

THE EFFECTS OF CO-TEACHING ON THE ENGLISH LANGUAGE
ARTS ACHIEVEMENT OF GENERAL EDUCATION
TENTH-GRADE STUDENTS

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By
Linda Lima Gonzalez
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CERTIFICATION OF APPROVAL

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By
Linda Lima Gonzalez

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Dr. John Borba
Professor of School Administration

Date

Dr. Chet Jensen
Professor of Education

Date

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DEDICATION

This study is dedicated to the biggest supporter and motivator, my husband, Alex Gonzalez. Pursuing our Master of Arts degrees together has been a wild ride. It began during our first graduate classes together, barely dating, to earning degrees as husband and wife. Your balance of impressive work ethics and never-ending laughs are what fueled us to push forward during this process. I could not ask for a better partner-in-crime.

Lastly, I also wish to dedicate this work to my parents, Joe and Brenda Lima. My education came second to nothing in your eyes since kindergarten. The upbringing on a dairy taught me so much about hard work and wide open spaces. Thank you for “opening the fences.”

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ABSTRACT

Since No Child Left Behind Act (NCLB) and Common Core State Standards (CCSS), educators have placed greater emphasis on accountability of student learning. Districts nationwide implement instructional models that provide equal educational access to all students. Co-teaching is one approach to mainstreaming subgroups, such as students with special needs, into general education classes rather than in isolated remedial classes. Although the objective is to pair a special education and a general education teacher to support special education students, both teachers instruct classrooms predominately comprised of general education students. Research is limited on the effects of co-teaching among general education students in classrooms mainstreamed with special education students and co-taught with special education teachers. This study examined 10th-grade English language arts (ELA) classes co-taught by an ELA and special education teacher and tenth-grade ELA classes solo-taught by the same ELA teacher. The researcher aimed to determine if co-teaching affected general education student achievement in general education classrooms with mainstreamed special education students. Using independent *t*-tests and an ANCOVA, the statistical analyses indicated no significant difference in achievement on the 2013 California Standards Test (CST), 2013 California High School Exit Examination (CAHSEE), and 2012-2013 district benchmark assessment in ELA between general education students who received instruction in a co-taught classroom and general education students who received instruction in a solo-taught classroom.

CHAPTER I

INTRODUCTION TO THE STUDY

Background

Three decades ago, the publication of *A Nation at Risk* (Gardner, 1983) reported that public education was failing. Students were not successfully competing with their counterparts in other areas of the world. Without academic content standards and appropriate assessments, there was no way to track the student progress.

The attempted resolution to this problem was to hold schools accountable for student academic achievement. The No Child Left Behind (NCLB, 2002) Act established the goal to have 100% of the nation's students proficient in English language arts (ELA) and mathematics by 2014. Every student, despite learning disabilities, at-risk behavior, or limited English proficiency (LEP) would be required to meet the same expectations. Student proficiency is determined by the California High School Exit Examination (CAHSEE) and used to ensure that seniors have met all minimum academic expectations for graduation (Center on Education Policy [CEP], 2010).

According to the California Department of Education (CDE), CAHSEE scores are used to determine the Adequate Yearly Progress (AYP), which represents a high school's progress towards proficiency under NCLB (CDE, n.d.a). Although the California's Common Core State Standards (CCSS) are newly adopted, the CAHSEE

still remains as a graduation requirement for all students to receive a high school diploma.

States across the country have adopted the CCSS and will administer new assessments in 2015. The reform is an attempt by the National Governors Association (NGA) and Council of Chief State School Officers (CCSSO) to implement standards that “reflect the knowledge and skills needed for success in college and careers” (Center for the Future of Teaching and Learning [CFTL], 2012, p. 1). Students are now challenged to do more informational reading and writing in all disciplines and apply skills to problem solving scenarios in all classes. This new call for education reform is challenging administrators, teachers, and students more so than previous changes.

The country’s education reform includes “Anchor Standards.” These standards address reading and writing skills and no longer are the sole responsibility of a language arts teacher; therefore, a student’s ability to functionally read and write involves the academic support of all disciplines.

Statement of Problem

Unfortunately, past reforms have made little, if any, improvement in student achievement. In the 2010-2011 school year, 48% of the nation’s high schools and their significant subgroups failed to meet AYP improvement goals (Guisbond, 2012). Consequently, high school educators are still in need of effective approaches to improving the academic achievement of both general education students and significant subgroups of students with special needs.

Research Question

What are the academic effects of co-teaching on the achievement of general education students in a high school ELA class in which special needs students are mainstreamed?

Hypotheses

H1. There is no significant difference in ELA achievement on the California Standards Test (CST) between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a traditional classroom that was taught by one teacher.

H2. There is no significant difference in ELA achievement on the CAHSEE between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a traditional classroom that was taught by one teacher.

H3. There is no significant difference in ELA achievement on a district developed benchmark test between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a traditional classroom that was taught by one teacher when controlling for pre-existing differences.

Significance of the Study

A content teacher and special education teacher in one classroom with the purpose to mainstream students with special needs into a general education class may

also provide the support needed for general education students to improve their academic achievement at the high school level.

Limitations

This study was limited to 10th-grade students from a high school in Central California that operated on a traditional schedule during the 2012-2013 school year.

Delimitations

This study did not take student socioeconomic status (SES), ethnicity, attendance, and teacher experience into consideration. It also did not take into consideration students who have received support from a special education case manager or English language development teacher.

Definition of Terms

California Assessment of Student Performance and Progress (CAASPP)

Smarter Balance Assessment. A state assessment that measures a “student’s ability to integrate knowledge and skills across multiple standards—a key component of college and career readiness” (CDE, n.d.b., para. 5).

California High School Exit Exam (CAHSEE). A high school graduation requirement implemented by the CDE to ensure students graduate with skills in reading, writing, and mathematics. Students first attempt the exam in 10th-grade. Students, who do not pass, have seven more opportunities to take the exam by the spring of their senior year (CDE, n.d.a).

California Standards Test (CST). A California test that was given annually to students in Grades two through eleven to monitor school and student performance in mathematics, history, science, reading, and writing. California did not administer this test in the 2013-2014 school year as the state transitions towards the CAASPP for the 2014-2015 school year.

Co-teaching. An instruction model in which two credentialed teachers share one classroom. This study involved a secondary English teacher and a special education teacher. Both provided instruction and intervened in academic and behavioral interventions.

Co-teaching collaboration. Two teachers participating in a co-teaching intervention who meet for one period at a time to collaboratively plan lessons as well as reflect upon previously delivered lessons. Co-teachers in this study met between 2-4 times a week.

District benchmark assessment. An assessment that was designed by teams of teachers for each discipline and emulates the CST. This study utilized the 10th-grade ELA benchmark assessment to evaluate student progress from the first to the third quarter. This test was administered in the fall and in the fourth quarter of the same academic year.

English language learner student. A student who is an English language learner (ELL). A student who is designated as an intermediate ELL may be mainstreamed into a general English class while concurrently taking an English language development class for further support.

General education student. A student who does not have learning disabilities or English language development needs. These students do not require a special education case manager, concurrent learning skills course, or concurrent English language development course.

Student with special needs or learning disabilities. A student who needs additional education services to support his or her special needs. Special needs might be a learning disability, physical disability, communication disability, developmental disability, emotional disorder, or behavioral disorder.

Summary

While the nation continues to implement public education reform, students and schools must prepare for more rigorous expectations in mathematics, reading, and writing to perform well on the California Assessment of Student Performance and Progress (CAASPP) and to meet graduation exam requirements (CAHSEE). With little improvement in the last 30 years, administrators and educators seek new classroom models, such as co-teaching, to improve student performance. The co-teaching model includes two credentialed teachers in one classroom to further support students academically and behaviorally. 10th-grade students participated in a co-teaching classroom and were compared to 10th-grade students who participated in a traditional one-teacher classroom. The district benchmark, CST, and CAHSEE results were compared between the two groups. With the raised rigor in public education on its way, co-teaching may effectively support students' reading and

writing skills resulting in higher graduation rates. Chapter II will present a review of the literature related to the topic of this study.

CHAPTER II
REVIEW OF THE LITERATURE

Introduction

The purpose of this study is to determine if there is a significant difference in English language arts (ELA) achievement between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a classroom that was taught by one teacher. The literature review delves into the various types of co-teaching models that teachers use in the classroom. Also, the results of other studies of co-teaching are discussed on this chapter.

Types of Co-Teaching

The literature on co-teaching is mixed. Researchers differ on the way it is conducted, the combination of teacher expertise, and the purpose for implementation.

There are several models of co-teaching that consist of at least two teachers. Bauwens and Hourcade (1995) noted that although models may differ in execution, co-teaching is defined as at least two teachers with distinct sets of expertise who work collaboratively to teach academics and behaviors to a diverse group of learners. A team of co-teachers can vary their approach to collaboration. The simplest form of co-teaching is the planning that takes place within a group or faculty with members remaining responsible for their own instruction.

In more complex forms of co-teaching, participating teachers not only co-plan, they co-teach and co-evaluate together in classrooms (Perry & Stewart, 2005).

Co-teaching may also involve any combination of teachers. One partnership may consist of an English language development teacher and a general education teacher to differentiate instruction for students whose first language is not English. The co-teaching team may also include non-teaching specialists such as psychologists or social workers (Nevin, Thousand, & Villa, 2009). Co-teaching between a general education teacher and a special education teacher is another collaborative combination to support students with disabilities and has been a practiced partnership as far back as five decades (Trent et al., 2003).

Co-teaching may also unite two general education teachers of different disciplines. However, it is only effective if the two disciplines that are merged have shared standards, Common Core State Standards (CCSS) in science or mathematics. Co-teaching in content based courses is more common in the elementary grade levels than in secondary and higher education (Kalchman & Kozoll, 2012). A second approach pairs a teacher of a predominately content based course with a teacher of a predominantly skills-based course. Rather than sharing standards with a “kill two birds with one stone” approach, this partnership complements one another. One teacher provides content based instruction from a particular discipline and the other supports the content in which skills such as reading and writing are taught; in other words, classes embed both content and skills. An example of this model would be psychology, a heavily content based course, and writing, a heavily skills based

course. The psychology teacher would provide the content while the English teacher provided guidance expressing the content (Jankiewicz, 1999).

When two or more collaborative teachers are in the classroom, various methods of instruction are practiced that are compatible with co-teaching. Morocco and Mata-Aguilar (2002) suggested the following: (1) teachers alternately lead and support instruction throughout the lesson and (2) one teacher instructs while the other monitors and supports. Station teaching is another in which co-teachers share classroom responsibilities by each taking a group of students for instructional purposes. Students may rotate from one teacher to another. A similar method, parallel teaching, also separates students but requires only two groups with each teacher taking one heterogeneous group. There is no rotation; teachers teach the same content, but each one does so in a different way. Flexible grouping allows for subgroups of learners; not all of the students necessarily receive direct instruction from the teacher; rather, some are grouped to work independently. Alternative teaching allows for instructors to alternate roles and students to different groups: one participating instructor teaches to a majority of the group while the other instructor takes the remaining student to teach or re-teach a lesson. Lastly, team teaching is another method in which teachers seamlessly instruct the students, which they may elaborate or intervene with each other's instruction. Terms used to identify types of co-teaching vary among scholars and teachers. For example, alternative leading and supporting is also known as one teach, one assist or one teach, one drift (Aliakbari & Bazyar, 2012).

According to Badiali and Titus (2010), a state university and school district partnered in a professional development opportunity for student-teachers. For example, a teacher worked with a college student in various methods of co-teaching to not only further support the learners, but also provide the student-teacher with mentoring from an experienced teacher. The college student participated in one teach, one guide, also known as alternate leading and supporting, in which he or she supports students and observes effective teaching.

Schools are seeking new models of delivery to accommodate the rising diversity in student populations and increase creativity and success in class activities. Some school officials believe that placing this goal solely on one teacher may not generate the most powerful impact on student achievement. The co-teaching model has the potential to improve teacher instruction, achievement, motivation, and other factors when the responsibilities are shared within one classroom (Aliakbari & Bazyar, 2012) .

Co-Teaching Model for Special Education Students

The No Child Left Behind Act (NCLB, 2002) mandated that educators provide all learners with access to rigorous academic standards in all curricula. According to Nevin et al. (2009), many schools across the nation adopted teaching models, such as co-teaching, to meet such expectations. Schools have interpreted co-teaching in several ways in reaction to “data from the U.S. Department of Education (2006)...that the proportion of students with disabilities with primary placements in general education increased from 33% in 1992 to 48.9% in 2006” (Nevin et al., 2009,

p. 1).

For example, when school districts experience no improvement in achievement among subgroups of students with disabilities, limited language, or low socioeconomic status (SES), intervention services are provided. For example, students with learning disabilities are mainstreamed into core mathematics and English classes. When resource English and mathematics pull out programs are no longer available, students with learning disabilities attend general ELA and mathematics classes, sometimes science classes, with the presence of their special education teacher (Badiali & Titus, 2010). Students in special education were often isolated in remedial classes taught by the same teacher(s) throughout high school. Although these students were exposed to some academic rigor, they did not have any access to the general education curriculum. As an attempt to bridge the education gap, many districts re-assigned special education teachers and their students with special education or learning disabilities into general courses to expose them to grade level appropriate education. In this model, the special education teacher and general education teacher co-teach to provide “rigorous general education in the least restrictive environment while receiving support from two certified teachers” (Conderman & Hedin, 2014, p. 157).

However, McDuffie, Mastropieri, and Scruggs (2009) found that co-teaching has not met its full potential. Co-teaching does not seem to have a significant impact on both the special education students and general education students. Conderman and Hinden (2014) suggested that special education teachers were unsure of their

instructional role and should be encouraged to provide specialized strategies as scaffolding support while the general education teacher continues to provide the content and state standards (Conderman & Hinden, 2014).

Co-teachers are paired in an English, mathematics, or science class with the goal to plan, reflect, and revise lessons before they co-teach. Since the implementation of NCLB, teachers are accountable for student learning; teachers must address the state standards, teach the standards, and then assess the students' mastery of the standards. Typically, the special education teacher recommends a strategy or modification to support the students in challenging activities. Even though the original purpose for the special education teacher's presence in the core class was to successfully mainstream special education students in general education, the expectation is that both the general education teacher and special education teacher support all students in the classroom. In other words, co-teaching has become a model to differentiate instruction for all students in the co-taught classroom (Howard & Potts, 2009). Co-teaching with a certified general education teacher and special education teacher can ensure that special education students are provided a free and appropriate education in a least restrictive environment when placed in a general education classroom. Both teachers use their expertise to collaboratively modify the general education teacher's previous years' lessons to benefit all students (McHatton & Daniel, 2008).

As education enters the 21st century, another component of co-teaching collaboration involves technology. Many technological tools can provide another

approach to lesson planning and collaborating for the co-teachers when time and space are limited. Teachers can collaborate online rather than meet in one designated place for a set duration of time (Charles & Dickens, 2012). These technological tools are then applied to the traditional models of co-teaching in the classroom. Friend, Cook, Hurley-Chamberlain, and Shamberger (2010) added that co-teachers practiced the most predominate method, team teaching and one teach, one drift. During team teaching, the general education teacher and special education teacher seamlessly teach the lesson together throughout the period whether or not they infuse technology into the lesson. Teachers are not the only participants in education to become technologically literate. The CCSS initiative involves an additional expectation: students also acquire technology skills to be college and career ready. The general education teacher and special education teacher must also support students with their use of technology (Charles & Dickens, 2012).

Another co-teaching method frequently practiced to meet all the students' needs is one teach, one assist. Every time this method is implemented, the English teacher provides instruction while the special education teacher guides students one-on-one. However, several other methods are also incorporated into the lesson when both teachers believe a particular activity calls for it. When a lesson asks students to participate in three activities, the teachers set up three groups of students based on their grasp of the content and skills. Each teacher is stationed in one of the three groups leaving one group working independently, flexible teaching. If the teachers are teaching the same standard but embedding different activities for teaching and re-

teaching, the co-teaching model, station teaching or parallel teaching is implemented. Alternate teaching is rarely implemented as another co-teaching method. Co-teachers feel that the proximity does not accommodate a smaller group without the burden of distraction from the larger group (Friend et al., 2010).

Since the lessons are designed to better scaffold concepts and skills, the general education teacher proceeds to use the same lesson for the rest of the classes without co-teaching when the special education teacher is not present. Modifications occur when one teacher obviously cannot implement the co-teaching method. Therefore, both classes (with and without co-teaching) receive the same lesson and general education teacher. The only difference is that the class without co-teachers does not receive instruction using co-teaching methods. As Huber (2005), Walther-Thomas & Bryant (1996), and Welch (2000) noted, co-planning also allows teachers to share strategies, methods, and practices elsewhere.

Cramer, Liston, Nevin, and Thousand (2010) noted that some challenges do arise. The special education teachers and regular education teachers have other obligations. From time-to-time, meetings and other commitments create a conflict in teachers' schedules during class or preparation time, so they are not able to participate in co-teaching. This usually occurs without much notice, so a lesson is created and then is quickly modified.

Studies on Co-Teaching

Aliakbari and Bazayr (2012) conducted a study on co-teaching methods that involved English as a Foreign Language (EFL) learners. Very little research on the

effects of co-teaching has been conducted in the unique realm of EFL classrooms. English as a Foreign Language teachers practice various co-teaching methods, but this study focused more on parallel-teaching. Parallel-teaching allows the two participating co-teachers to split the class in half and instruct a lesson with a smaller teacher-to-student ratio. The purpose of this study was to discover whether parallel teaching has an influential effect on the general language proficiency of EFL students. The research also examined the participating teachers' and students' perceptions of the parallel teaching experience.

The participants of this experiment were 32 junior high school male students between the ages of 13 and 14 in Iran. The participating co-teachers were both 39 years old with experience in EFL for approximately 20 years. One participating teacher held a Master's of Arts in Teaching English as a Foreign Language; the other participating teacher held a Bachelor's of Arts in English Translation. Co-teachers used the same textbook of 10 lessons. Students took both a pretest and posttest to measure their achievement in foreign language fluency. The study used a quasi-experimental design to determine the results and found that co-teaching in the parallel model did not significantly improve student proficiency. Students felt that two different groups in one classroom made it difficult to focus even though they found it to be motivating (Aliakbari & Bazayr, 2012).

Buerck (2010) implemented a study on 38 classes that involved either co-teaching or no co-teaching. This study evaluated the impact co-teaching had on regular education students. Semester grades of 441 students were considered to

determine the effects of co-teaching and whether it contributed to achievement.

Students were also categorized into three groups: low, medium, and high proficiency to see whether co-teaching had an impact on particular subgroups of regular students in different subjects such as language arts, mathematics, and social sciences. A survey was also conducted to get teachers' perspectives on co-teaching.

Using paired sample *t*-tests, Buerck found significant differences ($p < .05$). Students who were enrolled in co-taught classrooms earned higher grades than when enrolled in classes that were not co-taught. Although all low, medium, and highly proficient students showed better grades in co-taught classrooms, students labeled as low proficient demonstrated improved performance in co-taught classrooms narrowing the achievement gap with the rest of their peers. Teachers who participated in an a survey indicated that “they check grades and missing assignments more often in co-teaching classes than in regular education classes and felt the constant reminders were effective in keeping student grades higher” (Buerck, 2010, p. 87).

Parker (2010) focused specifically on language arts and mathematics classes in secondary education. The purpose of this study was to determine whether co-teaching had an impact on the proficiency of 10th-grade, regular education students in their language arts or mathematics courses. 10th-grade classes from the Volusia and Seminole counties were selected for this study based on their similar demographics. Results were based upon the students' achievement on the Florida Comprehensive Achievement Test (FCAT) for tenth grade reading and mathematics. Student scores

on the FCAT during their 10th-grade year were compared to their scores on the FCAT during their 9th-grade year.

An independent *t*-showed that students in language arts classes that were co-taught showed no statistical difference in achievement in comparison to students in language arts classes that were not co-taught. Students in co-taught mathematics classes did not perform better than students in classrooms that were not co-taught. When considering learning gains, students who were categorized as low proficient the previous year, showed greater improvement compared to low proficient students in classrooms that were not co-taught ($p < .05$). Therefore, results indicated that co-teaching effectively supported struggling mathematics students not categorized as students with disabilities (Parker, 2010).

Cole (2009) conducted a similar study to determine whether co-teaching had a positive impact on general education and special education students in three high school biology classes taught by the same biology teacher and special education teacher. These classes were taught in intervals. During one unit, each of the three classes was exposed to a different method: solo-teaching, station teaching, or one teaching-one drift teaching. For each subsequent unit, teachers rotated methods, and so on. Chapter tests were used to determine the impact each method had on student performance. Each class had approximately 30 students; four to seven of them were students with learning disabilities. The mean scores on the unit tests were compared using a *t*-test. The study found that there were no significant differences between students' performances among solo-teaching, station teaching, and one teach-one drift

teaching (Cole, 2009).

Cole's (2009) second purpose for the study was to discover students' perceptions of co-teaching versus solo-teaching in a biology class. The researcher determined whether there was a correlation between students' perceptions of co-teaching and their achievement in a co-taught classroom. Survey results showed that students' attitudes towards a co-taught biology class, mostly positive, were not significantly different from a solo-taught biology class and there was no correlation between students' attitude and performance in either classroom. Students appreciated interactive activities and hands-on assignments, but these strategies were applied in both co-taught and solo-taught classrooms. Students did, however, show an appreciation for another adult in the classroom who re-taught certain lessons in a different way (Cole, 2009).

Rosati's (2009) qualitative research indicated administrators', teachers', and students' with disabilities perceptions of co-teaching during its implementation. The researcher conducted surveys to determine the perceptions of students with disabilities regarding co-teaching. Administrators and teachers also shared their perceptions regarding the effectiveness of co-teaching. Lastly, teachers were asked how they differentiated instruction to meet the needs of students in a co-taught classroom. This qualitative research was conducted in mathematics, science, and social science at one high school that used the co-teaching method. The researcher observed students and teachers in the classroom as well as conducted several interviews.

Recurring themes arose during the study. Teachers revealed a theme concerning co-teachers' roles and responsibilities. There seemed to be a power struggle between general education teachers who felt the class is their class, and they were in charge versus the special education teachers who wanted to utilize their expertise beyond passing out worksheets and monitoring the aisles. An administrator commented, "I think one of the problems was that they didn't know what their job responsibilities were" (Rosati, 2009, p. 62). The lack of trust for one another also played a part as regular education teachers questioned the knowledge of special education teachers, while the special education teachers questioned regular education teachers' capacity to teach students with disabilities (Rosati, 2009).

Students felt the instructional strategies were helpful with the content, but admitted to being confused in regards to the role of each teacher. However, students felt more comfortable when another teacher was in the classroom and could break material down for them in a different way. Administrators felt that this is the part of co-teaching in which the special education teacher becomes the strategist incorporating effective strategies such as Cloze notes, visual reinforcement, scaffolding, read alouds, and cooperative learning (Rosati, 2009).

Summary

The purpose of this chapter was to review the research behind co-teaching. There are various models of co-teaching implemented in classrooms in many disciplines. They range from two teachers who share equal responsibility for teaching to working together for the sole purpose of lesson planning. Teachers

participating in co-teaching may differ in terms of expertise and knowledge (e.g., pairing a core teacher with a special education teacher or pairing core teachers of different disciplines). This chapter focused mostly on the team teaching model in which teachers seamlessly share the instruction and monitoring in the classroom. The research for this study also reveals various results and conclusions from similar case studies in regards to student achievement and attitudes towards co-taught classrooms. Chapter III will present this study's methodology.

CHAPTER III
METHODS AND PROCEDURES

Introduction

The purpose of this study is to determine if there is a significant difference in English language arts (ELA) achievement between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a classroom that was taught by one teacher. Two teachers in one classroom with different expertise may provide support needed for students to improve academic achievement at the high school level. Most co-teaching models have been implemented nationwide to mainstream students with disabilities, so they can have access to general education academic courses. However, little research has been done to determine if co-teaching has any effect on general education students in classes with mainstreamed students accompanied by a special education teacher. Chapter III will describe the methodology regarding the sample population, instrumentation, and statistical analysis.

Sample Population

This study involved test data from the 2012-2013 school year at a comprehensive high school located in the Central Valley of California. Archival data from four 10th-grade ELA classes were retrieved for this study. The data from general education students were the only information analyzed, excluding

data from students with special needs or learning disabilities. This study also excluded data from juniors or seniors taking the 10th-grade class to make up a failed grade. Lastly, data also excluded English language development students who were concurrently taking an English language development course.

The teachers had between four to ten years of teaching experience. Both the content and special education teachers were provided training prior and during the 2012-2013 school year and were provided a common preparation period for lesson planning and grading. Both teachers were also properly credentialed in their respective areas.

One group (Periods 1 and 4) received instruction through a co-teaching model consisting of an ELA teacher and a special education teacher. The classes consisted of 72 10th-grade students; 10 (14%) were English language learners (ELL); 9 (12.5%) were students with special needs; and 53 (73.5%) were general education students.

The comparison group (Period 5 and 6) received instruction through a solo-teaching model consisting of an ELA teacher. The classes consisted of 62 10th-grade students; 10 (16%) were ELL; 2 (3%) were students with special needs; and 50 (81%) were general education students. Both classes were taught by the same ELA teacher who is also the researcher of this study.

Instrumentation

The California High School Exit Exam (CAHSEE) in ELA was administered to all tenth graders in English classes during the 2012-2013 school year. The California Standardized Test (CST) was also administered to all 10th-graders in

English classes during the 2012-2013 school year. The high school district's benchmark for ELA Grade 10 was administered to all participating students as a pretest in September of 2012 and as a posttest in April of 2013.

Statistical Analysis

The Statistical Program for Social Sciences 20.0 (SPSS) was used to analyze the test data. For the first two hypotheses, a *t*-test for independent samples was used. For the third hypothesis, an analysis of covariance (ANCOVA) was used to determine if there was a significant difference in achievement between the co-taught English classes and the solo-taught English classes when controlling for pre-existing differences. The alpha level was set at the .05 level of significance for all analyses.

Summary

The purpose of this chapter was to review the instruments and methods used to test the null hypotheses stated in this study. This writer also described the sample population and statistical analyzes. Chapter IV will present the results of the statistical analyzes.

CHAPTER IV

RESULTS

Introduction

The purpose of this study is to determine if there is a significant difference in English language arts (ELA) achievement between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a classroom that was taught by one teacher. Co-teaching models have usually been implemented to mainstream students with learning disabilities in general academic courses; therefore, most studies focused on the effects of this teaching model on students with learning disabilities rather than the remaining population of students. This chapter presents the analyses of quantitative data from assessments of high school general education 10th-grade students who were placed in classrooms with and without co-teachers.

Description of Sample

This study was conducted during the 2012-2013 school year at a comprehensive high school in the Central Valley of California. The archival data of four 10th-grade ELA classes were retrieved, excluding data from students with learning disabilities, students designated as English language learners (ELL), or students retaking 10th-grade ELA. Both the content and special education teachers were received training prior and

during the 2012-2013 school year and were provided a common preparation period for mutual lesson planning and grading.

The treatment group (Periods 1 and 4), received instruction through a co-teaching model consisting of an ELA teacher and a special education teacher. The classes consisted of 53 total students: 44 Hispanic or Latino (83%), 4 Asian Indian (8%), and 5 other (9%). Of the general education students, 52 (98%) took the 2013 California High School Exit Exam (CAHSEE), 53 (100%) took the 2013 California Standards Test (CST), and 42 (79%) took both the district assessment pre and posttests.

The control group (Periods 5 and 6), received instruction through a solo-teaching model consisting of the same ELA teacher. The classes consisted of 50 total students: 41 Hispanic (82%), 7 Asian Indian (14%), and 2 other (4%). Of the general education students, 50 (100%) took the 2013 CAHSEE, 48 (96%) took the 2013 CST, and 45 (90%) took both the district assessment pre and posttests.

Findings Related to Hypothesis 1

Hypothesis 1: There is no significant difference in ELA achievement on the California Standards Test between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a traditional classroom that was taught by one teacher.

An independent *t*-test analysis was used to determine if differences existed between the co-taught group and solo-taught group. For this analysis, significance

was set at $p < .05$. Results indicated that there was no significant difference between the co-taught group and solo-taught group regarding their performance on the CST in ELA (see Table 1).

Table 1

2013 CST ELA Results, Co-Taught & Solo-Taught Students

Group	N	M	SD	<i>T</i>	<i>p</i>
Co-Taught	53	346.58	36.102	-1.259	.211
Solo-Taught	48	354.77	28.332		

The results suggest that general education students in co-taught classrooms designed for mainstreaming special education students do not significantly outperform general education students in solo-taught classrooms on the CST ($p=.211$).

Findings Related to Hypothesis 2

Hypothesis 2: There is no significant difference in ELA achievement on the CAHSEE between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a traditional classroom that was taught by one teacher.

An independent *t*-test analysis was used to determine if differences existed between the treatment and control group. For this analysis, significance was set at $p < .05$. Results indicated that there was no significant difference between the co-

taught group and solo-taught group regarding their performance on the CAHSEE in ELA (see Table 2).

Table 2

2013 CAHSEE ELA Results, Co-Taught & Solo-Taught Students

Group	N	M	SD	<i>T</i>	<i>p</i>
Co-Taught	52	387.77	23.900	-.797	.428
Solo-Taught	50	391.44	22.578		

The results suggest that general education students in co-taught classrooms designed for mainstreaming special education students do not significantly outperform general education students in solo-taught classrooms on the CAHSEE ($p = .428$).

Findings Related to Hypothesis 3

Hypothesis 3: There is no significant difference in ELA achievement on a district-developed benchmark test between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a traditional classroom that was taught by one teacher when controlling for pre-existing differences.

An ANCOVA was used to determine the difference between the co-taught group and solo-taught group when controlling for pre-existing differences. For this analysis, significance was set at $p < .05$. Results indicated that there was no significant difference between the co-taught group and solo-taught group regarding their performance on the district benchmark assessment in ELA (see Table 3).

Table 3

10th-Grade ELA District Benchmark Assessment Pretest (Fall 2012)/Posttest (Spring 2013) Results, Co-Taught & Solo-Taught Students

Group	N	M	SD	F	P
Co-Taught	42	21.19	4.324	1.050	.309
Solo-Taught	45	20.47	3.969		

The results suggest that general education students in co-taught classrooms designed to mainstream special education students did not significantly outperform general education students in solo-taught classrooms on the 10th-grade ELA district benchmark assessment ($p = .309$).

Summary

Chapter IV presented results from two *t*-tests and an ANCOVA that accepted the null hypotheses of this study. Results of the *t*-test on student performance on the 2013 CAHSEE in ELA, the *t*-test on the student performance on the 2013 CST in ELA, and the ANCOVA on student performance on the district benchmark in ELA showed no significant difference between general education students in a co-taught ELA class and general education students in a solo-taught English language class. Chapter V will present a summary, conclusions, implications, and recommendations for further research.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

The purpose of this study is to determine if there is a significant difference in English language arts (ELA) achievement between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a classroom that was taught by one teacher. Co-teaching models have usually been implemented to mainstream students with learning disabilities in general academic courses; therefore, most studies focus on the effects of this teaching model on students with learning disabilities rather than the remaining population of students. This chapter presents the analyses of quantitative data from assessments of general education high school students who were placed in classrooms with and without co-teachers.

This chapter will summarize the findings from Chapter 4 and present conclusions recommended by this researcher. This researcher will also interpret the findings, discuss its significance, and provide recommendations for further study.

Summary

The nation is in the midst of education reform in which state academic content standards have been replaced with Common Core State Standards (CCSS) as an attempt to adequately prepare students for college and career (CFTL, 2012). During the transition, concern has also been raised regarding the ability of educators

to succeed when many students have been at risk for decades. Various approaches to teaching and curriculum have been practiced to improve student achievement. One approach mainstreams students with learning disabilities into general education rather than isolating them in remedial core classes. The approach involves a special education teacher who co-teaches with the general education teacher to expose the students with special needs to general education while still providing needed support and scaffolding. Much research has been administered on the impact co-teaching has on students with learning disabilities, but little research has been conducted to determine if co-teaching has an effect on general education students.

This study involved test data from the 2012-2013 school year at a comprehensive high school in the Central Valley of California. Archival data of four tenth-grade ELA classes were used for the analysis. Data of students in the special education system were excluded. Data of students who were in the English language development system were also excluded; these students are juniors or seniors who are mainstreamed into 10th-grade English classes after passing the California English Language Development Test (CELDT). Data from juniors or seniors retaking 10th-grade English were also excluded. Therefore, assessment data of 103 10th-grade students designated as general education were used in this study; 53 (51%) were enrolled in a co-teaching classroom while 50 (49%) were enrolled in a solo-teaching classroom. Both the co-taught group and the solo-taught group had the same ELA teacher who had 8 years of teaching experience. The treatment group was also assigned a special education teacher with 4 years of teaching experience. Both

groups received the exact same lessons. The treatment group received the lessons from two teachers both taking turns instructing and remediating.

An independent *t*-test was used to analyze the results of the California Standards Test (CST) and California High School Exit Exam (CAHSEE) between students in a co-teaching classroom versus a solo-teaching classroom. An ANCOVA was used to compare the pre and posttest results of a district benchmark assessment between students who received instruction from the co-teaching model versus the solo-teaching model when controlling for pre-existing differences.

Conclusions

The statistical analyses indicated that there is no significant difference in the 2013 CST, 2013 CAHSEE, and 2012-2013 district assessment results between general education students who received instruction in a co-teaching classroom and general education students who received instruction in a solo-teaching classroom.

Implications

The results of the two *t*-tests and ANCOVA suggest there is no significant difference in ELA achievement between 10th-grade general education students who received instruction in a classroom that was co-taught by two teachers and 10th-grade general education students who received instruction in a traditional classroom that was taught by one teacher. According to this study, the mainstreaming approach does not have a negative impact on the general education students since the results showed no significant difference between general education students in a co-teaching class versus a solo-teaching class. Previous studies support these results.

Parker (2010) conducted a similar study of 10th-grade students at a secondary school in ELA classes. The independent *t*-test also showed that students in language arts classes who were co-taught showed no statistical difference in achievement in comparison to students in language arts classes that were not co-taught. McDuffie et al (2009) also found that co-teaching does not seem to have a significant impact on both the special education students and general education students.

The present study suggests that mainstreaming special needs students into a general education classroom has a neutral effect on the general education students' academic achievement. However, this study was conducted on a small sample group of four classes. Further study should follow on a larger sample size.

Recommendations for Further Research

Continuation of the research could include the following:

1. Conduct a qualitative study on the perceptions of teachers who participate in the co-teaching model.
2. Conduct a qualitative study on the perceptions of general education students who are enrolled in a co-teaching model.
3. Conduct a quantitative study that involves a larger sample population of co-teaching classrooms at all grade-levels and other subjects.
4. Conduct a longitudinal study to determine the effects of co-teaching on student achievement over the course of approximately five or more years.

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