/or interview. Ms. Bixler will meet with me at my convenience.

In addition, I understand that there is no risk of injury as a result of participation in this study. However, I understand that my participation in this study is voluntary and that I may withdraw at any time, if I wish.

I understand that records of the study will be kept confidential and that my name will not be identifiable in any reports or publications about the study.

If I have any questions about this study, I will contact Laura Bixler (405) 672-4705 or Dr. David Lovett (405-329-5974) any time I feel it necessary. If I have questions about my rights as a research subject, I will contact the University of Oklahoma Office of Research Administration at (405) 325-4754.

I have read this consent document. I understand its contents and I freely consent to participation in this study under the conditions described here. I will receive a signed copy of this consent form.

Research Subject's Signature: _____Date_____

Appendix O

The University of Oklahoma

OFFICE OF RESEARCH ADMINISTRATION

January 30, 1998

Ms. Laura Bixler
200 Burk Way
Del City, Oklahoma 73115

Dear Ms. Bixler:

Your research proposal, "Perceptions of Co-Teachers: An Exploration of Characteristics and Components Needed for Co-Teaching," has been reviewed by Dr. E. Laurette Taylor, Chair of the Institutional Review Board, and found to be exempt from the requirements for full board review and approval under the regulations of the University of Oklahoma-Norman Campus Policies and Procedures for the Protection of Human Subjects in Research.

Should you wish to deviate from the described protocol, you must notify me and obtain prior approval from the Board for the changes. If the research is to extend beyond twelve months, you must contact this office, in writing, noting any changes or revisions in the protocol and/or informed consent form, and request an extension of this ruling.

This approval covers the school districts listed: Altus Junior High, Bethany, Choctaw-Nicoma Park, Deerpark Middle School, Jenks, Mustang, Moore High School, Norman Public Schools, Putnam City Schools, Tecumseh Middle School. Any additional sites you may add must be submitted for approval to the Board prior to implementation of study.

If you have any questions, please contact me.

Sincerely yours,

Karen Petry

Karen M. Petry
Administrative Officer
Institutional Review Board

KMP:pw
98-075

cc: Dr. E. Laurette Taylor, Chair, IRB
Dr. David Lovett, Faculty Sponsor, Education
Graduate College

1000 Asp Avenue, Suite 314, Norman, Oklahoma 73019-0430 PHONE: (405) 325-4757 FAX: (405) 325-6029

Appendix P

CATEGORY/TYPE OF STATEMENTS	FREQUENCY
1. Type of students in co-taught classes	
The students without disabilities are pretty typical.	6
We have a wide range including "Section 504" students, at risk students, students removed from special education, and some typical students.	3
The students in our class are not considered typical.	3
2. Ratio recommended by co-teachers	
No more than one third of the students should have a disability or be "at risk." The typical students should make-up about 75% of the class.	12
Probably about 50% with and 50% without disabilities.	2
3. Selection of Students for Co-taught Classes	
The IEP team makes the decision.	8
Students without disabilities are selected randomly.	5
We look at their abilities and behavior.	4
All students with learning disabilities attend co-taught classes.	4
If they were co-taught last year, we probably will select them again.	3

NOTE: Participants may have expressed more than one statement.

	CATEGORY/TYPE OF STATEMENTS	FREQUENCY
4.	Using a "pilot program" when implementing co-teaching.	
	I think a small scale would be easier than an entire campus.	3
	Having a couple of co-teaching teams figure out what works best would be better than trying to have an entire building site involved.	2
5.	Parent participation	
	The parents are part of the IEP that decides on co-taught classes.	6
	We include co-taught classes as the service delivery on the IEP.	6
	We send a letter home explaining about the co-taught class.	3
	Open house and parent-teacher conferences are where we inform parents about co-taught classes.	2
	We decided not to inform parents about co-teaching unless they ask.	2
	We didn't want parents saying, "I don't want my kid in that class."	2

NOTE: Participants may have expressed more than one statement.

Appendix P

	CATEGORY/TYPE OF STATEMENTS	FREQUENCY
6.	Role/Responsibility change due to different subject taught or partner.	
	My role and/or responsibilities change if I'm with a different partner or if I have to co-teach a different subject.	7
	It is overwhelming when I have to change partners or co-teach in more than one subject. You are having to switch personalities.	3
	My experience has been that my role remains the same.	2
7.	The Need for additional services or supports for students with disabilities in co-taught classes.	
	Most of the students with disabilities go to a resource/lab room at least one other period per day and can get help.	8
	Students can get extra help before or after school.	7
	We have a study skills class that the students with disabilities can take in place of an elective to receive services in addition to co-taught classes.	6
	Co-taught classes have been sufficient for our students.	4

NOTE: Participants may have expressed more than one statement.

CATEGORY/TYPE OF STATEMENTS	FREQUENCY
8. Factors perceived as facilitating success in the co-teaching model	
Communication is the key.	5
You need the right mixture of kids.	5
You need to be willing to give up some control.	5
We have to have a mutual respect for one another.	3
Flexibility is the key.	3
We have to give ourselves time to evolve as a co-teaching pair.	2
9. Inhibiting factors perceived in the co-teaching model.	
If you have too many students with academic and/or behavior problems, it just won't work.	5
We don't have time to plan together.	4
I don't feel the other teacher is doing his/her part.	3
Not all the students are treated the same. It's not one class.	2
Our personalities just don't mesh.	2
We can't seem to communicate.	2
10. Professional growth resulting from co-teaching.	
Observing and learning from other teachers has made me a better teacher.	6

NOTE: Participants may have expressed more than one statement.

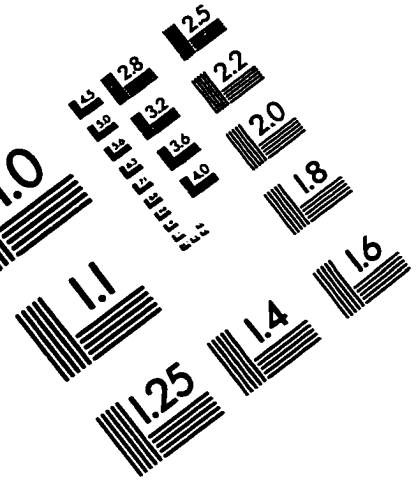
CATEGORY/TYPE OF STATEMENTS	FREQUENCY
It gets you out of isolation and into a congeniality type of teaching.	6
Gaining another teacher's perspective on different situations has helped me to grow as a professional.	5
Co-teaching has made me a better content teacher.	5
I enjoy my job more.	5
I understand more about how to teach students with disabilities.	4
I've gained more confidence as a teacher.	4
It rejuvenates you and has helped me with burnout.	3
11. Disadvantages of co-teaching.	
If you and your co-teacher were incompatible, it would be a mistake.	6
Giving up control can be difficult.	6
Co-teaching is a lot of extra work and is time consuming.	3
It's hard to implement a model that is not used district wide.	2
You are subject to another person's problems.	2
When co-taught classes are the only service, sometimes it is not enough.	2

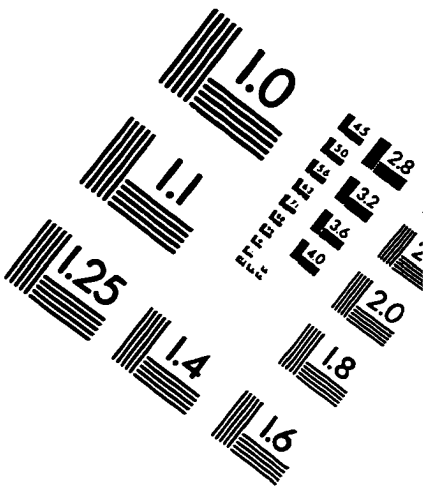
NOTE: Participants may have expressed more than one statement.

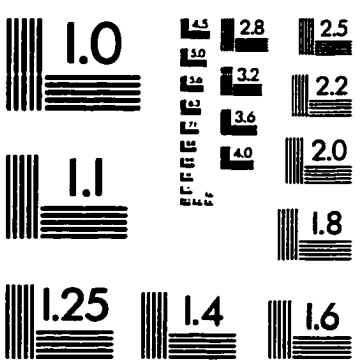
CATEGORY/TYPE OF STATEMENTS	FREQUENCY
Having to share a room and materials is hard to get used to.	2
12. Advantages of co-teaching.	
The students with disabilities have a positive role model from their peers in both academics and behavior.	5
Having that extra set of eyes and ears allows you to get feedback from another adult.	4
The students experience more success and feel more "normal".	4
It brings students with disabilities out of isolation.	4
With two different teachers you get two different perspectives or teaching styles. Sometimes you can reach a student that the other teacher couldn't.	3
Students without disabilities gain an appreciation of working with all types of individuals.	3

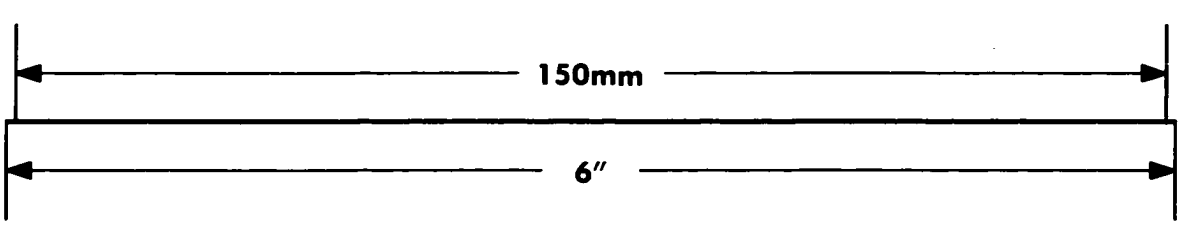
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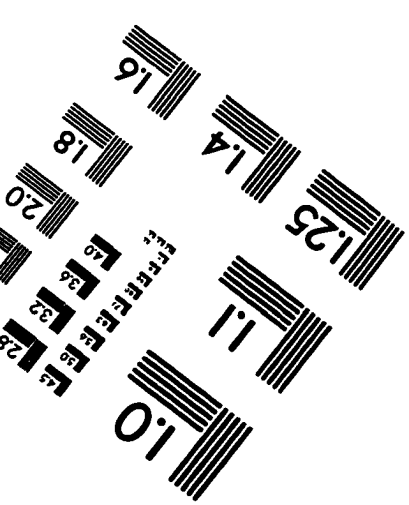
IMAGE EVALUATION TEST TARGET (QA-3)

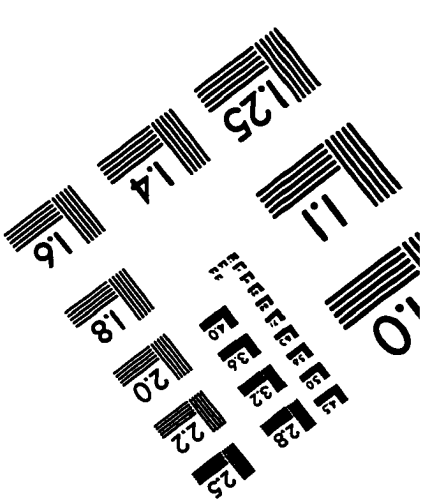












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