



RESEARCH ARTICLE

THE EFFECT OF COLLABORATIVE TEACHING ON STUDENTS' PERFORMANCE IN A HIGH SCHOOL ALGEBRA INCLUSION CLASS

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ABSTRACT

Inclusion has been the topic of interest in education for many years. Various methods of teaching in an inclusive teaching have been created and researched. This study investigated the effects of collaborative teaching on Algebra scores in an inclusion high school class. The findings tended to indicate collaborative teaching in an inclusive setting for special education students. The research was conducted in a rural setting in the South with 15 special needs students to determine the impact of collaborative teaching.

Key words:

Collaboration, Inclusion, Special needs.

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INTRODUCTION

Children differ from one another regarding learning abilities and learning methods or styles. Some children, learn faster, remember longer and easily transfer the learned skill to new situations while others need extra practice and support to learn. Children needing significant help are sometimes referred to as exceptional children, children with special needs or individuals with a learning disability and are eligible for special education services. By law, each exceptional child benefits from an individualized education program (IEP) in a differentiated educational setting. To provide the best possible learning experience, the federal government enforces the Free Appropriate Public Education-FAPE for all children with disabilities in the least restrictive environment-LRE. The LRE refers to the setting where a child with a disability can receive an appropriate public education designed to meet individual educational needs, alongside peers without disabilities, to the maximum extent possible. In most LREs a general education teacher and a special education teacher, work together. This paper explores the effects collaboration has on the learning of students with special needs in an inclusion class. The 1997 amendments to the Individuals with Disabilities Education Act (IDEA) (P.L. 105-17) emphasize the importance of providing access to students with disabilities to the general curriculum. As a result, special education and general education teachers work together to provide educational services in an inclusion setting for both general and special needs students. In a

collaborative relationship, general and special education teachers share responsibilities, materials, and instructional strategies. In this structure, a general education teacher is a curriculum specialist, and a special education teacher is an accommodation and modification specialist. The special education teacher and general education teacher work collaboratively to promote the personal and academic growth of students with special needs. Special education teachers are professionals trained to work with students with exceptional needs. Federal and state laws mandate that every student with a disability is entitled to an adequate education. By law students with disabilities must have access to the general curriculum, and they must be included in state-wide testing along with general education students. Because of the law IDEA require for the students with special needs to be taught along with their general education peers various teaching methods have been created. This paper explores a method of collaboration and its effect. Further students behavior, participation in the class and peer to peer interaction is observed. The purpose was to determine the effect collaboration has on the learning of students with special needs in an Algebra inclusion class.

There are two fundamental beliefs regarding the inclusion of students with exceptional needs that helped to conceptualize this study of collaboration. First, all students with disabilities can be successfully educated in a general education class with general education peers. Second, students with disabilities can be successful in general education classrooms in collaborative teaching with accommodations and modifications.

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MATERIALS AND METHODS

This study was conducted in four stages. In the first stage, data were gathered and analyzed in an Algebra class. In this stage, students with exceptional educational needs worked in a general education classroom with accommodations and modifications, but not with collaborative teaching methods. In the second stage, the general education teacher and special education teacher collaborated on providing accommodations and modifications to the instruction. Six approaches to Co-teaching described by Friend, Hurley-Chamberlain, and Shamberger (2010) were used. In the third stage, data were collected and analyzed on the students. In the final stage, the test result, were evaluated and discussed.

RESULTS

Stage One: Data analysis prior to collaboration

In this stage, first school term test scores were evaluated. Students with exceptional needs attended the general education classroom with their peer group with accommodations and modifications, but collaborative teaching methods were not implemented. Students test data were analyzed, the mean, median and mode for the 15 special needs students were 63 mean, 62 median and 67mode with a standard deviation of 5.904. See the figure 1for individual performance scores for the 15 special needs students.

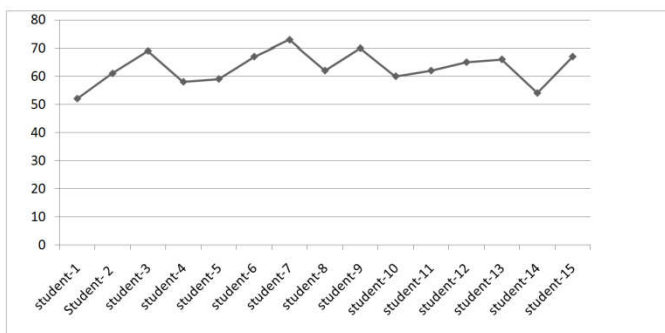


Figure 1. Individual scores of students with special needs prior to collaboration

Table 1. Grading score with resulting statistics before collaboration

Basic statistics	
Standard Deviation	5.904
Count	15
Variance	34.86
Minimum	52
Median	62
Mean	63
Maximum	73
Mode	67. 62
Sum	945

Data Set: 52, 61, 69, 58, 59, 67, 73, 62, 70, 60, 62, 65, 66, 54, 67

Stage Two: Collaboration implementation

In the second stage, the general education teacher and special education teacher collaborated on how to plan lessons and teach subject matter together in an inclusion setting. The Six Types of Co-Teaching structure (Smith, Polloway, Patton and Downey 2012) was implemented. The Six Types referred to as

six Approaches by Friend, Cook, Hurley-Chamberlain, and Shamberger (2010), is a research model widely used in inclusion settings in the United States. The first method of six approaches is One Teach, One Observe. In this method, one teacher teaches the entire class while the other teacher observes collects data, monitors and supports student behaviors. The second approach is Team Teaching. In this method the special education and general education teachers plan and deliver instruction together. During this method, students can be collaboratively taught in large and as well as small groups. The third method of the six approaches is Alternative Teaching. In this method one teacher teaches a small group and other teaches in a large group. This method is designed to provide individual instruction and give immediate feedback. The fourth method is Parallel Teaching. In this method the general education teacher and special education teacher teach the same lessons in two different group settings. This model provides an opportunity work with smaller groups. The fifth method is Station Teaching. In this method the general education teacher and special education teacher divide responsibilities and work on different activities. The final method is One Teach and One Drift. In this method, while one teacher teaches the other teacher moves around the class to check on the students work and give feedback.

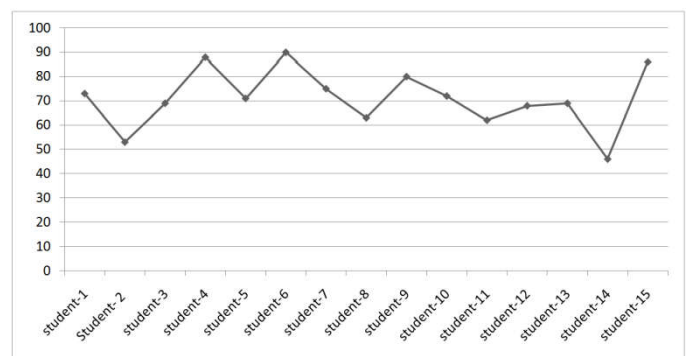


Figure 2. Individual scores of students with special needs after collaboration

Table 2. Grading scores with resulting statistics after collaboration

Basic statistics	
Standard Deviation	12.21
Count	15
Minimum	46
Mode	69
Mean	71
Median	71
Maximum	90
Variance	149.1
Sum	1065

Data Set: 73, 53, 69, 88, 71, 90, 75, 63, 80, 72, 62, 68, 69, 46, 86

Table 3. Comparative data pre-collaboration with collaboration

	Basic statistics	
Count	15	15
Variance	34.86	149.1
Standard Deviation	5.904	12.21
Minimum	52	46
Median	62	71
Mean	63	71
Mode	67. 62	69
Maximum	73	90
Sum	945	1065

Data Set: pre-collaboration 52, 61, 69, 58, 59, 67, 73, 62, 70, 60, 62, 65, 66, 54, 67
 Data Set: collaboration 73, 53, 69, 88, 71, 90, 75, 63, 80, 72, 62, 68, 69, 46, 86

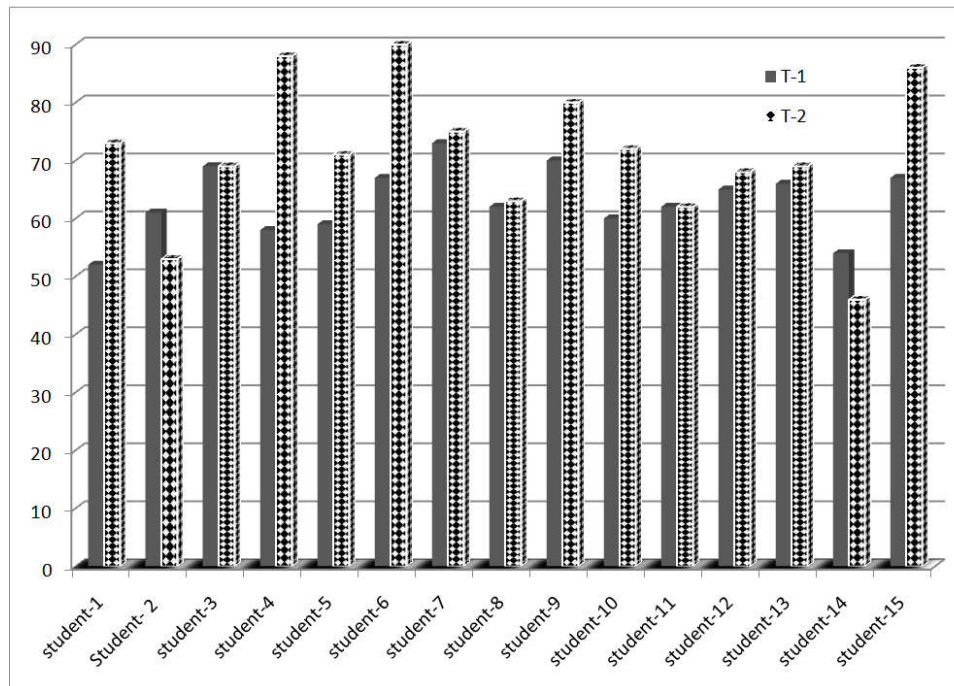


Figure 3. Comparative scores of pre collaboration and collaboration

Stage Three: Data analysis of collaboration

In this stage second school term test scores were evaluated. Exceptional education students attended the general education classroom with their peer group with accommodations, modifications, and collaborative teaching methods. Students test data were analyzed, the mean, median and mode for the 15 special needs students were 71 mean, 71 median, 69 mode with a standardized deviation of 12.21. See figure 2 for individual performance scores.

Stage Four: Results and evaluation

In the final stage the pre-collaboration data were compared to the collaboration data. Figure 3 shows a comparison of the scores of each of 15 students with special needs and Table 3 reveals the comparative data.

DISCUSSION

In conclusion, student test scores indicated collaborative teaching impacted student learning. In traditional teaching without collaboration, students' scores were lower compared to the scores obtained while being taught collaboratively. Eleven students did better, two regressed and two remain the same. Apart from the data while being taught collaboratively students seemed to be motivated to learn, actively participated, and were more engaged. When general education students provided peer tutoring to special needs students, the special needs students seemed to feel more successful and confident. As a result of collaborative teaching behavior problems were reduced. Students started actively participating in the class and asked more questions. During small group instruction and quizzes peer-to-peer interaction improved. Although this study only included 15 high school students with special needs in a rural setting in the South and researched Algebra scores over two school terms, it indicates more research is needed on

collaborative teaching. The impact of collaboration at other grade levels and the impact on general students are obviously needed, but research also needs to be directed at the impact collaborative teaching has on the teachers.

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