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Examining the Attitudes of Secondary General Education and Special Education Teachers Toward Inclusion of Children with Autism in General Education Classrooms

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Abstract

Academic environments, such as general education classrooms, have increasingly become important learning environments for children with autism. The purpose of the study was to examine the attitudes of secondary general education and special education teachers toward inclusion of children with autism in general education classrooms. The research questions are as follow: Is there a statistically significant difference in the overall attitudes of secondary general education and special education teachers toward inclusion of children with autism in general education classrooms? Is there a statistically significant difference in the attitudes of secondary general education and special education teachers regarding professional issues, philosophical, and logistical concerns toward inclusion of children with autism in general education classrooms? Cochran (1997) created the STATIC instrument for the purpose of examining teachers' attitudes toward students with special needs and to identify the relationship between teachers' attitudes toward inclusion and toward the disabled in general. The STATIC instrument was chosen for this study due to its multiple uses in the literature gathering data regarding teachers' attitudes toward inclusion of many special needs populations, such as specific learning disabilities (SLD) and Down syndrome students (Barco, 2007; Mastin, 2010). The modifications to the STATIC instrument included identifying the special needs population being studied and inserting the name of the population in the statements within the instrument. Cochran granted permission to use the STATIC instrument with modifications in this study with yet another special needs population—children with autism. In this study, the modified Scale of Teachers' Attitudes Toward Inclusive Classrooms (STATIC) was used to survey 50 secondary (grades 9-12) English, science, social studies, and mathematics general education and 32 special education teachers with experience in teaching children with autism selected from 13 high schools in a large school system. Data were analyzed using independent-samples *t* tests. The findings showed no statistically significant difference in the overall attitudes and logistical concerns toward inclusion of children with autism in general education classrooms and statistically significant differences in the attitudes of secondary general and secondary special education teachers pertaining to professional and philosophical issues. An important finding of this study revealed that secondary general education teachers had positive not negative attitudes toward inclusion of children with autism in general education classrooms. This represents an attitudinal swing not embodied in the related literature.

Cavagnaro (2007) reported that autism in America had a 1,148% diagnostic growth rate. In 2014, there was an alarming increase in the rate of children with autism; the new statistic was 1 child in 68 births in the United States will have autism. This ratio represents a significant increase from 1 child in 88 reported in 2012, and from 1 child in 110 births reported in 2006.

Teachers held serious trepidations and attitudinal predispositions about educating children with autism in general education classrooms. Cochran (1997, 1998) reported that teachers' attitudes affect students' learning and are significant contributors to the successful classroom integration of children with disabilities. The success of children with autism in general education classrooms depended heavily on the attitudes and beliefs of general education and special education teachers (Alghazo, Dodeen, & Algaryouti, 2003). Jones (1984) suggested that it was time to eliminate the attitudinal barriers that impede the successful classroom integration of children with disabilities in general education classrooms.

As special education laws were mandated, changes to special education programs were much slower to respond and comply. For example, there was a lack of understanding of the law and the role teachers, administrators, students, and families had in the educational process. General education teachers and school administrators were very reluctant to make changes due to this lack of understanding, which resulted in negative attitudes toward inclusion of children with disabilities in general education classrooms (Marks, 1980).

As the number of individuals diagnosed with autism continues to rise, it remains critical to identify attitudes of secondary general education and special education teachers toward inclusion of children with autism in general education classrooms. The purpose of this study was to examine the attitudes of secondary general education and special education teachers toward inclusion of children with autism in general education classrooms. The study identified the difference in the overall attitudes of secondary general education and special education teachers toward inclusion of children with autism in general education classrooms. In addition, the study identified the difference in the attitudes of secondary general education and special education teachers' regarding professional and philosophical issues and logistical concerns toward inclusion of children with autism in general education classrooms.

Method

Population

The population for this study included 90 secondary (grades 9-12) English, science, social studies, and mathematics general education teachers and special education teachers with experience in teaching children with autism selected from 13 high schools in one school system. The school system is the second largest city school system in a southern state. It is the 39th largest school system in the United States. This school system has a reputation of being very innovative in their application of special education services.

Instrumentation

This quantitative study used a modified Scale of Teachers' Attitudes Toward Inclusive Classrooms (STATIC) to survey the attitudes of secondary general education and special education teachers toward inclusion of children with autism in general education classrooms. The STATIC instrument is composed of 20 statements divided into four subscales: Subscale 1–advantages and disadvantages of inclusion education, Subscale 2–professional issues regarding inclusion education, Subscale 3–philosophical issues regarding inclusion education, and Subscale 4–logistical concerns of inclusion education. The instrument used a Likert-type scale distribution of responses throughout the survey that asked teachers to answer a series of statements by indicating their level of agreement or disagreement with each of the 20 statements. Each response was associated with a point value, and an individual teacher's score was determined by summing the point values of each statement. The following point values were used: 0 = strongly disagree, 1 = disagree, 2 = not sure but tend to disagree, 3 = not sure but tend to agree, 4 = agree, and 5 = strongly agree.

Subscale 1 was calculated by adding the score of all 20 questions. Teachers' attitudes toward inclusion of children with autism in general education classrooms are identified from the sum score of the 20 statement items on the modified STATIC. Higher scores reveal more positive attitudes and lower scores reveal more negative attitudes toward inclusion of children with autism in general education classrooms. Statements 1, 2, 3, 4, and 9 compose Subscale 2 (professional issues). Teachers' attitudes regarding professional issues toward inclusion of children with autism in general education classrooms are identified from Statements 1, 2, 3, 4, and 9 on the modified STATIC. These statements identify teachers' attitudes toward their knowledge and confidence level in teaching children with autism in general education classrooms. Statements 5, 6, 10, and 16 compose Subscale 3 (philosophical issues). Teachers' attitudes regarding philosophical issues toward inclusion of children with autism in general education classrooms are identified from Statements 5, 6, 10, and 16 on the modified STATIC. These statements identify teachers' attitudes toward inclusion and the performance of children with autism in general education classrooms. Statements 8, 17, 18, and 19 compose Subscale 4 (logistical concerns). Teachers' attitudes regarding logistical concerns toward inclusion of children with autism in general education classrooms are identified from Statements 8, 17, 18, and 19 on the modified STATIC. These statements identify teachers' attitudes toward classroom accommodations and administrative support in teaching children with autism in general education classrooms. The scoring for the subscales followed the same scoring tendency as the overall score, with higher scores reflecting positive attitudes and lower scores reflecting negative attitudes.

SPSS was used to analyze the responses of the secondary English, science, social studies, and mathematics general education and special education teachers to determine the statistical significance of this study's research questions. The responses from the secondary general education teachers were compared to the special education teachers for each research question using independent *t* tests.

The independent variable used in this research study was attitudes of secondary general education and special education teachers and the STATIC factors, including overall attitudes toward inclusion of children with autism in general education classrooms and attitudes regarding

professional issues, philosophical issues, and logistical concerns toward inclusion of children with autism in general education classrooms.

The dependent variable used in this research was participants' scores on the STATIC instrument based on overall attitude, professional issues, philosophical issues, and logistical concerns toward inclusion of children with autism in general education classrooms.

In addition, the descriptive statistics (mean, standard deviation, and standard error) were calculated. The descriptive statistics were calculated for the total summed score on the STATIC instrument for each group (secondary general education and special education teachers), which combined the scores for the four subscale areas (advantages and disadvantages, professional issues, philosophical issues, and logistical concerns of inclusive education). Descriptive statistics were also calculated for each of the following categories: professional issues, philosophical issues, and logistical concerns. The data produced by the two different groups—secondary general education and special education teachers—were compared to determine if there were significant differences in the mean, standard deviation, and/or standard error of responses to the STATIC statements. Cochran (1998) calculated and found the norm group to be as follows: M = 58.91, SD = 7.94 and SE = 2.63.

The *t* test for independent samples was performed to determine whether there was a statistically significant difference between the overall means of the responses given by secondary general education and special education teachers for statements on the STATIC instrument that measured teachers' attitudes toward inclusion of children with autism in their classrooms. The independent *t* test allows for the comparison of means between two unrelated groups on the same continuous dependent variable. The responses were based on the cumulative scores of all four factors on the STATIC instrument—advantages and disadvantages, professional issues, philosophical issues, and logistical concerns of inclusive education. The *t* test for independent samples was conducted at the standard significance level of alpha = 0.05. This test determined whether the difference in the observed means was likely to have occurred by chance.

Additional *t* tests were performed to determine whether there was a statistically significant difference between the responses given by secondary general education and special education teachers to statements on the STATIC instrument (professional issues, philosophical issues, and logistical concerns) toward inclusion of children with autism in general education classrooms.. The *t* tests determined whether the observed difference in the means between the attitudes of secondary general education and special education teachers regarding professional issues toward inclusion of children with autism in general education classrooms (Factor 2) was sufficiently larger than a difference expected by chance. The *t* test was performed on Factor 2 using the scores obtained from Items 1, 2, 3, 4, and 9 on the STATIC.

A *t* test determined whether the observed difference in the means between the attitudes of secondary general education and special education teachers regarding philosophical issues toward inclusion of children with autism in general education classrooms (Factor 3) was

sufficiently larger than a difference expected by chance. The *t* test was performed on Factor 3 using the scores obtained from Items 5, 6, 10, and 16 on the STATIC.

A *t* test to determine whether the observed difference in the means between the attitudes of secondary general education and special education teachers regarding logistical concerns toward inclusion of children with autism in general education classrooms (Factor 4) is sufficiently larger than a difference expected by chance. The *t* test was performed for Factor 4 using the scores obtained from Items 8, 17, 18, and 19 on the STATIC instrument.

Threats to Internal Validity

Threats to validity can compromise the results of the study. Creswell (2008) recognized three categories of threats to internal validity: (a) threats related to participants, (b) threats related to treatments, and (c) threats related to methodology. A significant threat to this study was that of the small sample size. Some of the issues of small sample size included a decrease in the generalizability of the study, the influence on statistical power, an increase in Type II error, and a decreased ability to detect significance in statistical tests.

Another threat to this study, related to the participants, was a nonresponse bias. According to Shultz and Luloff (1990), survey research was susceptible to bias due to the possibility of a low response rate. To address this possible bias between responders and nonresponders, a personal email was sent to each potential participant. They were informed of the survey link and given a specified time period for response. In addition, to prevent ballot box stuffing, each subject only had access to the survey link one time.

Threats to External Validity

Threats to external validity are a concern to research studies. In the current study, generalizability to the target population was a significant threat to validity. The population validity was an external threat that could reduce generalizability because the process for selecting the population was based on convenience sampling from an accessible population and from a specific public school system. Therefore, the findings of a small-scale study with a selected population had limited generalizability to the general population. The limitations of this study and the threats to validity were significant considerations in the discussion and implications of this study.

Results and Discussion

From the population of 90 secondary (grades 9-12) English, science, social studies, and mathematics general education and special education teachers with experience in teaching children with autism, 82 responses were received resulting in an overall response rate of 91%. See Table 1 for the demographic data for the overall sampling pool.

Table 1

Summary of Characteristics of Sampling Pool

Teaching assignment	Frequency	%
Secondary special education teacher	32	39
Secondary general education teacher	50	61
Total	82	100

Research Question 1

The study investigated the research question, Is there a statistically significant difference in the overall attitudes of secondary general education and special education teachers toward inclusion of children with autism in general education classrooms?

Table 2 displayed below shows the *t* test for independent samples comparing these two groups of teachers. The independent *t* test compared the means between two unrelated groups on the same continuous dependent variable. The responses were based on the cumulative scores of all four factors on the STATIC instrument—advantages and disadvantages, professional issues, philosophical issues, and logistical concerns of inclusive education. The test compared the between-group variance score with the within-group variance score. The *t* test for independent samples was conducted at the standard significance level of alpha = 0.05. The results revealed there was not a significant difference in the scores for secondary general education teachers (M = 54.39, SD = 10.44) and secondary special education teachers (M = 56.47, SD = 10.48) in the overall attitudes toward inclusion of children with autism in general education classrooms, $t(79) = -0.88$, $p = .38$.

These results suggest when comparing overall attitudes of the secondary general education and secondary special education teacher's attitudes toward inclusion of children with autism, their attitudes are comparable and are positive. The effect size for this analysis (d = 0.20) was found to be a small effect size according to Cohen's (1988) convention for a small effect (d = 0.20). Further, Cohen's effect size value (d = 0.20) suggested a low practical significance.

The findings in this study pertaining to the attitudes of general education teachers toward inclusion of children with autism in general education classrooms were contrary to most of the studies in the related literature (Hollenbeck, 1996; Kavale, 2000; Marks, 1980; Migyanka, 2006). The fact that general education teachers' scores were similar to their special education counterparts could be attributed to the increase in experiences with special education students. Since the research by Hollenbeck (1996), Kavale (2000), Marks (1980), and Migyanka (2006), all teachers have been exposed to more diverse settings of students to include varying levels of special education students. Another factor that might have contributed to this finding is this study was conducted in 2015.

In the related literature, most of the study conducted between 1999 and 2011 reported general education teachers had negative attitudes toward inclusion of students with severe disabilities. Specifically, J. R. Jenkins, Jewell, Leicester, Jenkins, and Troutner (1991); Park and Chitiyo (2009); and Schneider and Leroux (1994) highlighted the fact that general education teachers were most likely to have negative attitudes toward students whose disability is primarily characterized by inappropriate social and behavior responses. Very little research was conducted after 2011 in terms of attitudes toward inclusion of students with specific disabilities in general education classrooms. From 2011 to 2015, there has been more emphasis on special education in schools. General education teachers have been required to participate in special education training which might have led to more acceptance of children with autism.

Research Question 2

The study investigated the research question, Is there a statistically significant difference in the attitudes of secondary general education and special education teachers regarding professional issues toward inclusion of children with autism in general education classrooms?

The second research question examined one of the factors identified on the STATIC instrument: professional issues toward inclusion of children with autism in general education classrooms. There were five questions on the STATIC that addressed Factor 2: those questions addressed the confidence in the teachers' ability, confidence in training to teach students with autism, frustration and anxiety level, and whether the teacher had problems teaching children with cognitive deficits. To test this, Table 2 displayed the *t* test for independent samples comparing these two groups of teachers. A *t* test for independent samples was performed to determine whether there was a statistically significant difference between the responses given by secondary general education and special education teachers to statements on the STATIC instrument.

A *t* test to determine whether the observed difference in the means between the attitudes of secondary general education and special education teachers regarding professional issues toward inclusion of children with autism in general education classrooms (Factor 2) was performed using the scores obtained from Items 1, 2, 3, 4, and 9 on the STATIC to determine if there was a sufficiently larger difference than expected by chance. The results indicated that there was a significant difference in the scores for secondary general education teachers (M = 13.43, SD = 4.07) and secondary special education teachers (M = 18.53, SD = 2.61) regarding professional issues toward inclusion of children with autism in general education classrooms, $t(79) = -6.30$, $p = .00$.

The findings suggest that when comparing attitudes regarding professional issues toward inclusion of children with autism in the general education classroom, the secondary special education teachers' attitudes are higher or more accepting than the secondary general education teachers' attitudes toward including children with autism in general education classrooms. The effect size for this analysis (d = 1.50) was found to exceed Cohen's (1988) convention for a large effect (d = 0.80). Further, Cohen's effect size value (d = 1.50) suggested a high practical significance.

This study's findings were consistent with the literature in that it was consistently reported that special education teachers would be more comfortable teaching and managing children with autism in general education classrooms. M. Smith and Smith (2000) indicated that knowledge about topics such as identifying the characteristics and behaviors of specific disabilities, learning how to make instructional accommodations for children with autism, and developing collaborative and team building skills would increase a teacher's capability to teach children with autism. These skills would be more predominant in special education teachers as they have received education in these areas and been exposed to these situations more frequently.

Goodman and Williams (2007) indicated that the academic progress and success in teaching children with autism depended on teacher expertise, and expertise resulted from their professional educational knowledge and experiences. Secondary special education teachers were more likely to receive this type of training (Goodman & Williams, 2007). The more experience

in these situations, the more positive the attitude of teachers toward inclusion of children with autism. Ellins and Porter (2005) substantiated the importance of experience with special populations and reported that training in special education enhanced teachers' knowledge about children with autism and supported positive attitudes toward including children with autism in inclusive settings. The researchers reported that teachers with the least amount of training in special education had the least positive scores and those with the most training had the most positive scores. Overall, secondary special education teachers were more likely to have received a higher level of professional training, especially in their undergraduate programs, which prepared them for teaching children with autism.

In addition, supporting the significantly higher and more accepting attitudes of secondary special education teachers regarding the professional issues might be due to the lack of special education information distributed to secondary general education teachers. General education teachers specifically expressed the need for more information on how to include students with disabilities in general education settings (Subban & Sharma, 2005). Kamens, Loprete, and Slostad (2000) reported the following areas that general education teachers identified as needed: more knowledge and training related to children with autism, more behavioral management strategies, more information on conflict resolution, more understanding of differentiated instruction, and more ways to collaborate with other teachers.

Research Question 3

The study investigated the research question, Is there a statistically significant difference in the attitudes of secondary general education and special education teachers regarding philosophical issues toward inclusion of children with autism in general education classrooms?

The third research question examined one of the factors identified on the STATIC instrument: philosophical issues toward inclusion of children with autism in general education classrooms. Four questions on the STATIC addressed Factor 3: the learning potential of all students, the teachers' ability to handle behavior problems, and training for teachers who teach children with autism. To test this, Table 2 displays the *t* test for independent samples comparing these two groups of teachers. A *t* test for independent samples was performed to determine whether the observed difference in the means between the attitudes of secondary general education and special education teachers regarding philosophical issues toward inclusion of children with autism in general education classrooms (Factor 3) is sufficiently larger than a difference expected by chance using the scores obtained from Items 5, 6, 10, and 16 on the STATIC. The results found there was a significant difference in the scores for secondary general education teachers ($M = 10.55$, $SD = 4.23$) and secondary special education teachers ($M = 7.69$, $SD = 4.53$) regarding philosophical issues toward inclusion of children with autism in general education classrooms, $t\ (79) = 2.90$, $p = .01$.

These results suggest that when comparing attitudes regarding philosophical issues toward inclusion of children with autism in the general education classroom, the secondary general education teacher's attitudes are higher or more accepting than the secondary special education teacher's attitudes toward including children with autism in general education classrooms. The effect size for this analysis ($d = 0.65$) was found to be a little higher than a medium effect size

according to Cohen's (1988) convention for a medium effect ($d = 0.50$). Further, Cohen's effect size value ($d = 0.65$) suggested a moderate to high practical significance.

Many philosophical issues caused concern for general education and special education teachers working with children with autism. The main philosophical issue identified in this study was, again, the need for training opportunities. From this study's findings, it can be concluded that general education teachers were receiving more training opportunities than special education teachers. As inclusion is becoming more popular and the need to include students with autism in general education classrooms increases, training opportunities have become more prevalent and in many schools are required for inclusion teachers.

Training programs, activities, and efforts were mentioned repeatedly in the literature as vitally important to the success of inclusive classrooms for children with autism. Burke and Sutherland (2004) and Busby, Ingram, Bowron, Oliver, and Lyons (2012) suggested that teacher training efforts and programs include dissemination of knowledge about children with autism. According to Alghazo et al. (2003), Burke and Sutherland (2004), and Busby et al. (2012), teacher training programs must prepare teachers to accept children with autism, provide teachers with the necessary skills to work effectively with children with autism, and require appropriate experiences to gain fundamental knowledge of this population. These training opportunities are becoming more readily available for general education teachers that fact could explain the higher and more accepting attitudes of general education teachers toward inclusion of children with autism in general education classrooms.

Research Question 4

The study investigated the research question, Is there a statistically significant difference in the attitudes of secondary general education and special education teachers regarding logistical concerns toward inclusion of children with autism in general education classrooms?

The fourth research question examined one of the factors identified on the STATIC instrument: logistical concerns toward inclusion of children with autism in general education classrooms. There were four questions on the STATIC that addressed Factor 4. Those questions addressed physical accommodations, principal support for teachers, and material and equipment being available for students with autism. To test this, Table 2 displays the *t* test for independent samples comparing these two groups of teachers. A *t* test for independent samples was performed to determine whether the observed difference in the means between the attitudes of secondary general education and special education teachers regarding logistical concerns toward inclusion children with autism in general education classrooms (Factor 4) is sufficiently larger than a difference expected by chance using the scores obtained from Items 8, 17, 18, and 19 on the STATIC instrument. The results found there was not a significant difference in the scores for secondary general education teachers ($M = 10.78$, $SD = 2.80$) and secondary special education teachers ($M = 9.53$, $SD = 4.13$) regarding logistical concerns toward inclusion of children with autism in general education classrooms, $t(79) = 1.62$, $p = .11$.

These results suggest that when comparing attitudes regarding logistical concerns of the secondary general education and secondary special education teacher's attitudes toward including children with autism, their attitudes are comparable. The effect size for this analysis (*d*

= 0.35) was found to be a little higher than a small effect size according to Cohen's (1988) convention for a small effect (d = 0.20). Further, Cohen's effect size value (d = 0.35) suggested a low to moderate practical significance.

Table 2
Comparison of Scale Scores Based on Type of Teacher (N = 82)

Scale	Group	*M*	*SD*	*t*	*p*	*ES*
Overall score	GE	54.39	10.44	-0.88	.38	0.20
	SE	56.47	10.48	-0.88	.38	0.20
Professional issues	GE	13.43	4.07	-6.30	.00	1.50
	SE	18.53	2.61	-6.30	.00	1.50
Philosophical issues	GE	10.55	4.23	2.90	.01	0.65
	SE	7.69	4.53	2.90	.01	0.65
Logistical concerns	GE	10.78	2.80	1.62	.11	0.35
	SE	9.53	4.13	1.62	.11	0.35

Note. GE = general education teachers; SE = special education teachers.

The null hypothesis was therefore supported; there was not a statistically significant difference in the attitudes of secondary general education and special education teachers regarding logistical concerns toward inclusion of children with autism in general education classrooms. Certain factors might have contributed to this finding. The fact that the populations of general education and special education teachers in this study were identified from one school system might have resulted in the sameness of attitudes. For example, if there was generally a feeling that the schools lacked resources, had deficiencies in environmental and instructional accommodations, or was characterized by low principal support, likely both general education and special education teachers would respond similarly.

Both secondary general education and special education teachers in this study reported higher scores on the logistical concerns toward inclusion of children with autism in general inclusive classrooms. The teachers reported more availability of resources for their students with special needs. The logistical resources were strongly supported in the related literature as a way to successfully teach children with autism. As Biddle (2006) reported, the increased availability of resources in the inclusive setting led to more student success, generated more student interest, and created a more positive learning environment for children with autism.

Another area that was associated with logistical concerns was administrator support. Santoli, Sachs, and Romey (2008) reported that successful inclusion of children with autism depended heavily on the support of school administrators. The researchers concluded that certain variables controlled by school administrators led to more successful inclusive classrooms for children with autism. These elements were the flexibility in teachers' schedules, the allocation of common planning times, the opportunity to participate in professional development activities based in the teachers' areas of interest, and the lengthening of the school day (Santoli et al., 2008).

Conclusion

Two research questions pertaining to professional and philosophical issues toward inclusion of children with autism in general education classrooms demonstrated statistically significant differences in the attitudes of secondary general education and secondary special education teachers. This study confirmed the related literature that the attitudes of secondary general education and secondary special education teachers toward inclusion of children with autism in general education classrooms are dissimilar. The secondary special education teachers reported more positive attitudes toward professional issues—attitudes toward their knowledge and confidence level in teaching children with autism in general education classrooms. The secondary general education teachers reported more positive attitudes toward philosophical issues—attitudes toward inclusion and the performance of children with autism in general education classrooms.

For the other two research questions dealing with overall attitudes and logistical concerns toward inclusion of children with autism in general education classrooms, the data supported the null hypotheses of no statistically significant difference in the attitudes of secondary general education and secondary special education teachers. The lack of statistical significance revealed in this study suggested a lapse in studies collecting attitudinal data over the last 5 years to trace the negative to positive shift of attitudes of secondary general education teachers toward inclusion of children with autism. The lack of significant difference in overall attitudes and logistical concerns by secondary general education and secondary special education teachers might have resulted from more acceptance of children with autism, the increase in training experiences, greater allocation of resources, and more administrative support for inclusive classrooms.

An important finding of this small study revealed secondary general education teachers had positive attitudes toward inclusion of children with autism in general education classrooms. This represented an attitudinal swing not embodied in the related literature. The implication of this attitudinal swing from negative to positive attitudes by secondary general education teachers suggested that general education classrooms are finding their place in the future of special education services. More studies need to be conducted for this attitudinal swing to be validated.

As school systems become more aware of the number and needs of children with autism, efforts must be made to accommodate this growing special education population. More research is needed in the area of teaching children with autism. Research has not kept pace with the sharp increase in the number of students being diagnosed with autism.

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Morghan E. Bosch is an assistant professor of special education at Barton College, North Carolina. Dr. Bosch co-authored the book, *The First-Year Teacher (2015*). She has written a chapter entitled *Literacy in K-12 Content Courses* in the book, *Beach Ball Banter (2012*), and co-authored *The Autism Guide for Norfolk Public Schools* (2009). Recently, she had an article, *Autism and Employment,* accepted for publication in *National Association of Special Education Teachers (NASET)* (2016). Dr. Bosch has given numerous presentations, such as "Social Skills and Children with Learning Disabilities" (2012), "Vocational Preparation for Students with Autism" (2013), and "Autism and Employment" (2013). She was a special education teacher in the Virginia public schools for 9 years.

Action Research Report: Using Objects to Increase Reading Comprehension in Students with Significant Cognitive Disabilities

Sheila Bravo

Abstract

The purpose of this action research was to facilitate reading comprehension of read-alouds in students with the most significant cognitive disabilities. Grade-level read-alouds were paired with manipulatives (real objects) that represented the stories read. Students were assessed after reading, and the results between instances when manipulatives were used, were compared to instances when pictures were used. All students participating in the study demonstrated an increased level in comprehension of the texts shown by answering more questions correctly when manipulatives were used.

Action Research Report: Using Objects to Increase Reading Comprehension in Students with Significant Cognitive Disabilities

Significance and Statement of Problem

Students with the most significant cognitive disabilities can be described following the criteria provided by Browder and Spooner (2006) as students who require significant support, adaptations and/or modifications to be able to access content at grade level, students requiring intensive instruction to acquire and generalize knowledge, and students who have alternative achievement standards for grade level content.

Due to the extent of their delays, historically students with significant cognitive disabilities were excluded from the general education curriculum and their instruction focused primarily in helping them gain access to daily living and functional skills rather than academic skills. Since the implementation of the Individuals with Disabilities Education Act (IDEA, 1997), which requires that students with disabilities participate and progress in the general curriculum and No Child Left Behind (NCLB, 2001), which requires schools to show progress of students and schools, including students with disabilities, there has been a change in the access that students with the most significant cognitive disabilities have to the academic curriculum.

Usually, students with the most significant cognitive disabilities need considerable modifications to access the general education since they are not able to work at the same level as nondisabled students. They may make progress but expectations are considerably below grade level and are reflected in the students' Individual Educational Plans (IEP). They usually have different curriculum goals and are assessed using alternate statewide assessments to measure their progress. Instruction has to be differentiated to allow each student to access the curriculum according to his/her ability level.

Currently, students with disabilities receive instruction in all areas of the general education curriculum, including literacy. Several researchers have established that students with the most

significant cognitive disabilities benefit from receiving instruction in literacy. (Kliewer & Biklin (2001); Ryndak, Morrison, & Sommerstein (1999). Among the advantages of literacy instruction are increasing attention, social interaction, and improvement in expressive and receptive communication skills, among others.

Teaching literacy to students with significant cognitive disabilities has several goals, with comprehension of the materials read being one of the most important. To achieve the goal of teaching literacy and other subject areas to students with significant cognitive disabilities, curriculums targeting this population have been developed, which provide access to the general education curriculum using a variety of modifications, accommodations, augmentative means of communication, etc. and are in alignment with the Common Core Standards. The advantage of these curriculums is that instruction is differentiated to meet the educational needs and cognitive abilities of each student. One such a curriculum is Unique Learning System, which uses adaptations and accommodations to allow students to access the curriculum, such as picture support to facilitate comprehension, switches and communication devices, among others.

Although these curriculums for students with significant cognitive disabilities provide better opportunities to master the concepts introduced to them, such as providing picture support to facilitate comprehension, in some cases this may not be enough, requiring other strategies, like the use of manipulatives or concrete objects to help students understand the concepts being taught.

The purpose of the present study is to pair read aloud texts with manipulatives (real objects) that represent the stories read to measure if the use of concrete objects increases comprehension skills of students with significant intellectual disabilities.

Literature Review

The present review will explore current experimental studies regarding strategies used to increase reading comprehension with students with significant cognitive disabilities. After a discussion of the characteristics of students with significant cognitive disabilities and how these characteristics connect to reading instruction, the review will explore the use of read-aloud strategies for teaching literacy to students with significant cognitive disabilities. Second, it will explore the use of real objects in teaching.

Characteristics of Students with Significant Cognitive Disabilities

There is consensus in the educational community about the importance of teaching academic skills to all students, including students with significant cognitive disabilities.

Browder et al. (2007) provide four reasons to promote grade-level academic content for students with significant disabilities. First, schools should help promote competent adults. Second, there is a historic tendency that has been developing to expect better performance for students with disabilities. Third, students with disabilities should have access to equal opportunities regarding education. Fourth, teaching grade-level academic skills increases self-determination skills for students with disabilities

In the past, the instruction of this population of students focused primarily on learning functional skills, but since IDEA and No Child Left Behind, students with the most significant cognitive disabilities receive instruction in all areas of the general education curriculum. To be able to access the general education curriculum these students need major adaptations and accommodations to make the materials accessible. With this objective, states have developed alternate academic standards align with grade level curriculums. Students access the curriculum through what is called access points, which provides three levels of access to the curriculum: participatory, supported and independent, going from least to most complex. Students with the most significant cognitive disabilities will vary in the level of participation they can achieve. Regardless of their degree of participation, all levels are aligned following grade-level materials and expectations.

Federal regulations require students with the most significant cognitive disabilities to be assessed and to show progress. Students, who access the curriculum through access points are usually in a modified curriculum track, will receive a special diploma and are evaluated using alternate assessments which are based in alternate achievement standards. The IEP team decides on an individual basis if the student will be working on access points and will participate in alternate assessment.

Teaching students with significant cognitive disabilities has substantial challenges. One such a challenge is the fact that this population of students has different communication styles: augmentative communication devices, eye gaze, and facial expressions, among others. To understand their differences in communication styles and their use of symbols and to be able to link this to academic instruction, it is pertinent to rely on the explanation that Browder, et al. (2007) provide regarding levels of access to symbols. According to these authors, there are three different levels of access to symbols in students with disabilities: Symbolic (abstract), early symbolic (concrete) and presymbolic (awareness). The Symbolic level refers to the use of symbols in an abstract way; for example, students functioning at this level may use communication devices to select responses among a wide range of options. Students at this level may be nonverbal, but may be able to handle a vast repertoire of symbols. At this level, even those students who are non-verbal may be able to recognize symbolic systems such as sight words and numbers.

Students functioning at the concrete level or early symbolic level may have only a few symbols available to communicate. Students may be at a level where they have to be taught to match objects with their pictures; they may be able to use these pictures to make requests. At the concrete level, students required extensive instruction to be able to use symbols that represent concepts taught to them.

Students functioning at the presymbolic level do not use pictures, words, gestures or objects to communicate with others expressively. They may not have symbols available and may have limited intentionality. According to Goldstein and Behuniak (2010) students functioning in this level require that their communication efforts must be interpreted by a listener to acquire meaning. When working with students who are functioning at a presymbolic level, it is pertinent to use objects to facilitate teaching and comprehension of text.

Kleinert, Browder and Towles-Reeves (2009) found that students working at a presymbolic level make up approximately 10 % of the total population of students participating on alternate assessments. This population of students presents significant challenges to teachers who need to implement research-based strategies that can help students gain basic communication while linking instruction to grade-level curriculum.

Some researchers have been trying to find characteristics of students participating in alternate assessments. For example, Towles-Reeves, Kearns, Kleinert and Kleinert (2009) conducted a study examining the characteristics of students taking alternate assessment in three different states that differed significantly in geography as well as demographics. These researchers used a survey research design, in which they created a scale covering nine dimensions in which students with significant disabilities show great variability: social engagement, expressive and receptive communication, motor skills, vision, hearing, health, math and reading. Results showed that there are mainly two groups of students taking alternate assessments: one group is composed primarily of students who have achieved a symbolic or emergent symbolic communication level, who demonstrate social interactions and who have acquired some practical knowledge of math and reading. The second group of students (10 to 25 %) is comprised of students who have not reached a level of symbolic communication, who do not establish social interactions and who do not recognize print materials or numbers. This heterogeneity of students participating in alternate assessment makes the development of valid and reliable assessments a very challenging task.

Another study to determine the level of knowledge and skills of students participating on alternate assessments was conducted by Goldstein and Behuniak (2012). These researchers wanted to examine teachers' perceptions of the appropriateness of academic content knowledge for students with significant cognitive disabilities. These authors used a skills' checklist and focus groups of special education teachers in Connecticut. The study found that teachers categorized students with significant cognitive disabilities in two groups: a group for whom grade level content is pertinent and a group for whom it is not. For the first group, teachers also rated their communication skills as higher functioning with less use of augmentative communication devices. For the second group, the one for who teachers considered grade level content not pertinent, teachers also rated their communication skills as poor, requiring use of augmentative communication devices. Teachers considered that participation in alternate assessment is advisable for nearly half of the population participating in it, but it is unclear for the other half.

Read Alouds or Shared Stories

It is usually difficult to identify effective strategies to teach literacy to students with significant cognitive disabilities. Among the most used strategies are read-alouds or shared stories in which a proficient reader reads a story to a student who is not able to read. Plenty of interaction opportunities are provided while using read alouds. The stories used in share reading share some characteristics, such as repeated lines, words paired with pictures, attention getters, etc.

According to Knight, Browder, Agnello, and Lee (2010), the read-alouds are particularly important for students with severe disabilities since they usually need this kind of support throughout the school day and in different subject areas. There is supporting evidenced of the importance of shared reading with students with severe cognitive disabilities. Mims, Browder,

Baker, Lee, and Spooner (2009) explored different studies and found that shared stories can help to increase phonological, metalinguistic and print awareness as well as alphabet knowledge. Even though shared stories are not exclusively used in special education, when used with students with disabilities, shared stories have demonstrated an increase in literacy and communication in students with disabilities.

In reviewing the literature regarding share stories and students with significant cognitive disabilities several studies were found (e.g. Browder, Mims, Spooner, Ahlgrim & Lee, 2008; Browder, Lee & Mims, 2011; Mims, et.al.2009; Mims, Hudson & Browder, 2012; Hudson & Test, 2011; Skotko, Koppenhaver & Erickson, 2004) . One such study was conducted by Mims, et al. (2009) in which researchers used a prompt system from least to most to stimulate listening comprehension in two students with significant intellectual disabilities and visual impairments. The intervention helped students to obtained improvements in the number of correct comprehension questions answered.

Skotko, Koppenhaver and Erickson (2004) developed a study with four girls affected with Rett syndrome and their mothers. These researchers used story book interactions to increase the communication skills of the girls. The researchers noted that the girls increased their communication attempts, using different means to communicate, such as augmentative communication devices, attention to books, vocalizations, etc. The authors also observed that the mothers adjusted the reading strategies over time, for example, asking more questions or pointing to the book to capture their daughters' attention. The researchers concluded that the use of storybooks resulted in an increase in the use of meaningful ways to communication by the girls.

Another study using shared stories with students with multiple disabilities was conducted by Browder, Mims, Spooner, Ahlgrim and Lee (2008). These researchers used principles of universal design for learning (UDL) to deal with physical limitations and obtained results showing progress in literacy skills of three elementary students. Researchers used UDL principles to plan how to adapt materials, ways to respond and instructional strategies to enhance teaching opportunities. There are three components of UDL that are pertinent: a) representation can be defined as the adjustments made to classroom elements to make them accessible for the students, such as larger print or modified books; b) expression can be defined as the use of alternative methods of communication for students with limited communication skills, such as augmentative communication devices, I pads, and other devices; c) engagement can be defined as the use of alternative methods to engage students with disabilities in the learning process, such as repetition of activities, plenty of opportunities to respond, etc.

Browder, Lee and Mims (2011) conducted a study to investigate the use of shared stories for student with severe cognitive disabilities. Their sample included 3 students with significant cognitive disabilities and sensory or physical impairments. The main means of communication of the students was presymbolic: they used movement or sounds instead of pictures to communicate with others. The intervention consisted in using adapted books, voice output devices and objects to increase comprehension. The researchers also included task analysis and scripts to facilitate teacher instruction. The results of the study demonstrate that students increased engagement and comprehension.

Mims, Hudson and Browder (2012) conducted a study to evaluate the use of prompts in reading comprehension of read-alouds on students with moderate and severe disabilities. The read-alouds were grade-level biographies that had been adapted. Researchers noticed an improvement in comprehension of non-fictional texts (biographies) when combining read-alouds with prompts. Some insights that were gained through this experimental study are the fact that a first level of prompts was used to teach students how to answer WH questions ("if you hear who look for a person's name"); by teaching students what to listen for to be able to answer WH questions, some degree of generalization was achieved: when students kept reading biographies that were introduced for the first time, researchers observed that they were able to answer correctly some questions ; finally, researchers noticed that students' reading skills may had been better that what they had demonstrated in class prior to the study.

Hudson and Test (2011) reviewed the literature regarding shared stories. The studies that were included in their review had to meet the following criteria: 1) studies had to be experimental and published in a peer-reviewed publication, 2) participants had to be individuals with significant support needs, 3) the independent variables in the studies were the use of shared stories, and 4) the studies had to include at least one part of literacy as the dependent variable. These researchers found 13 studies that met the four criteria established. After reviewing the studies, the researchers found a moderate level of evidence in the literature to support the use of shared stories as evidence based practice to teach literacy to student with significant support needs.

Use of Real Objects

Most of the experimental studies mentioned in this review used objects as part of the materials to increase comprehension. Browder, Mims, Spooner, Ahlgrim-Delzell, and Lee (2008) mentioned that they used sensory materials and objects to go along with the stories.

Browder, et al. (2009) wrote an article about teaching literacy to students with significant disabilities. These authors specified that students with significant disabilities "may need concrete referents such as objects for story concepts to have meaning" (p. 272).

Many studies have used real objects to increase comprehension skills in students with significant cognitive disabilities. According to Ogletree and Crawford, there are several interventions for students with significant cognitive disabilities that have used objects, such as to promote signaling, as a mean to help student's understanding, and to improve receptive and expressive communication skills and as a way to improve requesting objects.

According Mims, Browder, Baker, Lee, and Spooner (2009), to extent studies about the effectiveness of using read-alouds for students with significant cognitive disabilities and visual impairments they recommend two changes: systematic prompting and real objects. Adding real objects has the advantage of providing actual information that will increase the reader's interaction with the story and will provide an opportunity to relate to the story. Their experimental study used five concrete objects that were specified in the book used.

According to Browder, et al. (2008) to increase access to literature, students with significant cognitive disabilities benefit from being read daily and using supports to increase student

engagement. A good way to engage students is to provide objects related to the story to make meaning more accessible to the students.

Visually impaired student are not the only ones that may benefit by using real objects to increase comprehension of texts; there may be other reasons to use real objects when instructing students with significant disabilities, among them the level of access to symbols exhibit by students. Students who are functioning at a presymbolic level as described below may benefit from using objects paired with symbols and/or pictures to increase comprehension. According to Browder, et al. (2007) "depending on the student's level of symbol use, materials are adapted and instructional activities are designed to require different levels of cognitive demand" (p. 12). This will allow that students are able to access materials at grade-level.

Conclusion

The literature reviewed supports the purpose of the present study to use real objects associated with read-alouds to increase comprehension skills in students with significant cognitive disabilities. Real objects can provide a mean to represent concepts, making them more accessible and easy to understand.

Action Plan

Context

The present study took place in a medical facility called Prescribed Pediatric Extended Care (PPEC) that these students attend daily. Four students identified as InD (Intellectual Disabilities) participated in the study. Three of the students have genetic conditions and one has a Traumatic Brain Injury (TBI) due to a near drowning episode. All the students fall within the most significant intellectual disabilities range: they are non-ambulatory, non-verbal, are not able to read or write and their primary means of communication are through facial expressions and eye gaze.

The necessary tools to implement the action research included, but are not limited to, Unique Learning System curriculum and assessments and Access Points for Sunshine State Standards.

Research Questions

Will the use of manipulatives that represent stories read to the students increase comprehension of the texts?

Intervention

Read-alouds of grade-level texts were used with students with significant cognitive disabilities. Real object/s representing the stories were associated with the text and presented to the student/s while the text was being read. After reading, the students were asked comprehension questions, for example, what was the story about? Teacher presented two objects to the student/s: one object related to the story (for example an apple in a story about apples), and an unrelated object. To respond, student/s used eye gaze and/ or touch the correct object.

Data Collection

Data was collected using three sources: Unique learning System Assessment, teacher developed chart and checklist.

The first data source, Unique Learning System Assessment organizes data automatically. A comparison between correct number of questions answered at the beginning and end of the month was done to analyze if instruction with the use of objects had a positive effect over the correct number of questions answered. Unique Learning system provides a chart that displays the correct answers comparing the pre and post-test responses (see figure 1).

The second data source, the teacher developed chart, was organized using an excel data sheet created to collect and organize the data collected. Data was collected twice weekly, after story reading using picture and object support (see figure 2, appendix A).

To analyze this data source number of questions answered correctly were calculated for the reading using picture support and for the reading using object support and then the total number of correct questions answered was compared. The data was displayed using a bar chart that shows total number of correct answers for both readings.

The third data source, the checklist, was organized using a chart with desirable behaviors where the teacher checked yes or no to each desirable behavior after each story reading using picture and object support (see tables 1 through 4). To analyze the data, the teacher calculated the total number of yes and no when using picture and object support and the results were compared to determine if the students displayed a greater number of desirable behaviors when using pictures or objects. A bar chart was created to display the total number of yes and no to the desirable behaviors for both support methods.

Results

Data Analysis

The data collected for this study were analyzed using various ways. Students received a pre and posttest using a curriculum called Unique Learning System. They were asked five questions before being introduced to the materials and the answers were recorded into the program to show their previous knowledge on the subject. A posttest using the same questions of the pretest was given to the students after they have being exposed to the materials assigned to that academic unit. These data were collected at the beginning and at the end of the month. The data was displayed using a chart provided by Unique that compares the number of correct answers obtained in each attempt and shows this information in a column chart (see figure 1).

Another source of data collected was to compare the number of correct answers to comprehension questions about a text when using picture or object support. In this case, the teacher read a story weekly to the students in two occasions: the first time, picture support was used to facilitate comprehension; the second time that the story was read, real objects were used. After each reading, students were asked comprehension questions using either pictures or objects, depending on what support had been used during reading. Students provided the answers to the questions by touching or eye gazing the response, since they are all nonverbal. To analyze the data, the researcher compared how many questions were answered correctly when using picture or object support. These data were shown in a column chart that compares both approaches (see figure 2).

The third source of data used were checklists developed by the investigator that show student engagement with the activity. A list of six engagement indicators was created to determine the level of engagement with the activities and determine if students show any preference with the stories when the researcher used picture support or when objects were used. These data were collected twice a week after each reading. Each indicator of engagement was marked as yes or no; for example, the student looks at the teacher during the activity was one of the indicator of engagement and it was marked yes or no after reading using picture support the first time and object support the second time. A percentage of total positive engagement indicators was calculated by adding all the yes responses and dividing them by the total number of possible indicators; for example, if a student obtained five yes engagement indicators, he/she would obtain 86 % on engagement (Percentage= 5/6 X 100). Finally, these percentages of engagement with the activities were displayed in charts.

Findings

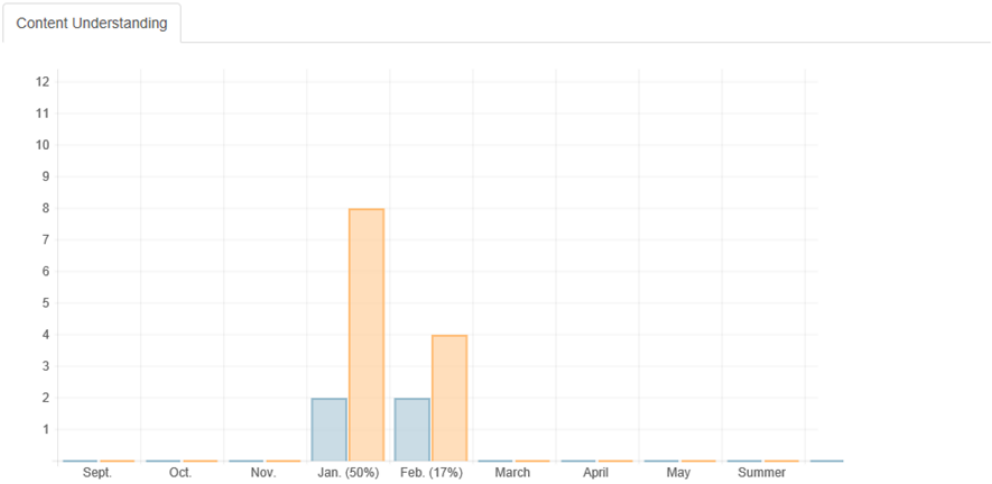
The findings of the present study were consistent with previous literature (e.g. Browder, et.al. 2008), that shows evidence of increased reading comprehension when using manipulatives to support reading materials in students with significant cognitive disabilities.

Students showed improvement in answering comprehension questions when using concrete objects related to the stories read to provide representations of the concepts presented in the readings.

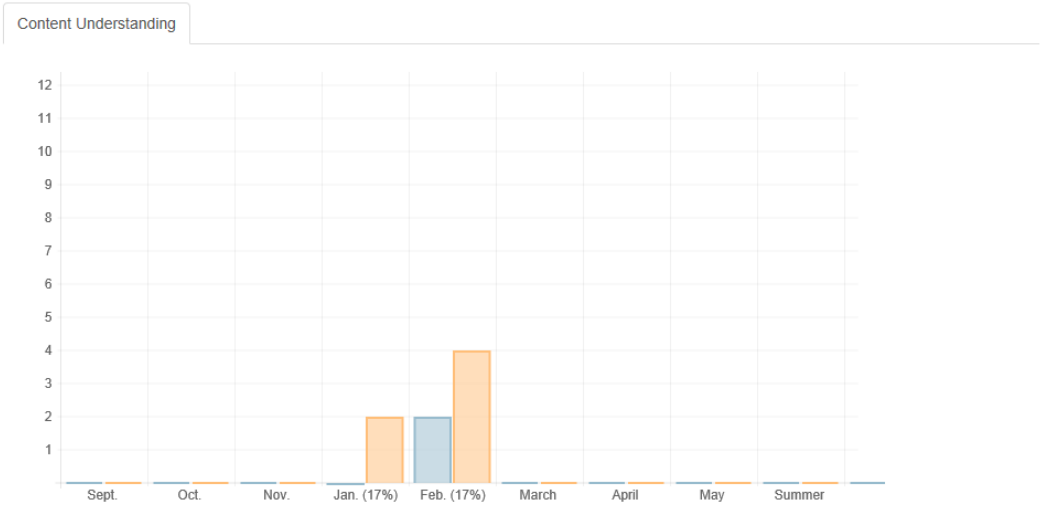
The information provided below will help the reader in understanding the findings.
Unique Learning System assessment. Students were assessed twice a month using the assessment provided by this curriculum. A comparison between correct number of questions answered previous to instruction and a post assessment given after instruction using objects showed improvements among participants.

Figure 1 shows improvement in the number of questions answered correctly for the four students in the study after instruction. The first, second, third and fourth graphs of Fig. 1 show the results of pretest in blue and the posttest in orange. All students showed improvement in the number of questions answered correctly after instruction using objects was provided.

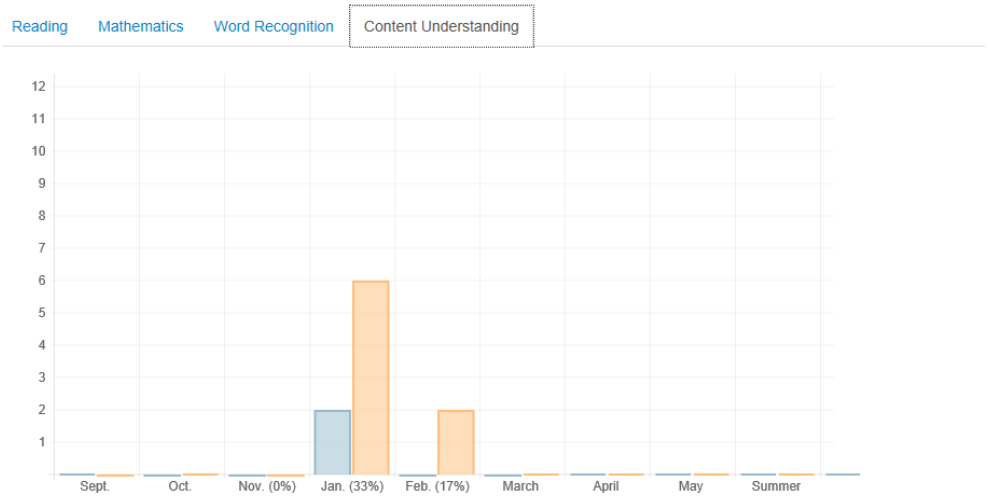
Student 1



Student 2



Student 3



Student 4

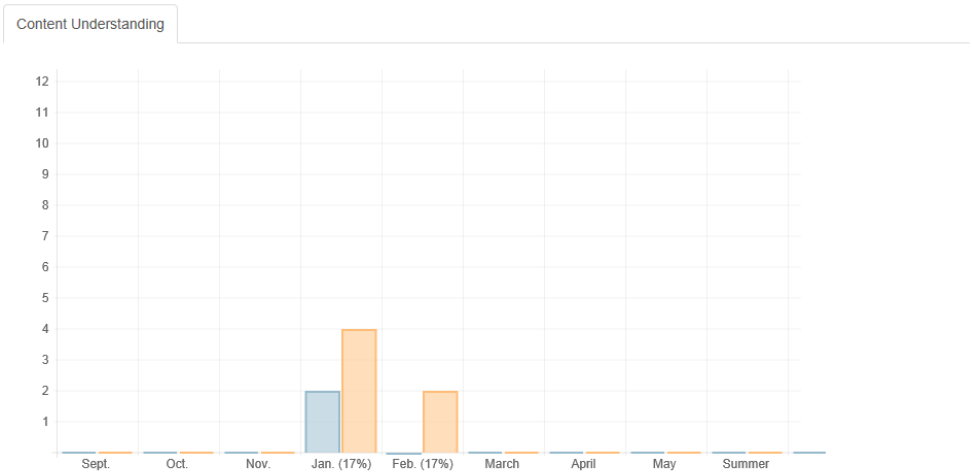
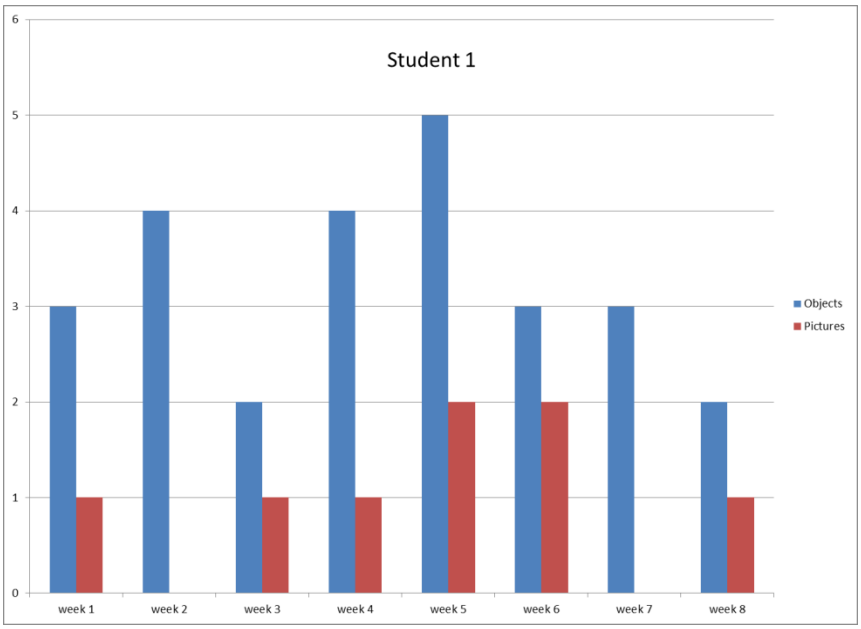
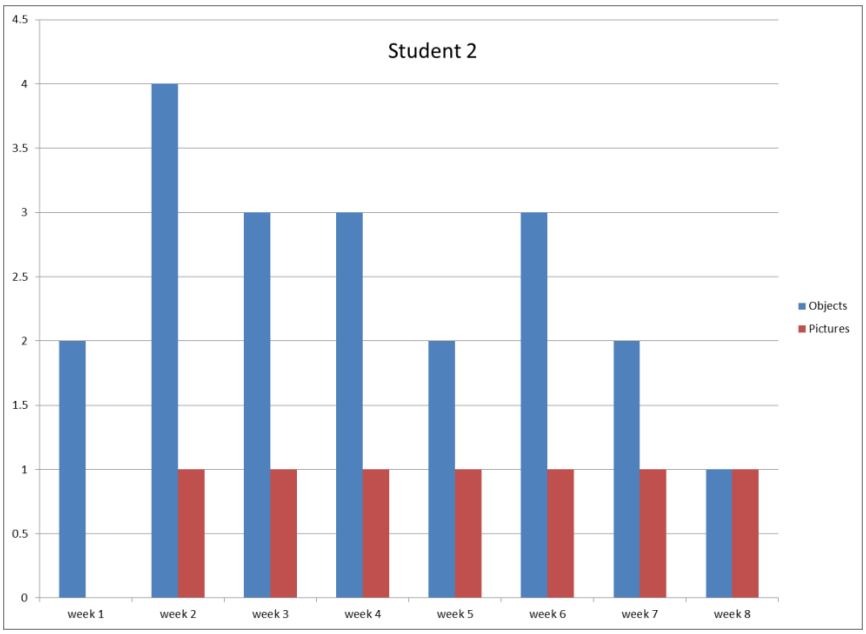


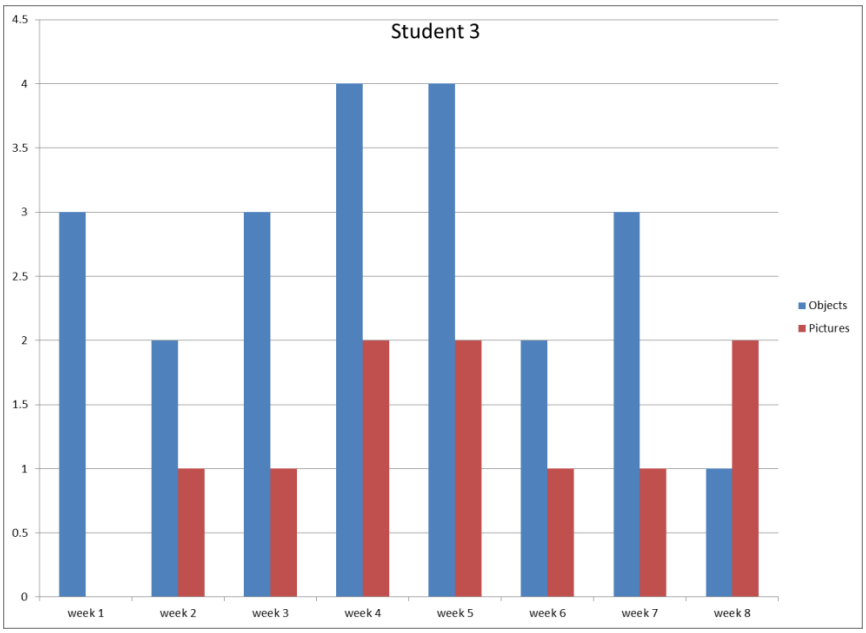
Figure 1. Comparison between questions answered correctly in a pre and posttest for students 1, 2, 3, and 4 using Unique Learning System Assessment.

Correct number of questions answered. There is a consistent increase in the number of questions answered correctly when using manipulatives to help students in reading comprehension. In general, all students answered more questions correctly when objects were used to provide support to the stories than when picture support was used.

Figure 2 shows the correct number of questions answered weekly by the four participants in the study when using pictures and when using objects. Graphs 1, 2, 3, and 4 of Fig. 2 show how many questions were answered correctly by students 1, 2, 3, and 4 every week when the researcher used picture support or object support with the stories read to the students.


Student 1
6
5
4
3
2
1
0
week 1
week 2
week 3
week 4
week 5
week 6
week 7
week 8
Objects
Pictures


Student 2
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
week 1
week 2
week 3
week 4
week 5
week 6
week 7
week 8
Objects
Pictures



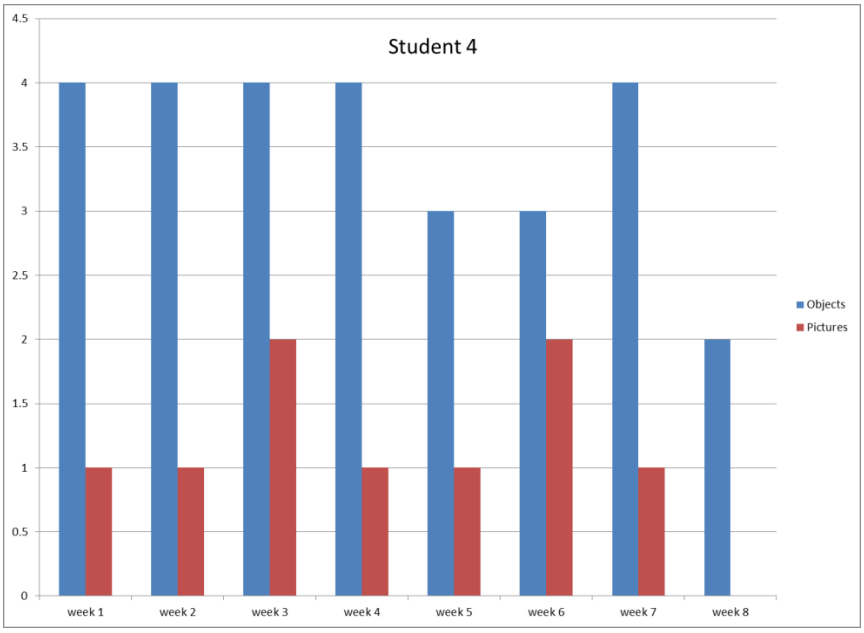


Figure 2. Number of correct answers to comprehension questions using picture support and real objects for each of students 1, 2, 3, and 4.

Checklists showing level of engagement. A checklist with indicators of student engagement with the activity was developed by the teacher. The indicators of engagement considered were: 1) Establishes eye contact with the teacher 2) Engages with the activity 3) Focuses on objects/pictures 4) Focuses on stories 5) Pays attention to questions 6) Tries to respond questions. These indicators were checked twice a week, once when the stories were read using picture support and the second time, when objects were used. The results indicated that all students showed better levels of engagement with the stories when manipulatives were used to support the concepts from the stories. To show the results, the researcher calculated total percentage of engagement with the activity based on the number of indicators marked positively.

The total number of indicators marked positively was added and divided by the number of total available indicators, for example, a student who received five yes positive indicators would obtain 86 % engagement with the activity (5/6 x 100)= 86 %).

Tables 1 through 4 display the percentages of engagement with the activity for students 1, 2, 3, and 4. For each student, the percentage of engagement was calculated when using picture support and when using object support and the results are displayed in the four Tables below.

Table 1
Percentage of engagement with the activity indicators when using picture support and manipulatives at reading times for student 1

Student1	Pictures	Objects
Week 1	-	83 %
Week 2	16 %	66 %
Week 3	16 %	50 %
Week 4	50 %	50 %
Week 5	33 %	83 %
Week 6	33 %	50 %
Week 7	33 %	83 %
Week 8	50 %	33 %

Table 2

Percentage of engagement with the activity indicators when using picture support and manipulatives at reading times for student 2

Student 2	Pictures	Objects
Week 1	-	50 %
Week 2	16 %	66 %
Week 3	16 %	66 %
Week 4	50 %	50 %
Week 5	33 %	16 %
Week 6	16 %	50 %
Week 7	16 %	50 %
Week 8	33 %	16 %

Table 3
Percentage of engagement with the activity indicators when using picture support and manipulatives at reading times for student 3

Student 3	Pictures	Objects
Week 1	-	66 %
Week 2	33 %	83 %
Week 3	50 %	50 %
Week 4	50 %	50 %
Week 5	50 %	66 %
Week 6	33 %	66 %

Week 7	50 %	66 %
Week 8	16 %	83 %

Table 4
Percentage of engagement with the activity indicators when using picture support and manipulatives at reading times for student 4

Student 4	Pictures	Objects
Week 1	-	100 %
Week 2	50 %	100 %
Week 3	83 %	83 %
Week 4	66 %	83 %
Week 5	66 %	50 %
Week 6	50 %	66 %
Week 7	66 %	83 %
Week 8	66 %	83 %

Discussion

Limitations

The results of this study are limited to the particular group of students that participated in it. Generalizations are not possible because the setting where the study took place is unique and differs from a regular school setting since it is a medical facility for medically fragile students and not a regular class.

Some of the positive results obtained may have been influenced by a practice effect since students heard the same text twice, one time using picture support and the second time using object support. To reduce a practice effect the readings were done at the beginning and at the end of the week and students were not told the correct answers until the second reading. Even though these measures were taken, it is not possible to completely rule out that some students may have remembered the materials and this may have an influence on the higher percentage of correct answers when using object support.

Implications

This group of students benefited from using real objects to increase reading comprehension. The strategy helped them to increase their engagement with the reading activities as well as to increase the number of questions they answered correctly. This strategy is being used with a larger number of students that also have significant cognitive disabilities and attend the same medical facility.

There are two implications for the field of special education that can be drawn from this study. The first implication is the fact that students with the most significant disabilities can obtain a better understanding of shared stories by providing them with concrete objects that represent the stories during reading. This provides a concrete representation of concepts that may be abstract or difficult to understand for them. Another implication is related to incorporating objects not only during story reading, but also when asking questions about the text as a way to respond to the questions. Choices between a correct and incorrect object should be provided. In this study, students were able to answer more questions correctly when objects were presented to them.

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The Redundancy Effect on Retention and Transfer for Individuals with High Symptoms of ADHD

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Abstract

The multimedia elements of text and audio need to be carefully integrated together to maximize the impact of those elements for learning in a multimedia environment. Redundancy information presented through audio and visual channels can inhibit learning for individuals diagnosed with ADHD, who may experience challenges in the processing of information through visuospatial and phonological loop channels in the memory system. This study explores how redundancy affects the individuals with self-reported higher levels of ADHD symptoms ability to process information presented using multimedia presentations. Individuals with higher-reported ADHD symptoms had lower performance levels when using the multimedia presentation with redundancy.

The Redundancy Effect on Retention and Transfer for Individuals with High Symptoms of ADHD

Prevalence and Diagnoses

Prevalence rates of individuals, who have been diagnosed with attention deficit/ hyperactivity disorder (ADHD), have not varied significantly over the past 3 decades (Polanczyk, Willcutt, Salum, Kieling, & Rohde, 2014) with parents reporting that approximately 11% of their school-age children had a diagnosis of ADHD by a health care provider (Visser et al., 2014). ADHD was once considered a childhood disorder because of the difficulty in determining the prevalence in the adult population. However, one third of the participants with a childhood diagnosis of ADHD retained symptoms into adulthood (Barbaresi et al., 2013). Diagnostic tools for ADHD evaluate the disorder along a continuum based on severity of the symptoms (Lubke, Hudziak, Derks, van Bijsterveldt, & Boomsma, 2009). Understanding the disorder can be beneficial for many who may experience challenges in attention and hyperactivity but may not present with severe symptoms for a diagnosis.

As with other disorders, ADHD symptoms may be experienced by anyone. Although the symptoms may not be severe enough to create a situation where the individual is unable to function, many experience difficulty in listening to a speech, presentation, or lecture or sitting for extended length of time. The range of symptoms creates a continuum of abilities from highly

attentive to a disabling inability to attend. The continuum of possible symptoms within a classroom or online educational setting, making the application of the principles of universal design is applicable. The principles advocate the creation of instruction that supports individuals with an ADHD disability also assist others with lesser symptoms along the continuum providing effective instructional for all learners (CAST, 2012).

Individuals with ADHD can experience a range of symptoms from three different subtypes as described by the *Diagnostic and Statistical Manual of Mental Disorders 5th Ed.* The subtypes provided are primarily inattention, primarily hyperactivity-impulsivity, and a combination of both. The symptoms for the inattention type include:

> (a) inability to pay attention to details; (b) difficulty sustaining attention to tasks; (c) inability to listen; (d) failure to follow through on instructions; (e) failure to finish schoolwork, chores, or workplace duties; (f) difficulty in organizing tasks; (g) avoidance of tasks requiring sustained mental effort; (h) easily distracted by extraneous stimuli; and (i) forgetfulness in daily activities.
>
> Individuals with hyperactivity-impulsivity type can exhibit (a) fidgeting with hands and feet, (b) leaving a seat when sitting is expected, (c) running about or climbing excessively, (d) blurting out responses before the question is completed, (e) difficulty waiting one's turn, and (f) interrupting or intruding on others (American Psychiatric Association, 2013, pp. 59).

Neurobiological Challenges

Although not easily identifiable, individuals with ADHD appear to have neurobiological deficits within working memory. Specifically brain networks associated with executive control have been implicated in those with ADHD (Curatolo, D'Agati, & Moavero, 2010; Sergeant, Geurts, Huijbregts, Scheres, Oosterlaan, 2003). Working memory consists of four different functions (Baddeley, 2007). First, the central executive function is an attentional control system responsible for the oversight and coordination of three subsidiary systems. Second, the phonological loop is responsible for temporary storage and rehearsal of auditory information. Third, the visuospatial short-term memory is used when the learner stores and rehearses visual information. The last system is the episodic buffer, which provides the context for the information to enhance memory. Although the neurological basis for these systems was found in the 1990s (D'Esposito et al., 1995; D'Esposito et al., 1998; Jonides, et al., 1993; Paulesu, Frith, & Frackowiak, 1993), it is unclear how the systems interact and within which system deficits occur, but deficits in the phonological loop and the visuospatial systems impact the ability to process multimedia information.

The modality effect occurs when the information is presented through both auditory and visual material in multimedia presentations. In most cases, the modality effect allows learners to process stimuli simultaneously via separate subsystems to perform better than those who learn through a single mode of instruction (Kalyuga & Sweller, 2014; Mayer & Anderson 1991; Mayer & Anderson, 1992; Moreno & Mayer, 1999; Penney, 1989). However, combinations of multimedia elements within instruction should be carefully designed to ensure the modality effect occurs during learning (Mousavi, Low, & Sweller, 1995). Depending on the mode of

instruction, different combinations of multimedia elements may create distractions. As distractions are introduced into a multimedia presentation, extraneous cognitive load increases, leading to decreased learner performance (Moreno & Mayer, 2002). These distractions have the potential to create an overload on a learner's working memory limiting their ability to learn (Sweller, 1988).

The redundancy effect was first described in the 1990s by Sweller and his associates (Sweller & Chandler, 1991). This learning effect occurs when duplicate or redundant information is provided as a part of instructional materials. Redundant information is a distraction which may induce memory overload, by increasing extraneous cognitive load and subsequently decreasing learner performance (Kalyuga & Sweller, 2014; Mayer, 2009). If the instructional components may be understood in isolation, then providing the same information through multiple working memory systems creates redundancy within the instruction (Kalyuga, & Sweller, 2014). Under these instructional conditions learners must process extraneous information simultaneously while trying to acquire the underlying schema or the instruction being provided. Because the redundant instructional components may be understood in isolation, the processing of the same information through the phonological loop and the visuospatial short-term memory creates an unnecessary load (Kalyuga, & Sweller, 2014; Sweller & Chandler, 1994). For a typical learner, redundancy negatively impacts learning when the visual material is not presented concurrently with the audio (Chandler, Kalyuga, & Sweller, 2004; Kalyuga, & Sweller, 2014).

Individuals with ADHD appear to have deficits that impact the ability to process information through the different systems in the working memory (Curatolo, D'Agati, & Moavero, 2010; Sergeant, Geurts, Huijbregts, Scheres, Oosterlaan, 2003). Learners with ADHD are particularly susceptible to distraction by extraneous stimuli (Brown, 2009). For example, they appear to be unable to sustain attention over time. When a delay in response or a change in the response patterns is introduced, performance accuracy decreases (Cutting, Koth, Mahone, & Denckla, 2003). Individuals with ADHD are unable to narrow their focus to a specific spatial region or to locate targeted stimuli within high-density displays (Shalev & Tsal, 2003). Increasing task complexity causes individuals with ADHD to have slower response times and lower accuracy rates. Examples of increased complexity may be: (a) the addition of distracters, (b) retention of multiple pieces of information concurrently, or (c) the performance of multiple operations simultaneously (Barnett et al., 2001; Borkowska, Zawadzka, 2008; Weiler, Bernstein, Bellinger, & Waber, 2002).

Studies have indicated that deficits in both the phonological loop and the visuospatial memory appeared to be directly linked to the deficits in working memory rather than in behavior inhibition or the storage systems of memory for individuals with ADHD (Alderson, Rapport, Hudec, Sarver, & Kofler, 2010). In the Alderson et al. (2010) study, a regression analysis was used to determine specific factors that contributed to the working memory deficits. The researchers determined that the phonological loop and central executive functions were contributing underlying factors (Alderson, Hudec, Patros, & Kasper, 2013). When cognitive load was introduced to a task, either through increasing the complexity of the task or sustaining attention over a period of time, the likelihood of identifying deficits in the phonology loop and the visuospatial memory increased (Borkowska & Zawadzka, 2008). Furthermore, the deficits in visuospatial channel appear to be more pronounced than in the phonological loop (Alderson et

al., 2010). The deficits in the phonological loop appeared to improve as individuals with ADHD became adults (Sowerby, Seal, & Tripp, 2011). However, the visuospatial memory deficits remained stable into adulthood and appeared across all age levels (Sowerby et al., 2011; van Ewijk et al., 2014).

Another concern is the ability of the learners to transfer the knowledge presented in multimedia instructional material (Kalyuga, & Sweller, 2014; Mayer & Johnson, 2008). Transfer is most often described as the ability to use information learned in one situation, or problem, and apply that learning to another novel situation (Broudy, 1977). The cognitive perspective is that transfer occurs when the learner is able to abstract the underlying structure of the problem; then apply that schema to a similar problem (Gick & Holyoak, 1983). Broudy (1977) notes that people have difficulty applying their knowledge and describes this as "transfer failure." Bransford and Schwartz (1999) proposed for transfer to occur to a new problem, assumes original learning has occurred. For individuals with ADHD, working memory training did not improve transference which indicated that the neural plasticity of the brain does not improve the efficiency of the neuronal responses with working memory training (Gathercole, 2014) With the training not improving the transference performance of individuals with ADHD, how would multimedia presentations using dual modality presentation impact transference of knowledge from one situation or problem to another situation?

Rationale

Individuals diagnosed with ADHD may process information with reduced accuracy as compared to individuals without ADHD. (Barnett et al., 2001; Ortega, López, Carroscco, Anllo-Vento, & Aboitiz, 2013; Weiler et al, 2002). Given this information, it is hypothesized that redundant information in a multimedia lesson will increase the cognitive load encountered by learners with ADHD, resulting in slower and less accurate performance on retention and transfer tasks.

Method

This study compares retention, transference, and mental effort across four subgroups. The primary instructional variable was the presence or absence of redundant subtitles (redundancy) within the instruction. Groups were further subdivided based upon their performance on the ADHD questionnaire into groups with or without ADHD. This process resulted in four groups: (a) non-ADHD without redundancy, (b) ADHD without redundancy, (c) non-ADHD with redundancy, and (d) ADHD with redundancy.

The participants for this study were College of Education students (across all levels from undergraduate to doctoral) from two universities in south Florida. Individuals with ADHD were solicited across all levels to ensure maximum participation; therefore, the results cannot be applied to a specific age group or educational level. After two attempts to recruit participants, 34 education students were recruited for the study, of which 6 students self-reported symptoms with high frequencies in 6 of the 9 categories necessary to be placed in the group with high levels of ADHD symptoms on the ADHD Current Symptoms Scale Self Report Form for this study (Barkley & Murphy, 1998). One inference should be made based upon the participant pool. The participants, who reported high-levels of ADHD symptoms, would have developed coping skills

allowing them to overcome barriers the symptoms can pose in acquiring information as reflected in their ability to progress through a postsecondary education.

Procedure

An email invitation was sent out to the students asking for participation. Embedded within the email was a link to the multimedia instruction. As the students agreed to participate, they were randomly assigned to one of two presentations with or without subtitles. Twelve students were randomly assigned to the presentation without redundancy (audio and not subtitles) of which two self-reported symptoms frequently enough to be placed into the high symptoms of ADHD category. Twenty-two students were randomly assigned to the presentation with redundancy (audio and subtitles) of which four were placed in the high reported symptoms of ADHD group. This process resulted in four groups: (a) without redundancy with lower symptoms of ADHD, (b) without redundancy with high symptoms of ADHD, (c) with redundancy with lower symptoms of ADHD, and (d) with redundancy with high symptoms of ADHD. The uneven group sizes were the result of the random assignment by the computer program into the different treatments by the program. After being randomly assigned to one of the two presentations, the participants viewed the instructional material.

After viewing the narrated presentation, participants were directed to a web-based questionnaire which included demographic, multiple-choice, open-ended transfer, and Likert scale questions. Responses to these questions were collected via a web-based form using the survey system Opinio 6.5.1 (Opinio, 2014). Once learners finished the questionnaire, they were thanked for their participation.

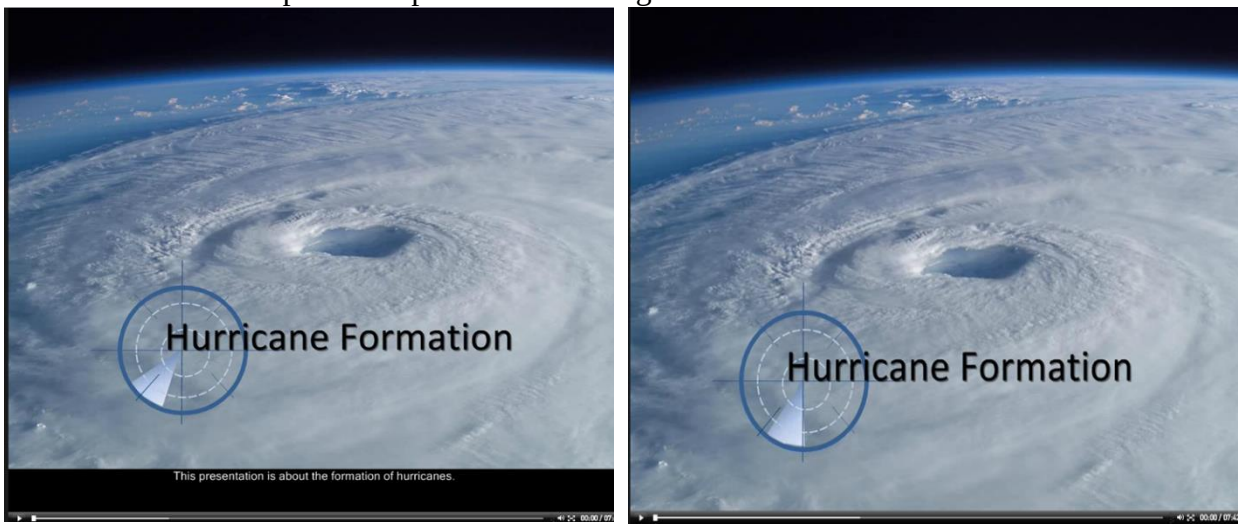
This study replicated many multimedia studies (Mayer, 2001; Mayer, 2009; Mayer & Johnson, 2008) to consider retention and transfer as dependent variables. Nine multiple-choice questions based upon the narrated presentation were used to measure retention (scored 0 to 9). Three open-ended questions were presented to measure transfer, and learner responses were scored as correct or incorrect (scored 0 or 1). In addition to the instructional variables (retention and transfer), the questionnaire considered a Likert scale mental effort question (Paas & van Merriënboer, 1993) and a subscale of 18 ADHD questions for a total of 36 questions. The questionnaire included a single mental effort question as in prior cognitive load studies (Chandler & Sweller, 1996; Kalyuga, Chandler, Tuovinen, & Sweller, 2001; Paas & van Merriënboer, 1993; Paas, Tuovinen, Tabbers, & van Gerven, 2003).

The ADHD subscale questions were identical to the ADHD Current Symptoms Scale Self Report Form (Barkley & Murphy, 1998). These questions are often used as a diagnostic tool to document ADHD symptoms. This tool was used as a means of further categorizing learners as either having symptoms consistent with ADHD or as non-ADHD learners. We considered two subcategories of ADHD ("impulsivity" or "inattentive/hyperactivity"). If learners scored a 2 or 3 on 6 of the 9 questions (within a category) that indicated that the individual experienced symptoms of impulsivity or inattentive/hyperactivity severe enough to impact their daily lives.

Multimedia Instruction

The multimedia presentation was developed with two purposes. First, the topic was expected to be of interest to the participants because they lived in south Florida, which occasionally

experienced hurricanes. Many of the participants may have a cursory knowledge of hurricanes; however, the presentation described the storm development, a topic in which students may not have had prior knowledge. The presentation also used a combination of still pictures and animation to demonstrate concepts and principle-based information within what Mayer (1997) described as a scientific explanation. The content was then added to the presentation with a voiceover. The presentation with narration became the control presentation. The second presentation for the experimental group was identical but included subtitles that matched the narration. See an example of the presentation in Figure 1.



Group with Redundancy Group without Redundancy

*Figure 1. S*creen shots of instructional conditions

Results

The overall mean score was calculated for both categories of ADHD, inattention and hyperactive/impulsive (see Table 1). ADHD scores are presented for participants who received instruction with and without redundancy. In the low symptoms of ADHD category, the group with redundant subtitles and the group without subtitles had almost identical scores with .26 and .27 in the hyperactivity subcategory; however, in the inattention category, they had scores of .22 and .38 respectively. Mean scores for the participants in the high symptoms of ADHD category were also very similar with .62 and .61 in the inattention subcategory and .64 for both groups for the hyperactivity subcategory.

Table 1
Self-Reported Average Scores for ADHD Categories

	Inattention		Hyperactivity	
	LS ADHD	HS ADHD	LS ADHD	HS ADHD
With redundant subtitles	0.22	0.62	0.26	0.64
Without redundant subtitles	0.38	0.61	0.27	0.64

*LS = low levels of report symptoms and HS = high levels of report symptoms

Retention

The retention questions were multiple-choice questions evaluating the understanding of the content within the multimedia presentation. On the retention questions, the students in the low symptoms of ADHD groups had similar scores in both redundancy and non-redundancy presentations (0.74 and 0.73). The participants with high symptoms of ADHD using the redundancy material scored lower than the other groups on retention at 0.61. Individuals in the lower symptoms of ADHD groups scored higher in answering the retention questions than those in the high symptoms of ADHD groups. The performance gap on retention of the participants in the high symptoms of ADHD category between the redundancy (0.61) and no redundancy (0.67) presentations were more pronounced. Further, one hundredth of a point difference was noted between the lower symptoms of ADHD groups on the retention questions (see Table 2).

Table 2
Scores across Groups

n	GROUPS	Effort	Retention	Transfer
	Without redundancy			
10	LS ADHD	3.20	0.74	.50
2	HS ADHD	4.50	0.67	.33
	With redundancy			
18	LS ADHD	3.61	0.73	.79
4	HS ADHD	2.00	0.61	.25

Transference

More pronounced differences in the groups emerged in the transference questions. The transference questions introduced complexity to the task by requiring participants to apply their factual knowledge. The transference questions required the participants to explain how the factors impacted the strength of a hurricane and the damage as a hurricane moved inland. Participants with lower symptoms of ADHD performed better with redundancy (0.79) as compared with those (with low symptoms) using the presentation without redundancy (0.50). In both groups, one individual chose not to provide a response to the transference questions. Both groups which had self-identified high rates of ADHD symptoms struggled with the transference questions. The group with high symptoms of ADHD using the presentation without redundancy scored 0.33 as compared with the other groups with high symptoms of ADHD using the redundant presentation at 0.25.

Two of the six individuals with high frequency of ADHD symptoms did not provide responses to the transference questions, one from each group. As expected, the accuracy of the answers to the transference questions were lower for both high frequency ADHD groups as compared with those in the lower symptoms of ADHD group as the complexity of the task increased. Complexity was increased in two ways. One was that the questions were not multiple choice and required the individuals to compose an answer. Second, the answers required the application of the knowledge presented in the presentation rather than recital of facts. The group with higher

rates of ADHD symptoms using the redundant presentation scored lower than all other groups for transfer.

Mental Effort

Perceived mental effort was measured and analyzed across the different groups, by the participants (see Table 2). For this question, the participants were asked to evaluate the level of effort they invested on a scale of 1 to 9 with 1 referred to very, very low mental effort to very, very high mental effort at 9. Participants with high-symptoms of ADHD using the presentation with redundant information scored lower on both retention and transference and also exerted the least amount of effort (2.00). The participants with higher levels of ADHD symptoms using the multimedia presentation, without redundancy reported the highest level of mental effort or cognitive load (4.50) of all the groups. This group scored slightly better on the retention and the transference questions than the group with high-symptoms of ADHD using the redundant presentation but did not result in scores higher than the groups that reported lower levels of ADHD symptoms. The group with high ADHD symptoms reported higher levels of mental effort (4.50) while using the without redundant presentation and also scored the highest on the transference questions (See figure I).

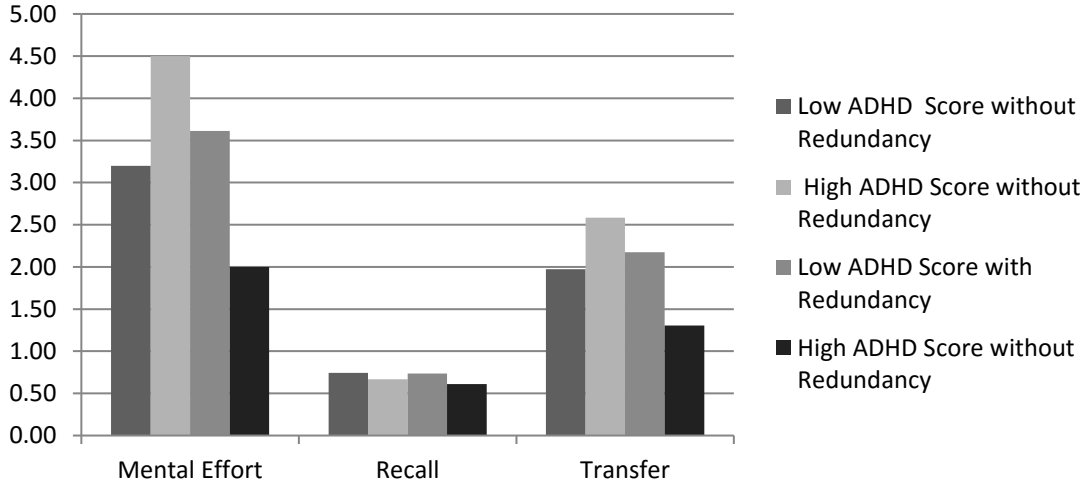


Figure 1. Visual representation of the mean scores of mental effort, recall and transfer for comparison across the different groups and measures.

One of the participants, using the redundancy presentation self-reported high rates of hyperactive symptoms and low rates of the inattention symptoms, was nonresponsive to the transference questions. Rather than respond with an answer to the questions, this individual chose to express her challenges in using the presentation for learning. She indicated an inability to pay attention to more than one slide at a time if there were no interactive elements on the slide. In a real instructional situation, she would have taken notes on the slide to keep herself engaged. Because she clicked through the slides, she used her prior knowledge to answer the multiple-choice questions. We assumed rather than providing inaccurate answers on the transference questions, the participant decided to describe her experience. This individual's description was repeatedly pasted into the textboxes for all transference questions on her submission.

Discussion

Redundant presentations, the merging of visual and auditory information, are frequently created by instructors to convey large amounts of information (Fenesi, Heisz, Savage, Shore, & Kim, 2014). Since typical learners struggle with these types of presentations, it is possible that the effect would be accentuated in individuals with higher ratings of ADHD symptoms. In this study, individuals with higher ratings of ADHD symptoms scored slightly lower than individuals with lower ratings of ADHD symptoms on the retention questions. The individuals with high-symptoms of ADHD scored the lowest of all of the groups when using the redundant presentation.

Individuals with high-symptoms of ADHD displayed a delay in response and accuracy to changes in patterns and when the complexity increased with the addition of distracters (Barnett et al., 2001; Borkowska, & Zawadzka, 2008; Cutting et al., 2003; Weiler et al., 2002). The transference questions enhanced the complexity of the task by requiring the students to apply the information in the presentation. While typical students were able to score better on the transference questions; the participants with higher reported symptoms of ADHD scored much lower with both types of presentations. Furthermore, students with higher reported symptoms of ADHD using the redundant presentation scored the lowest across all groups in transfer with an average score of .25.

Interesting patterns emerged in the perceived mental effort question. The participants with higher reported symptoms of ADHD using the non-redundant presentation scored better on the inference questions indicating some effort was used to answer the questions. A non-significant trend was noted when the non-redundant presentation appears to promote better mental effort scores for individuals with higher reported ADHD symptoms on both the retention and transfer measures. The group of individuals with higher reported symptoms of ADHD using the redundant presentation scored lower on effort, retention, and transfer (figure I). It may be possible that the participants perceived that the redundant presentation as easier because of their familiarity with that format. This study replicates the "false perceived understanding" (Fenesi et al., 2014, p.259) of content in this format with typical learners.

Implications for Future Study

This study raises questions about the redundancy effect upon the learning outcomes of students with high symptoms of ADHD. Furthermore, this study indicated that the understanding how the integration of the two subsystems (visuospatial and phonology loop) can provide important links to deficits within the memory systems for individuals with ADHD. Clues to that process can be found in the reported higher level of reported mental effort by participants with higher self-identified symptoms of ADHD, than those with lower levels of symptoms in the use of the without-redundant presentation. Future research should consider other multimedia, instructional conditions on the mental effort and accuracy in the transfer of knowledge to other situations. Would comprehension improve as it does for individuals without ADHD, if the text used in the presentations was abridged rather than full word-for-word presentation when combined with the audio? Finally, are animations combined with the audio distracting or beneficial for individuals with ADHD?

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Guidelines for the Administration of Educational Programs for Students who are Deaf/Hard of Hearing, Visually Impaired, or Deafblind

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Abstract

This paper presents the essential programming components resulting from a systematic review of research studies, legislation, and policy documents on the topic of administration issues in educational programming for students who are deaf/hard of hearing, visually impaired, or deafblind. It is recommended that educational teams should include a member whose educational preparation and credential matches the disability of the student who is deaf/hard of hearing, visually impaired, or deafblind to support assessment and instructional programming. Additional recommendations including limiting the caseloads of itinerant teachers of students with visual impairment to 8-20 and limiting the size of groupings that include children who are deafblind to support access and engagement. With the exception of the caseload recommendation, which is at the limited evidence level, all other essential programming components were determined to have an emerging level of evidence. The heterogeneity, low prevalence, and geographic disbursement of these disability groups create challenges for conducting educational research.

Guidelines for the Administration of Educational Programs for Students who are Deaf/Hard of Hearing, Visually Impaired, or Deafblind

A hearing loss, visual impairment or deafblindness (the combination of hearing loss and visual impairment of any type or degree) potentially interferes with typical ways of interacting and learning. Students with these sensory disabilities comprise less than two percent of all children and youth with disabilities and only two-tenths of one percent of the entire school-age population (U.S. Department of Education, National Center on Education Statistics (NCES), 2012). Such a low prevalence results in some districts having very little experience with students who have sensory impairments. This lack of experience may lead to misunderstandings, lower expectations, and a lack of knowledge about evidence-based practices.

The authors of this paper reviewed the research literature in their respective fields of deaf/hard of hearing, visual impairment (including blindness), and deafblindness for high quality research that met the standards of evidence established by the *Collaboration for Effective Educator Development, Accountability, and Reform* (CEEDAR) Center, University of Florida. This Center was funded to provide technical assistance to state education agencies (SEAs), institutions of higher education (IHEs), and local education agencies (LEAs) to increase alignment in professional learning systems (i.e., certification/license, preparation, program evaluations) to enhance learning opportunities for teachers and leaders. This work was developed as part of the Center's knowledge development activities (see www.ceedar.org for more information). Our review process led to the identification of essential programming components across twelve topic areas. When research did not exist on a specific aspect of a topic, non-peer reviewed literature, such as legislation, policy documents, and textbooks were reviewed to complete our analysis.

In this paper we describe our method for determining the levels of evidence and then present, by disability area (deaf/hard of hearing, visual impairment, and deafblind), a general orientation to the disability, followed by the essential programming components and corresponding identified levels of evidence. Table 1 is a reference guide that includes these components and our recommendations for knowledge held by administrators, generalist special educators, and special educators in the areas of deaf/hard of hearing, visual impairment, and deafblindness, specific to program administration. This document can be used as an advocacy tool to support effective administration of educational programs for students with these types of sensory disabilities.

Table 1
Essential Components of Evidence-Based Practices in Sensory Impairments

Essential Components: Deaf/Hard of Hearing	Special Education	DHH Specialist	SEA & LEA	Level of Evidence
Administration				
Students who are deaf or hard of hearing receive services from professionals knowledgeable about the potential impact of a hearing loss on their development and on the family.	X	X	X	Emerging
Students who are deaf or hard of hearing receive services from professionals knowledgeable about their cultural and linguistic needs.	X	X	X	Emerging
Students who are deaf or hard of hearing with additional disabilities receive services from professionals knowledgeable about their educational needs.	X	X	X	Emerging

Essential Components: Deaf/Hard of Hearing	Special Education	DHH Specialist	SEA & LEA	Level of Evidence
Students who are deaf or hard of hearing receive services from professionals who respect the preferences of parents/caregivers regarding placement.	X	X	X	Emerging
Students who are deaf or hard of hearing receive services from licensed/certified professionals including individuals who are deaf or hard of hearing and individuals who are from diverse ethnic, cultural, and linguistic backgrounds.	X	X	X	Emerging
The communication, academic, and social performance of students who are deaf or hard of hearing is systematically monitored.			X	Emerging

Essential Components: Visual Impairment	Special Education	VI Specialist	SEA & LEA	Level of Evidence
Administration				
Personnel certified or licensed in visual impairment are supervised by individuals with knowledge of children and youth with visual impairment.		X	X	Emerging
Specialists in visual impairment serve a caseload of 8-20 students, depending on student needs for instruction in braille and technology and travel time between students.		X	X	Limited
Educational personnel serving students with visual impairment are certified/licensed in visual impairment and/or orientation and mobility.			X	Limited
Students who are visually impaired receive instructional materials at the same time as their peers without disabilities.	X	X	X	Emerging
Paraeducators are assigned to students with visual impairment to supplement and not supplant direct instruction from qualified personnel.	X	X	X	Emerging

Essential Components: Deafblind	Special Education	Deafblind Specialist	SEA & LEA	Level of Evidence

Essential Components: Deafblind	Special Education	Deafblind Specialist	SEA & LEA	Level of Evidence
Administration				
Each educational team includes one member who is knowledgeable about effective assessment and instructional approaches for students who are deafblind.	X	X	X	Emerging
Small instructional groups are provided to ensure access, engagement, and sufficient instructional feedback.	X	X	X	Emerging

Determining the Level of Evidence

The following levels of evidence were identified in this full review in accordance with the requirements of the CEEDAR Project (www.ceedar.org): strong, moderate, limited, and emerging. Among the intervention studies, only those with positive effects were considered. A practice was considered to have *strong evidence* if it met any of these four criteria: (a) two or more experimental or quasi-experimental designs with random assignment or a control group conducted by two independent research teams, (b) five or more single-subject design studies (with a total of 20 or more participants) conducted by at least three independent research teams, or (c) five correlational studies with correlation <.30 conducted by three independent research teams. *Moderate evidence* was identified under any of these conditions: (a) three reasonably strong group experimental or quasi-experimental design studies by two independent research teams, (b) three single-subject design studies (with a total of 20 or more participants) conducted by two independent research teams, (c) three correlational studies conducted by two research teams, or (d) two meta-analyses by different teams with details on strengths and weaknesses of practice. *Limited evidence* was determined under any of these evidentiary conditions: (a) one causal design study, (b) one single-subject design study, (c) one correlational design study, or (d) one meta-analysis or synthesis with thick description. A practice was coded as having *emerging evidence* of its effectiveness when there were no research studies, but the peer-reviewed literature provided support for the practice on the basis of professional experience, or it was recommended by professional organizations or state or federal agencies.

Deaf/Hard of Hearing

The term “hearing impairment” is often used as legislative terminology to refer to the primary disability category for students who receive Individuals with Disabilities Education Act (IDEA) services through an individualized education program (IEP) for a hearing loss. However, professionals in the field and individuals with a hearing loss prefer to use the terms deaf or hard of hearing.

The population of students who are deaf or hard of hearing is diverse across a wide variety of variables. The following variables affect educational outcomes and are directly related to the

hearing loss and services provided: (a) degree of hearing loss; (b) type of hearing loss; (c) when the hearing loss occurred; (d) when the hearing loss was identified; (e) whether or not early intervention services were provided; (f) if early intervention services were provided, the quality and quantity of the services; (g) use/benefit from hearing assistive technology (i.e., hearing aids, cochlear implants, frequency modulation (FM) systems or communication boards; (h) home language of the family (i.e., American Sign Language, spoken English, other spoken languages); (i) family attitude about hearing loss; (j) existence or not of an additional disability; (k) quality of home intervention and preschool services; (l) cultural identity (i.e., Deaf, hearing, or hard of hearing, and the interaction with other aspects such as race, ethnicity, linguistic, and religion); (m) primary mode of communication preferred (i.e., spoken English, American Sign Language, Contact signing/Pidgin Sign English, Signing Exact English, Cued Speech; and (n) type of educational services and placement.

Administration: Essential Programming Components

The recommendations shared here are intended to support educational decisions that are in the best interest of students who are deaf or hard of hearing (including those who have additional disabilities) and their families. Administrators need a basic understanding of the impact of hearing loss on language, academic, cognitive, and social-emotional development, as well as its impact on the family. A team member with knowledge of the specific cultural and linguistic needs of students who are deaf and hard of hearing is essential for making appropriate placement decisions and in developing effective programming. In considering placements for students who are deaf or heard of hearing, any one of the alternatives on the continuum of placements might constitute a Least Restrictive Environment. A system must be in place to monitor the academic progress of students who are deaf or hard of hearing and have delayed communication or language. Districts should actively recruit qualified individuals who are deaf or hard of hearing and individuals who are from diverse ethnic, cultural and linguistic backgrounds to serve in professional and support capacities within programs for students who are deaf or hard of hearing. Post graduation surveys and interviews are essential to determining the educational outcomes of students who are deaf and hard of hearing in higher education, employment, residential life, family life, citizenship, and personal well-being (Conference of Educational Administrators of Schools & Programs for the Deaf, 2013; National Association of State Directors of Special Education, 2006; Szymanski, Lutz, Shahan, & Gala, 2013; The National Agenda: Moving forward on achieving educational equality for deaf and hard of hearing students, 2005; U.S. Department of Education, 1992; U.S. Government Accountability Office, 2011).

Because teachers of students who are deaf or hard of hearing provide services via a variety of models (e.g., direct service to students, collaboration with general educators, co-teaching, consulting with families) in an assortment of settings (e.g., general education classrooms, specialized schools for students who are deaf or hard of hearing, resource rooms, self-contained classrooms, homes), and with children and youth ranging in ages from 0 – 21, no professional guidelines exist for the size of caseloads. However, it is recommended that professionals who have been certified or licensed by the state education department in the area of education of students who are deaf or hard of hearing be integral members of the educational team for each student who is deaf or hard of hearing.

Visual Impairment

Regulations implementing the Individuals with Disabilities Education Act (2004) define "visual impairment, including blindness" as "an impairment in vision that, even with correction, adversely affects a child's educational performance. The term "visual impairment" includes both partial sight and blindness" (34 C.F.R. §300.8(c)(13)). The considerable heterogeneity among students classified as "visually impaired" highlights the need for educators to look beyond "the label" and tailor instruction, accommodations, services, and supports to meet students' individual needs (Marder, 2006, p. 25). Students with low vision are more likely to access the curriculum through large print or optical devices. Their IEP goals generally focus on academics, and they have little difficulty with orientation and mobility. In contrast, students who are blind will access the curriculum through braille, braille notetakers, braillewriters, books on tape, or screen access software. Students who are blind require a curriculum that focuses not only on academics, but also on functional skills with intensive orientation and mobility instruction in indoor and outdoor environments (Marder, 2006).

Administration: Essential Programming Components

Issues around administration of educational programs serving students with visual impairment focus on credentialed personnel, supervision, workload, and access. The Individuals with Disabilities Education Act (2004) clearly requires that students with visual impairments be served by licensed or credentialed teachers with training and experience in visual impairment, who are involved in assessment and writing of individualized educational programs, as well as in direct teaching according to the individual student's needs (U.S. Department of Education, 2000). The two types of personnel most appropriate are (a) teachers of students with visual impairments (certified or licensed by the state education department) and (b) orientation and mobility (O&M) instructors (certified by the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP; some states also license O&M professionals through their own systems) (U.S. Department of Education, 2000). These licensing procedures guarantee that students with visual impairments will receive instruction from qualified personnel, and that other educational personnel will have access to such professionals for consultation and problem solving. Guidelines for providing services to students with visual impairments and for supervision of personnel have been developed by the National Association of State Directors of Special Education (Pugh & Erin, 1999).

Personnel serving students with visual impairments generally apply an itinerant model, traveling among several schools within a district or across multiple districts that comprise a region. Driving time thus becomes part of the workday and is one consideration in determining caseload size. Other considerations include student needs for direct instruction in reading and writing braille, use of technology, classroom instructional materials that require translation into accessible formats, and teacher conferencing time (Michigan Department of Education, 2013; Olmstead, 2005; Spungin & Ferrell, 2007; U.S. Department of Education, 2000). While research indicates that mean caseload size ranges from 14 to 20 students (Correa-Torres & Durando, 2011; Correa-Torres & Howell, 2004; Murphy, Hatton, & Erickson, 2008; Olmstead, 1995; Suvak, 1999), the *National Plan To Train Personnel* recommends a caseload of 8 students (Mason, Davidson, & McNerney, 2000); other sources recommend 8 to 12 students (Hazekamp

& Huebner, 1989; Koenig & Holbrook, 2000a), depending on the types of supports the students need.

There is conflicting evidence about the relationship between student achievement and amount of instruction. Ferrell (1993) determined that greater student competence in braille reading and writing, academic subjects, and orientation and mobility were associated with longer periods of instructional time; but Wall Emerson, Sitar, Erin, Wormsley, and Herlich (2009) reported that lower achieving students had more instructional time, smaller class sizes, and more available materials. This difference in conclusions may be attributable to increased attention to students with disabilities in addition to visual impairment since 1993, and/or to the fact that lower achieving students in the Wall Emerson et al. (2009) study were educated in specialized settings, while the Ferrell participants were predominantly in inclusive settings. In both studies, placement and achievement appear to be factors in the delivery of services. Other considerations for caseload size include delivery of the expanded core curriculum (Hatlen, 1996, 2003) and the need for instruction in areas not traditionally part of the school curriculum, but which are critical for children who do not learn by observation and visual imitation (Corn, Hatlen, Huebner, Ryan, & Siller, 1995; DuBose, 1976; Ferrell, 1997; Huebner, Merk-Adam, Stryker, & Wolffe, 2004). Such instruction has been acknowledged in a *Policy Guidance* issued by the U.S. Department of Education (2000) and a *Dear Colleague* letter issued in 2013 (Musgrove & Yudin, 2013). The *Policy Guidance* also acknowledges that instruction extends beyond the boundaries of the school setting and typical school day to include services in the home and community during before or after school hours. For example, orientation and mobility instruction must be offered in settings outside the school and under different environmental conditions.

Education of students with visual impairment has been greatly enhanced by the 2004 creation of the National Instructional Materials Accessibility Standard (NIMAS) and the National Instructional Materials Accessibility Center (NIMAC) at the American Printing House for the Blind, which now make the goal of providing instructional materials to students with visual impairments at the same time as to students without disabilities a real possibility (AER Division 16, 2013; Pugh & Erin, 1999). Authorized by the IDEA amendments of 2004, NIMAC is a technical standard used by publishers that can in turn be used to create multiple formats (braille, large print, audio) for books and instructional materials, greatly reducing the amount of time required to create adapted materials.

Paraeducators have in recent years increasingly been assigned to students with visual impairments enrolled in general education classrooms (Forster & Holbrook, 2005; Lewis & McKenzie, 2010), but not without some controversy. While a paraeducator can be a valuable asset to the educational team, the literature cautions against supplanting direct instruction from the teacher of students with visual impairment (TSVI) with the services of personnel without training in visual impairment, accommodations, or braille reading and writing (Conroy, 2007; Ferrell, 2007; Forster & Holbrook, 2005; Griffin-Shirley & Matlock, 2004; Koenig & Holbrook, 2000d; Lewis & McKenzie, 2010; McKenzie & Lewis, 2008). The concerns about an over-reliance on paraprofessionals are particularly focused on (a) lack of preparation, and (b) interference with the student's independence and interaction with the classroom teacher and peers (Conroy, 2007; Forster & Holbrook, 2005; Giangreco, Edelman, Luiselli, & MacFarland, 1997; Giangreco, Halvorsen, Doyle, & Broer, 2004; Giangreco, Yuan, McKenzie, Cameron, &

Fialka, 2005; Harris, 2011; Lewis & McKenzie, 2010; Marks, Schrader, & Levine, 1999; McKenzie & Lewis, 2008; Russotti & Shaw, 2001). Research supporting these assertions, however, is just emerging (*see* Harris, 2011, which found more interaction between students and their teachers and peers when paraeducators were at a distance).

Deafblind

Deafblindness is the smallest disability group and also the most heterogeneous of three groups discussed. Children and young adults differ by type and level of hearing and vision loss, age of onset of vision and hearing loss, physical and health issues, cognitive functioning, expressive and receptive communication forms, and educational histories. Like all learners, students who are deafblind also are diverse by race, ethnicity, culture, family (including language of the family), community characteristics, and socioeconomic status.

Vision and hearing are important senses for learning and they reinforce each other. Thus, one cannot understand the impact of deafblindness by adding up the effects of the vision loss and the effects of the hearing loss because the two distance senses support each other. Deafblindness may be congenital or it may be adventitious. Many individuals who are congenitally deafblind will struggle to become linguistic, while most individuals who are adventitiously deafblind will be linguistic. Individuals who are adventitiously deafblind will require extensive supports when learning new communication and literacy forms (such as sign language and braille). Deafblindness creates serious challenges to not only access, but to engagement in the educational setting. Little incidental learning will occur due to the loss of distance senses and touch will be an important sense for learning (Silberman, Bruce, & Nelson, 2004). There is evidence for the effectiveness of both child-guided and systematic instructional approaches with students who are congenitally deafblind.

Administration: Essential Programming Components

Each educational team should include a member who is knowledgeable about the impact of deafblindness and also about specialized communication methods and instructional approaches to assist with assessment, instructional planning, and program implementation (Parker, McGinnity & Bruce, 2012: Riggio, 2009; Riggio & McLetchie, 2008). Because deafblindness is the lowest incidence disability, most educational professionals receive little if any information about how to instruct students who are deafblind. It is insufficient to have only team members with expertise in visual impairment and hard of hearing/deafness because the impact of deafblindness is far greater than one can surmise from adding the effects of vision and hearing loss. This is because deafblindness involves both distance senses, thus greatly limiting access to others and to information, as well as limiting opportunities for observation and incidental learning. When a district has no individual with deafblind expertise, the individual state deafblind project may provide information about technical assistance and professional developmental opportunities. For information on the competencies required by teachers and paraprofessionals serving students who are deafblind, please see McLetchie and Riggio (1997) and Riggio and McLetchie (2001).

Instructional groups must be small enough to allow the student who is deafblind to fully access information, engage in the lesson, and receive feedback (Parker et al., 2012; Riggio, 2009;

Riggio & McLetchie, 2008). Even if the student has significant residual vision and/or hearing, small group instructional arrangements can help support the learner in locating the speaker or communication partner. Furthermore, it is necessary to keep background sounds and visual clutter to a minimum. Students who rely primarily on tactual input for learning may require one to one instructional arrangements for most of their lessons to support access, engagement, and to allow for frequent tactual feedback.

Conclusion

All but one of the recommended essential programming components in administration, across disability areas, was determined to be at the emerging level. This means that these recommendations are based on expert opinion, legislation, and policy documents rather than on empirical evidence. The recommendation for caseload size for itinerant teachers serving students with visual impairment is at the limited evidence level because while it has not been directly tested, there have been multiple studies documenting the number of students served by these teachers.

The disability areas of deaf/hard of hearing, visual impairment, and deafblindness share the same research challenges. These are low prevalence disabilities of great heterogeneity. This heterogeneity stems from different types and levels of sensory loss, varying age of onset, and, in some children, the presence of additional disabilities. The geographic disbursement of students with these low prevalence disabilities increases the cost and time required to conduct research. The low prevalence, heterogeneity, and geographic disbursement also may result in flawed and inadequate comparison groups or inappropriate comparisons to students without disabilities. Additionally, some of the essential components examined in this research are either unethical to study or difficult to study using research designs with group assignments due to the low incidence and heterogeneity of these three disability groups.

Students who are deaf/hard of hearing, visually impaired, or deafblind are in need of administrators and educators who are familiar with their diverse learning needs. Within the area of administration we have emerging or limited evidence of the importance of appropriately prepared and licensed teachers and other school professionals, the mindful use of pareducators (who do not supplant the need for teachers licensed in deaf/hard of hearing, visual impairment, or deafblind), the need for staffing patterns, caseloads, and groupings that support active engagement, and student progress and program monitoring that support positive educational outcomes. The establishment of effective program administration is a shared responsibility of administrators and educators. This document suggests effective practices in administration with the recognition that additional research is needed. Administrators and educators are referred to the CEEDAR Center website (www.ceedar.org) for information on the identified essential programming components (including recommended instructional approaches and strategies) and their corresponding levels of evidence in the additional areas of assessment, early identification and intervention, assistive technology, communication and literacy, life skills, math, science, social-emotional, transition, and placement.

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Teaching Reading Comprehension to Students with Autism Spectrum Disorders in Social Studies Classrooms: Middle School Teacher Perceptions

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Abstract

The purpose of this qualitative study was to describe the perceptions of general education middle school social studies teachers related to their teaching practices and the inclusion of students with Autism Spectrum Disorder (ASD) in their classrooms. More specifically, an in-depth exploration of general education social studies teachers' incorporation of reading comprehension skills or strategies, teaching practices, and planning was conducted. The findings indicate teachers are teaching reading comprehension in their social studies classrooms however are not distinctly planning for the students with ASD needs. Implications for practice and limitations are discussed.

Teaching Reading Comprehension to Students with Autism Spectrum Disorders in Social Studies Classrooms: Middle School Teacher Perceptions

The number of children diagnosed with autism spectrum disorder (ASD) and requiring special education services rose during a 5-year span from 192,643 to 370,011 and saw an increase of 64% among these of middle school age (35th Annual Report to Congress on Individuals Disabilities Education Act, 2013). Common characteristics of children with ASD include difficulty with the recall of nonfactual information, drawing conclusions, and making judgments (Griswold, Barnhill, Smith-Myles, Hagiwara, & Simpson, 2002). With regard to reading, word recognition is often cited as a strength and reading comprehension a weakness for students with ASD (Carnahan & Williamson, 2013). Over the past 15 years, educational policy recommendations such as those from the National Reading Panel (2000) and Common Core Standards implementation mandates (Common Core State Standards Initiative, 2011) require literacy instruction throughout the content areas. Teacher effectiveness in developing reading comprehension within the content areas is important for success in middle and high school,

especially for students with ASD who experience difficulties with reading comprehension coupled with a focus on "reading to learn" via expository text (Carnahan & Williamson, 2013).

Common Core Standards (Common Core State Standards Initiative, 2011) are rigorous and have been developed to ready students for college and career. These standards, which require a deeper level of thinking and conceptual understanding for students, may challenge both general and special educators when planning activities to develop and support student learning, especially related to the teaching of reading comprehension. In addition, revisions to the professional teaching standards in many states suggest content area teachers teach reading skills as part of the content instruction. For teachers, the ability to effectively teach content area material as well as develop reading comprehension skills to meet the Common Core Standards and impact student learning requires careful planning as well as a clear understanding of all students, particularly students with disabilities such as ASD. For students, the ability to use reading skills in all content areas is important especially as they progress into middle and high school.

Content area instruction often involves students reading a textbook, answering questions about text, and summarizing the information as a way of demonstrating understanding of the content or what was read. Typically in a content area such as social studies, students are required to develop thinking skills that establish community and citizenship understandings (National Council of Social Studies, n.d.). This is mostly evident as students move through middle and high school content area classrooms, which are often text-based classroom environments. It is not uncommon for middle school or high school content teachers, who are often prepared in a discipline-specific manner, to lack knowledge for how to prepare students to develop reading comprehension skills or strategies (Nichols, Young, & Rickelman, 2007). However, legislation (IDEIA, 2004; No Child Left Behind, 2000) requires accountability for all learners' achievement as well as content knowledge so the importance for middle or high school teachers to use evidence based practices for developing reading comprehension within the content areas becomes apparent.

The research literature documents the benefits of providing reading comprehension instruction within the content area classroom. For many learners, including those with ASD, explicitly teaching reading strategies in the context of content curriculum has shown to improve both reading comprehension and content understandings (Mastropieri et al., 2006; Simpkins, Mastropieri, & Scruggs, 2009; Whalon & Hanline, 2008). Using reading comprehension strategies such as self-questioning before reading, story-structure analysis during reading, and summary writing after reading, have been found to increase the comprehension of content area text for learners with and without disabilities (Fagella-Luby, Schumaker, & Deshler, 2007). Scruggs, Mastropieri, Berkeley, and Graetz (2010) concur that using reading comprehension strategies, such as graphic organizers and vocabulary related mnemonics, increase comprehension of the content being taught. Equally important is the way the strategy is taught, practiced, and reinforced with appropriate materials and feedback from the teacher or grade level peers. Teachers can improve reading when they include demonstration and modeling, guided practice, cooperative peer practice, independent practice, and review when embedding and teaching reading comprehension strategies in their content area instruction (Fagella-Luby et al., 2007).

The IDEIA (2004) amendments brought renewed attention to provide access for students with disabilities to the general education curriculum. Specifically, students with ASD need support in deeper-level comprehension as well as reader-response to text. Students with ASD who are higher achieving, such as those diagnosed with Asperger Syndrome, are often able to answer factual comprehension questions, but have more difficulty producing responses that require higher level thinking such as inferring or interacting with the text (Lanter & Watson, 2008). In other words, reading comprehension that involves only factual understanding may mask the inability to draw inferential or deeper-level meaning from text. In addition, cognitive processes such as Theory of Mind and executive function, which are typically weak in students with ASD, may also contribute to difficulty with reading comprehension (Carnahan, Williamson, & Christman, 2011). Firth and Firth (2006) describe Theory of Mind as the ability to understand others' perspectives and feelings and one's perspectives or feelings influence action. Executive function is the ability to plan and organize one's thoughts and then apply self-monitoring strategies (Attwood, 2008). The aforementioned weaknesses for students with ASD impact reading comprehension in content area classrooms where higher-level reading skills are expected and necessary when reading expository text. However, there are few studies involving students with ASD in middle or high school content areas, such as social studies classrooms where students with ASD are often included in the general education setting.

Reading strategies identified to develop some of the comprehension skills that require deeper understanding have been identified as use of mnemonics, graphic and spatial organizers, making connections with prior knowledge, building extensive background knowledge, monitoring text, and use of higher level questioning techniques (Hart & Whalon, 2008; Lanter & Watson, 2008). In the past few years, research has shown that students with ASD can benefit and increase reading comprehension when teachers devote time to teaching and using reading comprehension strategies.

Munro-Flores and Ganz (2007) conducted a study using single-subject design to determine the extent that a Direct Instruction Program, teaching learning strategies, has on the reading comprehension skills of students with ASD. The four elementary aged students received instruction for twenty minutes a day, in a group format, using a published direct instruction reading program. The program included detailed instructor scripts used by the researcher to develop inference skills using facts from the stories and skills related to creating and understanding analogies. The skills were taught using explicit instruction, in groups and one-on-one formats, and were taught with teacher modeling and demonstration. The study results were positive for increasing reading comprehension for students with ASD. All four students increased their reading comprehension ability from baseline through post-intervention phases maintaining their reading comprehension for one month after treatment ended (Munro-Flores & Ganz, 2007).

Whalon and Hanline (2008) also conducted a single subject study that involved the use of strategy instruction to increase reading comprehension for three students with ASD. The students with ASD were boys and worked with nine general education peers as cooperative partners. The researcher provided modeling and demonstration for generating and asking questions. The students were provided with a visual checklist of the steps to use while

completing their routine of generating and asking questions. The students were not only evaluated on their ability to generate, ask, and answer questions, but also on their ability to ask the right type of question based on the story element identified (e.g., setting = Where did the story take place?). At the end of the treatment phase, all students were able to generate and answer questions at a higher frequency than was occurring during baseline. A social validity measure also showed that the students enjoyed working with each other collaboratively and felt the strategy was beneficial.

The findings of studies described provide evidence that reading comprehension can increase for students with ASD when developed through the use of comprehension strategies such as these taught in general education reading programs. The studies also highlight the gap in the research for middle school teachers and the practices they use to develop reading comprehension within their content area class. With the strong focus on literacy practices in the current standards-based movements as well as the limited research for students with ASD in content area literacy skills, the current study focused on understanding the processes middle school teachers used to teach reading comprehension in their social studies classrooms that included students with ASD.

The purpose of this qualitative study was to describe the teaching practices for developing reading comprehension in social studies classrooms from the perspectives of middle school teachers. More specifically, the teachers' viewpoints related to their planning and teaching practices were explored. The primary research question was: What are the perceptions of general education middle school teachers related to their teaching practices for students with ASD who are included in their social studies classrooms?

Two sub-questions that guided this research were:

1. How do these teachers report that they incorporate reading comprehension in the context of teaching social studies?
2. What specifically in relation to planning and teaching do these teachers report that they incorporate to attend to students with ASD?

Method

The participants were 10 middle school, general education social studies teachers with 3-40 years of teaching experience. Nine of the teachers were female and one was male, and nine of them had been teaching for at least 5 years in their current building. With regard to grade level, three of the teachers were sixth grade teachers, four taught seventh grade, and three taught eighth grade. The teachers had either a K-9 certificate (n = 4) or a 6-12 certificate (n = 6), and one of the teachers had special education certification as well. In terms of experience teaching students with disabilities, all teachers had taught students with varying disabilities in their general education classrooms previously (e.g., ADHD, ASD, cognitive impairment, ED/BD, learning disabilities). In addition, all teachers had the opportunity, at some point in their teaching career, to receive training in the teaching of reading (e.g., professional development, graduate courses, preservice reading courses). The teachers' class sizes ranged from 20-30 students, with all the teachers teaching two sections of social studies a day, and with a few teachers also teaching at least one section of language arts. Table 1 includes the backgrounds of the teachers.

Table 1
Participant Background

Participant	Years of teaching experience	Grade/ Content Areas	Number of classes taught/day	Average # of students per class	Current Year/ Number of students with ASD *	Degree/ Certificate	Approvals/ Endorsements
T1	10	8 SST	5 SST 1 advisory	25	1	MS +30 K-9	Social Studies
T2	40	7 SST	5 SST	24	1	MS 6-12	Middle School Gifted
T3	20	7 SST	5 SST 1 advisory	24	1	2 MS 6-12	Social Studies
T4	15	8 SST	3 SST	30	1	MS 6-12	Social Studies Middle School Language Arts
T5	6	6 SST/LA	1 SST 4 LA	30	1	BS K-9	Social Studies Middle School Language Arts
T6	24	7 SST	6 SST	20	1	MS +30 6-12	
T7	15	6 SST/LA	1 SST 4 LA	29	6	MS 6-12	Social Studies Middle School Language Arts
T8	10	6 SST	3 SST 1 TAP	27	2	MS K-9 LBS1 (K-12)	Social Studies Language Arts
T9	29	8 SST/LA	1 SST 4 LA	30	2	MS +60 K-9	Social Studies English

T10	3	7 SST	5 SST	26	1	BS 6-12	Social Studies Middle School

Note. BS: Bachelor of Science. LA: Language Arts. LBS1: Learning Behavior Specialist 1. MS: Master of Science. SST: Social Studies. TAP: Teacher Assistance Period
* All participants had students with ASD in past years, number not reflected.

In order to recruit participants, information was circulated to suburban middle schools, located in a county adjacent to a large midwestern city. Middle schools with a full inclusion philosophy were identified so as to increase the likelihood that the general education content teachers would have recently taught a student with ASD in his/her classroom. The websites for the middle schools were reviewed carefully to determine if reading instruction was included in the school professional development plan or if increasing student reading was part of the school improvement plan. Given this dual criteria, thirty-one middle schools and 331 middle school teachers received the recruitment information.

Purposeful sampling was used to select the participants that met specific criteria (Maxwell, 2005). The inclusion criteria were: 1) currently teaching sixth, seventh, or eighth grade social studies, 2) currently having at least one student with ASD in their classroom, and 3) having had at least one student with ASD during the previous three years. Recruitment was repeated through several cycles and this yielded 11 teacher volunteers interested in participating in the study. A screening interview was conducted by phone and ten of the eleven teachers met the selection criteria.

Procedure

The participants took part in two interviews conducted in their classrooms regarding their knowledge and perceptions of teaching students with ASD in inclusive classrooms and how they incorporated reading comprehension strategies into teaching. Before the first scheduled interview, the questions were sent to the participants so that they could reflect and prepare ahead of time. At the same time, interviewees were informed of the procedures involved in the interview process; such as the length of the interview, audio-recording, and note-taking by the interviewer. Interviewees were also invited to bring a classroom artifact (Parker-Katz & Tejero Hughes, 2008), which could highlight the teaching practices they shared in the interview.

A computer and an audio-recording device were used to record the interview. Immediately following the interview, field notes were taken to describe the setting, demeanor of the participant, and any documents or artifacts that the participants brought to share (Creswell, 2013). The interviewer (first author) used these field notes to reflect on main points and to note reactions of the participant and any other relevant information that could help develop a deeper understanding of the teachers' perceptions (Kvale, 2007).

The first set of interviews, each 60-70 minutes in length, were transcribed and returned to the participants within two weeks via email. Each participant provided a member check (Miles, Huberman, & Saldana, 2014) by reading through the transcript to ensure that the recorded

information was accurate. The participant was asked to note any changes they wanted to make including any additions, and these would be discussed and included at the second interview.

A second interview was conducted to further investigate the research questions, and to clarify from the first interview as needed, and to further explore ideas that were noted during initial analysis of the first interview. Each participant also shared at least one classroom artifact (e.g., student work sample, formative assessments, worksheets) and the interview included questions about the artifact(s). There was a three-week span between the first and second interview and this allowed for the participant to reflect on topics from the first interview and make any changes they felt needed to be made. If there were no questions or changes to be made, the second session served to elaborate and to explore their ideas and perceptions regarding teaching reading comprehension more deeply. The second interview lasted 30-60 minutes and used the same procedures for interviewing and member checking.

Data Analysis

The interviews were transcribed and analyzed using a number of steps that included; (a) initial reading and tagging of ideas, (b) developing codes, (c) assigning the codes to transcript data, (d) comparing and categorizing the codes into themes, (e) creating visual representations of the identified themes for comparison, and (f) categorization to address the research questions. To start, the interviewer read through the transcripts looking for unique thoughts and ideas in the teachers' responses while writing down words or phrases that characterized the words (Miles et al, 2014). Based on these words and phrases, an initial set of codes was derived in relation to the research questions. A second round of coding took place in which more codes emerged and NVivo software ("NVivo9," 2011) was additionally used with several more codes being identified. In all, eleven code categories were used to develop the themes throughout the analysis process.

A constant comparison process was used during the data analysis process. The data were coded to fit into one category and a unit of analysis consisted of a teaching practice or a reading skill or strategy taught. To fine-tune codes, they were grouped and compared using the similarly coded transcripts and field notes as the themes emerged (Miles et al, 2014). All interviews were reread until saturation was met, meaning that no new insights, categories, or themes were revealed from the data for coding (Charmaz, 2014). The same coding process was used with the second interviews, combining with the findings from the first interviews until saturation was met. While the participants' comments and descriptions of the artifacts that they shared had already been analyzed in the context of their interviews, the content of the artifacts were connected to the themes for visual evidence.

After the initial analysis of the interview transcripts and the artifacts, 20% of the transcripts were randomly chosen (two first and two second interviews). Having knowledge of qualitative analysis and familiarity of the research questions, a higher education colleague completed a round of analysis, developing codes and descriptive themes. Comparing to the initial coding, the number of agreements was divided by the sum of number of disagreements and number of agreements and multiplied by 100 to calculate inter-rater reliability (Miles & Huberman, 1994). An average inter-rater reliability of 84% resulted. Words and phrases that were coding disagreements were discussed until consensus was reached about the meaning of an item or

theme. These clarifications were then incorporated into a final round of analysis of the entire data set.

Results

The present study focused on the teaching practices that middle school teachers were using to teach reading comprehension within the context of social studies. The teachers shared the teaching practices in reading comprehension, methods for planning, and adaptations for students with ASD that were included in their general education classrooms. The results are presented under three principle topics, representing the themes that were identified in the data: (a) teaching reading comprehension in social studies; (b) actively engaging all students in social studies content; and (c) teacher planning. The teachers' own words are cited to provide examples and are by no means exhaustive.

Teaching Reading Comprehension in Social Studies

All 10 teachers stated that they taught reading comprehension during their social studies instruction. The teachers were specifically asked how they taught students to develop reading comprehension within the context of their social studies instruction. In their explanations, the teachers reported teaching specific reading skills as well as teaching specific reading strategies to develop reading comprehension. Reading skills such as vocabulary development and main idea identification were mentioned by 9 of the 10 teachers as being taught the most frequently. In addition, 9 of the 10 teachers described summarization, self-monitoring, and use of text structure as reading comprehension strategies that were taught. In all, 14 different reading comprehension skills or strategies were reported as being taught by the 10 teachers within the context of their social studies instruction. These include; vocabulary development, main idea, summarization, making connections, compare/contrast, visualization, questioning, using background knowledge, cause and effect relationships, self-monitoring, text-structure, predicting, identifying author's purpose, and reader response in writing

Vocabulary development was a reading comprehension skill that most of the teachers reported as teaching on a regular basis. The teachers stated the importance of having a good understanding of the terminology that was connected to specific topics or content being taught in the social studies classroom. All of the teachers reported that the students with ASD in their classrooms were successful learning the content area vocabulary they were teaching. The teachers indicated that they used direct instruction as well as exploratory activities to teach the word meanings. Three of the 10 teachers noted that the social studies teachers at their building chose common names and vocabulary terms from the social studies text and materials that they would teach throughout the academic year. An example of this shared by a seventh-grade teacher was:

> *Now, I don't want you to be confused and think that I just throw this up there and say, okay everybody learn all these words. These were words that we picked out as a department as things that we thought kids should be able to know some important people as well as some important content vocabulary on things that were important.*

Main idea was the second most recurring reading comprehension skill taught by most of the teachers. The teachers shared that understanding the "big picture" of the topic was critical to

success in social studies and that being able to determine the most important idea from the social studies text demonstrated that students comprehended what they read. All of the teachers commented that this was an area the students with ASD in their classrooms had difficulty with. It was also reported that being able to articulate the main idea was a targeted reading skill that was also emphasized and taught at all grade levels and specifically in social studies. For example, this teacher said:

> *To get more specifically to what you're asking, each department is trying to identify what we can do to help support the reading goal. We have decided that kids struggle with main idea. When you said main idea it was like yeah. We are gonna [sic] focus a little more on helping kids find the main idea and using the textbook.*

Actively Engaging All Students in Social Studies Content

When teachers talked about their teaching practices, there were several commonalities in the types of activities they described. Most often these rationales were in relation to viewing a particular practice being beneficial for all learners in their classrooms. None of the teachers mentioned a teaching practice that had specific evidence for increasing reading comprehension for students with ASD. The most commonly mentioned practice was "hands-on activities" to teach social studies. When teachers spoke of "hands-on activities", they described involving their students in experiential learning.

For example:

> *During my Civil War, I teach the Civil War and I teach it as a simulation. I find with all of the kids, if you're more involved, hands-on, you're going to learn it. I have different characters for the students. I have a made up name, I have a background, and things like that.*

Another example:

> *I moved the desks around. I covered them with butcher-block paper. I have placards with pictures of cave art that they are real artifacts that have been found. They're photographs of them. I put them up inside the walls. They go into the caves. They look at real artifacts, real pictures – pictures of real artifacts and make a hypothesis. What do you think? What does that tell you about those people?*

Many of the teachers spoke of participation activities that required the students to be involved with the content in ways other than just reading the text or listening to the teacher lecture. This typically included physical movement or placement of the students themselves within the context of concepts/ideas being taught.

Regarding students with ASD, the teachers used words like "respect" and "building relationships" and they talked about creating activities and varying in the way they were taught. They did not, however, describe if the activity actually met a specific learning need of the student with ASD in their classroom. An example of this:

I believe in gifted education for all kids. I don't really start lower or average and then just have my gifted on a different track. To tell you the truth, I go the other way and I learned that from my own kids.

Another teacher spoke of one of her students this way:

How can we help you? How can you be successful? For me as just a social studies teacher, I just really want him to love history. I want that for him. If he could leave here with a love of knowing the story of America, to me that would be the most successful thing of all.

The teachers explained this as having high expectations for all their students and wanted students, regardless of how they learned, to feel comfortable and successful in their classroom completing the work assigned. A sixth-grade teacher typified the sentiments of most:

We do whatever we can to make the kids feel successful. If they can show us in any way, shape, or form that they know it, we'll take it.

Teacher Planning

An important component of a teacher's duties is planning, so the teachers were asked to describe their process for planning given they had a student with ASD in their classroom. Planning was defined in the current study as the process teachers use when they are deciding what to teach, how to teach, and what materials they might use. Eight of the ten teachers talked minimally about planning and two of the teachers did not mention planning at all even though they were specifically asked this question during the interview. The teachers' comments about planning referred to the curriculum or topic of study rather than how they might differentiate or vary for the differing needs of their students. Teachers described planning a unit, or commented that planning was time-consuming, or that when planning they kept the "big picture" in mind. For example:

Okay, well when I do plan, yes I do have a big idea and I have one goal per lesson. The kids actually do get to see the goals. I print them out on a weekly basis and so by the end of the week, "you should be able to," and then we actually go back and assess whether or not we felt like we were able to do that.

Another example:

I think in terms of overall generality as a unit. What am I trying to accomplish with this unit with this idea? I start with an essential question. How am I going to get from point A to point B? What stops do I have to make along the way.

The teachers were specifically asked to comment on how they planned to meet the needs of the student with ASD in their classroom. Regardless of the definition of planning provided to the teachers and the specific nature of the question, none of the teachers' responses directly addressed how the needs of students with ASD were planned for. There was evidence, however, that they indeed thought ahead recognizing that adaptations were needed for the student with

ASD in order to complete an activity. All of the teachers referenced working with a special educator or paraeducator by sharing activities or class work that they thought the student with ASD might not be able to complete or have difficulty with. The teachers described seeking advice from their colleagues about adaptations when they were reflecting about student work. For example:

> *We get our plans together and then we get all the worksheets and everything to our special ed T.A.'s or our special ed facilitator and they do get ideas. Initially, we plan for the regular ed student with other things in mind. Since I've been teaching for so long we have a lot of modified things already. They took a look at them and see if they'd be suitable for their kids (ASD) or not.*

Similarly:

> *I think we'll just keep on keeping on and being open to if something is working well, okay, we're going to go with this. If something is not working well then we're going to brainstorm, whether it is by myself, whether it is with the aide and I, whether it is the aide and the special ed teacher and myself coming up with what works well for him.*

Another example:

> *When you get assignments and you look at it and go okay, this is not like you said. Totally not getting the objectives here, missed it. In that case, I would almost immediately go back to the special education teacher and the assistant and say hey, could you have this kid redo this in guided study or why do you think he was way off? I thought he understood the three documents and see what they have to say.*

A system for planning that resembled a procedure like universal design for learning (UDL) (Spooner, Baker, Harris, Ahlgrim-Delzell, & Browder, 2007) was absent from the information shared by the teachers.

Discussion

The current state of education requires all teachers to support student success in reading regardless of the content area, subsequently calling for content area teachers to become teachers of reading (Common Core Standards Initiative, 2011). Traditionally, content teachers are prepared to teach the subject area with minimal attention to teaching reading, which may contribute to a lack of reading skills or strategies that are subsequently taught to their students (Nichols et al., 2007; Shanahan & Shanahan, 2008). The literature documents the notion that content area teachers often feel uncomfortable teaching reading given a lack of preparation in this area (Nichols et al., 2007). In contrast, the teachers in the present study identified that they were teaching reading with each teacher mentioning teaching at least three different reading skills or strategies within the context of their social studies instruction. They described attending school-wide professional development related to teaching reading comprehension strategies. Their experiences in previous professional development or coursework on content area reading may have contributed to the implementation of reading skills and strategies in the social studies

classrooms. This concurs with Barry's (2002) findings regarding the comfort level in the teaching of content area reading when content teachers are prepared to teach reading by way of coursework or professional development. Another factor that may have impacted the use of reading comprehension strategies was the years of teaching experience; most of the teachers had more than five years of teaching experience in middle school. Kohler, Henning, and Uma-Wilches (2008) reported that teachers with more years of teaching experience may be more competent when choosing teaching practices for their classrooms. The influence of professional development and years of teaching experience appear to have impacted the instructional decisions the teachers in the present study are making.

Given the limited research on reading comprehension for students with ASD, the results of this study contribute to the current literature. Previous studies with students with ASD document their difficulty with reading comprehension (Carnahan et al., 2011; Griswold et al., 2002); the social studies teachers concurred and acknowledged that the students with ASD in their classrooms had difficulty with reading comprehension. The teachers in this study mentioned a range of reading comprehension skills they were addressing in their social studies classrooms, with vocabulary development being the most commonly taught skill.

Social Studies curriculum is heavy laden with vocabulary so it is not surprising that the teachers mentioned vocabulary development. Shanahan and Shanahan (2008) report the importance of developing disciplinary academic language when integrating content area literacy techniques in classrooms such as social studies. Additionally, Fagella-Luby and Deshler (2008) state that reading comprehension begins at the word level. The teachers in the present study corroborated that notion in that they were teaching the vocabulary their students would be encountering from the social studies text and appeared to dedicate significant amounts of time to this focus. Additional research supports the idea that developing vocabulary for students that struggle with language processes, similar to students with ASD, is essential for successful reading comprehension (Watson, Gable, Gear, & Hughes, 2012). The reported success the students with ASD had with learning vocabulary for the social studies content may have been motivating for the teachers in this study and hence contributing to the amount of time spent in their classrooms. Positive student outcomes and success is a contributing factor for teacher decision-making as related to teaching practices that are chosen for instructional use (Kohler et al., 2008).

Second to vocabulary development, the teachers consistently reported teaching the reading comprehension skill of identifying main idea noting that it was important in developing reading comprehension for both the students with and without ASD. Collectively, the teachers agreed that students in their social studies classrooms had to have a good understanding of the "big picture" of the topic to comprehend expository text. A higher-level skill such as main idea proves to be difficult for students with ASD (Carnahan et al., 2011; Lanter & Watson, 2008). Students with ASD often struggle with metacognitive awareness inhibiting their ability to develop a skill such as main idea thus enhancing the need for strategic instruction (Lanter & Watson, 2008; Nation, Clarke, Wright, & Williams, 2006). In addition, research states that to facilitate the skill of identifying main idea teaching, a strategy such as paraphrasing or summarization is critical (Watson et al., 2012), especially for students who have difficulties with metacognitive awareness. The teachers reported having students summarize but did not mention teaching the students with ASD how to summarize in a systematic or explicit way or teaching

them how to connect summarization to identifying the main idea. Given the findings of Lanter and Wilson (2008), the need for strategic instruction for students with ASD related to a skill that is complex, like main idea, is important for growth in reading comprehension. It appears the teachers understood that main idea was a needed reading comprehension skill for students with ASD, however it appears that they did not anticipate the needed instructional support these students would need for development of this skill.

The social studies teachers were asked to describe the reading comprehension strategies taught within the context of social studies. Previous research indicates that the use of the aforementioned strategies, when reading expository text, increases the likelihood of comprehension (Kim et al., 2006; Mastropieri et al., 2006). Regarding reading comprehension strategies, previous research suggests that a systematic and explicit process should be used which includes modeling, guided and independent practice, and the incorporation of generalization and maintenance activities to ensure continued use of the strategy (Fagella-Luby & Deshler, 2008; Fagella-Luby et al., 2007; Gersten, Fuchs, Williams, & Baker, 2001; Sencibaugh, 2005). The teachers in the present study noted that they taught reading comprehension strategies, however, the extent to which these strategies are actually taught by the teachers is left to speculation by the investigators. The teachers did not refer to systematic and explicit instruction, which is an important component for teaching strategies (Kim et al., 2006; Mastropieri et al., 2006). The teachers reported they had professional development but were not specifically asked if they had professional development related to how to teach reading comprehension strategies in a systematic and explicit way, which may have been why they did not refer to teaching the strategies using this approach (Greenleaf, Jimenez, & Roller, 2002).

Another finding relates to the relevance of the teaching practices the teachers were using to teach reading comprehension in their social studies classrooms. Some of the practices the teachers referred to were hands-on activities, visuals such as maps and diagrams, note-taking, and using graphic organizers. While Whalon and Hanline (2008) identify verbal prompting, modeling, and using checklists as teaching practices that have positive outcomes for students with ASD, none of the teachers identified using these teaching practices when asked about the students with ASD. The majority of the teachers in the present study referred to interactive practices that met the needs of all the learners in their classrooms when reporting the teaching practices they used. Although important for all students' needs to be met, the individual needs for students with ASD in general education classrooms require attention to ensure learning is occurring.

Lastly, the findings shed light on the lack of specific planning for students with ASD. The teachers did not describe a clear process for deciding what they taught, how they taught, or how they assessed the students with ASD which is a key component contributing to the success of students with ASD, in general education classrooms (Bryant Davis, Dieker, Pearl, & Kirkpatrick, 2012; DeStefano, Shriner, & Lloyd, 2001; Mastropieri & Scruggs, 2001). Not having a specific planning process could be detrimental for the students with ASD in these social studies classrooms. The research suggests planning as a professional practice for addressing the needs of students with ASD in general education classrooms is necessary for these students to achieve their full potential (Vacca, 2007). Having identified reading comprehension as a need for the students with ASD in their classrooms, creating a process for planning that includes detailed reflection about these students' needs in that area ought to be considered.

Regardless of the fact that the teachers in this study did not articulate a planning process, there was evidence that they did think about the student with ASD when they were selecting class activities. As previously noted, the teachers sought advice from their special education colleagues when needed and referred to this as collaboration, however there appeared to be more cooperation between the sets of teachers. Overall, these teachers were receptive to having the students with ASD in their classrooms however, it was evident that they were not using a research-based practice such as collaborative planning, to meet the needs of these students (DeStefano et al., 2001; Mastropieri & Scruggs, 2001). Although the research shows that collaborative planning, benefits students with disabilities, current research on co-planning with middle school teachers reports that there is still disparity between general education and special education teachers co-planning efforts which seems to be evident in the present study as well (Bryant Davis et al., 2012). The teachers shared how difficult it was to collaboratively plan with special educators given extra duties for both sets of teachers, such as extra tutoring or intervention classes for struggling learners. With the constant addition of federal and state educational initiatives teachers may feel they need to "give up" common time for collaborative planning to address the new initiatives.

Implications for Practice

The findings lead to implications for the variety of topics for professional development that inservice teachers are receiving. It has been noted in the research that using reading comprehension strategies such as summarization, making predictions, and questioning strategies enhances and develops reading comprehension of expository text (Kim et al., 2006; Mastropieri et al., 2006). Professional development that centers on how to teach these strategies using systematic and explicit instruction would be valuable as it is expected given the Common Core Standards that content area teachers teach reading within their subject area. In addition, professional development related to teaching reading strategies for independent student use would be important for increasing positive outcomes. Teachers who spend time developing reading strategies through explicit and systematic instruction as well as including a repetitive cycle for guided and independent practice of the strategy have increased achievement levels in the reading comprehension for their content area (Kim et al., 2006; Scruggs et al., 2010). Providing professional development about reading strategies and how they are taught may increase the chance that students with ASD comprehend the content area text that they are required to read.

When discussing teaching practices, the middle school teachers in the present study did not identify using specific teaching practices that benefit students with ASD. Previous research indicates that for students with ASD to achieve growth in the area of reading comprehension, professional development should focus on the specific reading comprehension needs as it relates to the social studies content (Chiang & Lin, 2007; Hart & Whalon, 2008; Whalon, Otaiba, & Delano, 2009). Providing knowledge for general education teachers on the characteristics and specific reading needs for students with ASD during professional development or teacher preparation courses would enhance the opportunities for including teaching practices that benefit these students. Teaching practices that develop higher-level skills such as purposeful reading, perspectives recognition, and inferential understanding are an important emphasis for increasing the comprehension skills of students with ASD (Carnahan et al., 2011). Emphasizing these

needs in professional development and teacher preparation coursework could develop specific understandings for teachers as they choose the necessary teaching practices for developing reading comprehension within their content area.

While it is necessary to note the individual needs of students with ASD, it is important to take the time to consider these needs during instructional planning (DeStefano et al., 2001; Hart & Whalon, 2008; Mastropieri & Scruggs, 2001). Using an approach such as Universal Design for Learning would be a way to provide accessibility to the curriculum for a variety of learners (Spooner, et al., 2007). Professional development about Universal Design for Learning could facilitate teachers' thinking about how they plan to meet the needs of all students in their classrooms. Teachers are more effective when using a planning process that focuses on individual learners resulting in an increase in student achievement (Lee et al., 2006; Soukop, Wehmeyer, Bashinski, & Bovaird, 2007). General and special educators need to collaborate during the planning process to ensure that the instruction addresses the goals of the Individualized Education Plan (IEP) and other barriers that the student with ASD may encounter within an activity.

Limitations and Suggestions for Future Research

Several limitations appear in the present study. First, the participants were a homogenous group and consisted of nine females and one male. They were all Caucasian and mostly worked in middle-class neighborhoods in suburban Chicago. Some of the participants were working in schools with a diverse student body (e.g., 70% Hispanic in one school, 13% in one school). Another characteristic that may have narrowed the teachers' perspectives is that most of the participants had over five years of experience and extensive professional development. Second, the information the teachers shared via the interview was a measure of self-report (Burke, Hsieh, & Lopez-Reyna, 2012). The authors did not observe the participants during their teaching to corroborate the information that they reported. Also, the participants in the present study were all volunteers and may have done so because they thought the teaching practices they were using to develop reading comprehension were beneficial to students with ASD. Thus, the findings cannot be considered as representative of the larger population of social studies teachers.

Findings of this study indicate a need for future research to better understand what and how general education content areas teachers are teaching expository text reading comprehension to students with disabilities. Future researchers should focus on recruiting teachers from different content areas and grade-levels, professional development and/or previous coursework completed for content area reading to determine the extent to which the previous experiences impacted their teaching practices. Finally, it is important to gain insights from special educators and paraeducators who are involved in the specific planning process for students with ASD in content area classrooms. A planning process that is more collaborative between general and special educators as well as related service personnel leads to a more inclusive experience for all students (Lee et al., 2006; Soukop et al., 2007).

Future research that incorporates observations of the teachers when they are implementing the teaching practices they refer to in their interviews is critical to more fully understand classroom practice. Specific attention to how teachers are using evidence-based reading practices to

promote the reading comprehension of students with ASD would allow researchers to make generalizations about teachers knowledge of "what works".

Given the current stance that all teachers are teachers of reading and the dramatic rise in students with ASD requiring special education services over the last 5 years, the need for professional development that is responsive to teachers' needs is essential. The redesign of professional development for middle school teachers related to research-based practices for students with ASD as well as reading research ensures that middle school content teachers can continue to develop the necessary skills for the success of all their learners.

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General Education and Special Education Teachers' Attitudes Towards Inclusion

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Abstract

The purpose of this study was to examine the difference in general education and special education teachers' attitudes towards inclusion of students with disabilities and to ascertain if levels of self-efficacy, teacher type, and education level were predictors of teachers' attitudes towards inclusion. Data were collected from 118 elementary and middle school teachers using an online survey, and a 2-way ANOVA and multiple regression were conducted to answer the research questions. Results indicated that special education teachers' attitudes towards inclusion were significantly more positive than those of general education teachers and that teacher type and self-efficacy were predictors of teachers' attitudes towards inclusion. Higher levels of self-efficacy were associated with more positive attitudes towards inclusion. Change in practice may be achieved if school district administrators implement teacher training to improve teacher self-efficacy regarding inclusive practices, which could ultimately improve student outcomes and narrow the achievement gap.

General Education and Special Education Teachers' Attitudes Towards Inclusion

Prior to a wave of reform which started in 1975 with the passage of the Education for All Handicapped Children Act, students with disabilities had been effectively denied access to public education (Aron & Loprest, 2012). Less than 25 years later, the Individuals with Disabilities Education Act Amendments (IDEA) of 1997 and then the No Child Left Behind Act of 2001 (NCLB; 2002) required the integration of students with disabilities into regular education classrooms. This requirement was reiterated in the Every Student Succeeds Act (ESSA; 2015). In fact, the purpose of IDEA was to ensure that all students with disabilities were given equal opportunities to participate in their education in the least restrictive environment regardless of intellectual, physical, or emotional disability (Kimbrough & Mellen, 2012). While emphasizing high academic standards and accountability (Aron & Loprest, 2012), these laws were designed to promote the academic success of students with disabilities as defined by individual education plans (IEPs) designed to meet their unique needs and capabilities (Theoharis & Fitzpatrick, 2011). Students with IEPs are often fully included in the general education classroom (McLeskey, Landers, Williamson, & Hoppey, 2012). Inclusion is the process of providing students with disabilities "equitable opportunities to receive effective educational services, with the needed supplementary aids and support services, in age appropriate classrooms in their

neighborhood schools, in order to prepare students for productive lives as full members of society" (National Center on Educational Restructuring and Inclusion, 1995, p. 99).

Background and Research Questions

The practice of inclusion has generated both support and opposition. Proponents claim that inclusion provides an opportunity for students with disabilities and their general education peers to form and nurture friendships (Litvack, Ritchie, & Shore, 2011); gain social skills (Lamport, Graves, & Ward, 2012); acquire behavioral skills and develop a work ethic (Murawski & Hughes, 2009); and collaborate, which can promote academic success (Meadan & Monda-Amaya, 2008) and social awareness (Mastropieri, Scruggs, & Berkley, 2007).

Despite claims that inclusion offers benefits to students and teachers, Litvack et al. (2011) found that high-achieving students in general education classrooms felt that inclusive practices negatively impacted their learning, and Fletcher (2010) discovered that including students with emotional disabilities in kindergarten classes resulted in regular education students' reading and math performance decreasing by 10% by the beginning of the first grade. Other researchers have noted barriers to the implementation of inclusive practices in the general education classroom. For example, Fuchs (2010) found that the implementation of inclusive strategies is hindered by unrealistic responsibilities and expectations for general education teachers as well as a lack of support from administrators and special education staff. A number of researchers have identified lack of training as a barrier to inclusion (Allison, 2011; Cipkin & Rizza, 2010; Fuchs, 2010). Moreover, Orr (2009) suggested that general education teachers' negative attitudes towards inclusion, support staff's lack of knowledge of inclusion, and lack of administrative support for inclusion could serve as barriers to successful inclusion.

In addition, low levels of self-efficacy can foster poor teacher attitudes (cognitive process) and inhibit teacher motivation (motivational process) to persist in implementing inclusive strategies (Tschannen-Moran & Woolfolk Hoy, 2001). If teachers do not support the concept of inclusion, do not persist in their efforts to implement inclusive strategies, and fail to master the skills needed to appropriately implement inclusive strategies, those strategies will not be implemented. When inclusive strategies are not implemented or are not implemented properly, students with disabilities in the general education classrooms do not receive the support they need to reach their fullest potential. Ultimately, lack of teacher training in inclusive practices could have a negative impact on the academic (Fuchs, 2010) and social (Sayeski, 2009) success of students with disabilities.

In light of the importance of the social and academic success of students with disabilities who are included in the general education setting and variables shown in previous research to impact teacher attitude, the following two research questions were posed: Is there a difference in teachers' attitudes towards inclusion between teachers of differing teacher type (general education and special education) and education level (bachelor's, master's, and master's plus 30 units)? and Does teachers' sense of efficacy predict teachers' attitudes towards inclusion while controlling for teacher type and education level?

Theoretical Model

Teachers who have successful student academic and social outcomes are more confident in their capabilities to teach various types of students (Tschannen-Moran & Woolfolk Hoy, 2001). It is in this perspective that the value of self-efficacy was understood in this study. Self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (Bandura, 1997, p. 37). This belief affects behaviors and ultimately performance outcomes (Bandura, 1977).

There are four primary mechanisms for developing self-efficacy (Bandura, 1977). Mastery experiences, or performance accomplishments, serve as positive examples that shape perceptions about future capability to perform those or a similar tasks again (Bandura, 1977). Mastery experiences are the most effective way to develop a strong sense of efficacy (Bandura, 1982, 1986). Another way to develop self-efficacy is through vicarious experiences (Bandura, 1977); "observing others perform intimidating responses without adverse consequences can reduce fears and inhibitions" (Bandura & Barab, 1973, p. 1) to act and increase the belief that one's attempts at the same action would be successful (Bandura, 1977). A third way to develop self-efficacy is through verbal/social persuasion (Bandura, 1977). Through other's suggestions, people are prompted to believe that they have the capability to accomplish a task that they previously felt ill-equipped to accomplish (Bandura, 1977). The last way to develop self-efficacy is through physiological and affective states. Emotional arousal to stressful situations may promote fear and anxiety, which negatively influences performance and, in a reciprocal fashion, impacts physiological and affective states (Bandura, 1977).

The capacity for any outcome to be effected is dependent on both outcome expectations and efficacy expectations (Bandura, 1977). An outcome expectation is "a person's estimate that a given behavior will lead to certain outcomes. An efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977, p. 193). Thus, a person can believe that a certain behavior will have a certain outcome, but if the person seriously doubts his or her ability to successfully perform the activity, outcome expectancy will not influence his or her behavior (Bandura, 1977). This is particularly applicable to verbal persuasion, which will not be successful in influencing behavior unless a person's efficacy expectations match his or her outcome expectations.

Literature Review

Teacher Self-Efficacy

Teacher efficacy may refer to personal teaching efficacy, teachers' beliefs about their own ability to complete tasks necessary to promote student achievement, or general teaching efficacy, teachers' beliefs that teaching itself can generate learning (Gibson & Dembo, 1984). Personal and general teacher efficacy may be impacted by a combination of personal variables such as teacher experience, gender, and education level, and organizational variables such as principal influence, resource support, morale, and academic emphasis (Hoy & Woolfolk, 1993; Tschannen-Moran, Woolkfolk Hoy, & Hoy, 1998). As well, a teacher's overall sense of efficacy is influenced by years of teaching experience and grade level taught (Fives & Buehl, 2009).

Teacher efficacy can be impactful in the school setting. When multiple variables are combined as predictors, teacher efficacy in student engagement and teacher efficacy in classroom management together with teacher age and experience are the strongest predictors of student achievement (McGuire, 2011). Teachers with low levels of efficacy tend to become frustrated easily and give up quickly when they receive undesirable outcomes (Gibson & Dembo, 1984). Teachers with high levels of efficacy tend to be motivated (Swackhammer, Koellner, Basile, & Kimbrough, 2009); confident, persistent, and academically focused in the classroom (Gibson & Dembo, 1984); and dedicated to academic excellence (Hoy & Woolfolk, 1993).

Inclusion in the Public School Setting

Service models for students with disabilities vary depending on the type of institutional setting in which they function and may represent a spectrum of teaching arrangements, student placements, and levels of student IEP implementation (Friend, Cook, Hurley-Chamberlain, & Shamberger, 2010). While some general education teachers have positive attitudes towards inclusion (O'Rourke & Houghton, 2009; Ross-Hill, 2009), others have been described as having negative attitudes towards both inclusive education (Orr, 2009) and included students (Cassady, 2011). Often these negative perspectives are unrelated to the teachers' confidence in their ability to teach in the inclusive setting (Cassady, 2011). Rather, teachers claim inclusive practices are time consuming (Horne & Timmons, 2009), disruptive to the instructional routine of the general education classroom (O'Rourke & Houghton, 2009), and not beneficial to all children (Cipkin & Rizza, 2010). Regardless of varying perspectives pertaining to inclusion, most teachers have reported believing that inclusion is beneficial for students with disabilities because it provides a means for equal educational opportunities (Allison, 2011) and provides social benefits (Hwang & Evans, 2011; Parker, 2009).

Results from the literature are mixed regarding the factors that may affect teacher attitude towards inclusive education. Some researchers have found that gender (Cipkin & Rizza, 2010), age (Hwang & Evans, 2011), years of teaching experience (Ross-Hill, 2009), and level of teacher confidence (Orr, 2009) can impact teachers' attitudes towards inclusion. Other researchers have found that gender and level of education (Buford & Casey, 2012), and grade level taught (Ross-Hill, 2009) do not impact teachers' attitudes towards inclusion.

One important benefit of inclusion is the opportunity for student socialization (Lamport et al., 2012; Litvack et al., 2011). Another important benefit of inclusion is improved student outcomes (Lamport et al., 2012). However, lack of collaboration between teachers can hinder effective teaching and student learning in inclusive settings (Murawski & Hughes, 2009; Sayeski, 2009). Other barriers to effective inclusion include poor relationships between special education teachers and general education teachers (Allison, 2011; Fuchs, 2010), lack of preparation to work with included students (Allday, Neilsen-Gatti, & Hudson, 2013; Cipkin & Rizza, 2010), lack of knowledge of and experience with included students (Sze, 2009), negative teacher attitude toward inclusion (Orr, 2009; Sze, 2009), and the disposition of teachers (Prather-Jones, 2011).

Methodology

The purpose of this study was to determine whether there was a difference between general education and special education teachers' attitudes towards inclusion and to determine whether

there was a relationship between teachers' self-efficacy and teachers' attitudes towards inclusion. A cross-sectional survey research design was used to gather data on the perspectives of both general and special education teachers' in a rural K-12 school district of South Carolina. E-mails were sent to all elementary and middle school teachers (N = 296) in the district explaining the purpose of the study, providing a URL link to the online survey, and inviting these teachers to participate. At the beginning of the third and fourth weeks of data collection, e-mails were sent reminding teachers of the study and again inviting them to participate.

Instrumentation

Two instruments were included in the online survey: the Scale of Teachers' Attitudes Toward Inclusive Classrooms (STATIC; Cochran, 1997) and the Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001). The 20-item STATIC questionnaire yields data on a teacher's attitude towards the inclusion of special education students in the general education classroom, which are represented in the one overall STATIC scale and four subscales, Advantages and Disadvantage of Inclusion, Professional Issues of Inclusion (e.g., training and ability), Philosophical Issues of Inclusion (e.g., beliefs), and Logistical Issues of Inclusion (e.g., space, materials, and support). The 12-item TSES questionnaire yields data on a teacher's internal state regarding feelings of efficacy. Besides an overall general self-efficacy score, the TSES measures Self-Efficacy in Using Instructional Strategies, Self-Efficacy in Classroom Management, and Self-Efficacy in Student Engagement. Extensive psychometric testing indicates that both instruments are valid and reliable (Cochran 1997, 2000; Tschannen-Moran & Woolfolk Hoy, 2001).

Participants

A total of 118 teachers completed the survey, which is a response rate of 40%. The majority of the respondents were female, general education, elementary school teachers. A summary of the demographic data on the respondents is displayed in Table 1.

Findings

Prior to conducting the analyses required to answer the two research questions, the internal consistency of the two scales and seven subscales was evaluated. As reported in Table 2, a high alpha coefficient was obtained for the full STATIC scale and acceptable values for the STATIC subscales Advantages and Disadvantage of Inclusion, Professional Issues of Inclusion, and Logistical Issues of Inclusion. Because the Cronbach's alpha coefficient for the subscale Philosophical Issues of Inclusion was .46, well below the cut-off score of .70 suggested by George and Mallery (2003) to establish good scale reliability, this subscale was excluded from Table 2 and from any further analyses. For the TSES, high alpha coefficient scores were obtained for the full scale and three TSES subscales.

Table 1
*Gender, Highest Education Level, Teacher Type, and Grade Level Taught as a Percentage of Sample (*N = *118)*

Characteristic	*n*	%

Male	5	4.3
Female	112	95.7
Highest education level		
Bachelor's degree	19	16.1
Master's degree	38	32.2
Master's degree + 30	54	45.8
Doctoral degree	7	5.9
vel taught[a]		
Elementary	88	75.2
Middle school	29	24.8
type		
General education teacher	85	72.0
Special education teacher	33	28.0

[a]One participant reported neither gender nor grade level taught, so $N = 117$.

The means, standard deviations, and ranges for the full STATIC scale, three STATIC subscales, full TSES scale, and the TSES subscales are also displayed in Table 2. The mean score for the full STATIC scale (70.19 out of a possible 100) indicated that overall, the participants held a largely positive attitude towards inclusion. Moreover, mean score of the full TSES scale (90.76 out of a possible 108) indicated that the sample had high overall self-efficacy.

Table 2
Alpha Coefficients, Means, Standard Deviations, and Ranges of the STATIC and TSES Scales and Subscales

					Range	
Scale	α	*n*	*M*	*SD*	Potential	Actual
Full STATIC scale	.85	97	70.19	11.83	0-100	35-94
STATIC subscales:						
Advantages and Disadvantages of Inclusion	.78	102	22.24	5.42	0-35	10-35
Professional Issues of Inclusion	.75	113	17.54	4.63	0-25	5-25
Logistical Issues of Inclusion[a]	.70	116	6.22	2.37	0-20	0-10
Full TSES scale	.94	107	90.76	12.00	12-108	57-108
TSES subscales:						
Efficacy in Instructional Strategies	.91	115	30.71	4.28	4-36	18-36

Efficacy for Classroom Management	.84	110	30.45	4.51	4-36	17-36
Efficacy for Student Engagement	.81	114	29.60	4.36	4-36	18-36

[a]Data presented for this subscale represent analyses based on two of the four original survey items. Two items were dropped to achieve internal consistency for the subscale.

Research Question 1

To answer the research question, Is there a difference in teachers' attitudes towards inclusion between teachers of differing teacher type and education level?, a two-way analysis of variance (ANOVA) was conducted to assess the main effects and any interactions of teacher type (general or special education) and level of education (bachelor's degree, master's degree, master's plus 30 units) on Teachers' Attitudes Toward Inclusion as measured by STATIC scale scores. Additionally, three separate two-way ANOVAs were conducted for the three STATIC subscales. Because too few participants reported holding doctoral degrees (<10% of the sample), this level of education was excluded from all analyses. The results of the two-way ANOVAs are presented in Table 3.

Table 3
ANOVAs for the Full STATIC Scale and the Three STATIC Subscales

Source	*df*	*MS*	*F*	*p*	η^2
	Scale of Teachers' Attitudes Toward Inclusion				
Teacher type	1	2,041.97	19.13	< .001	.19
Education level	2	153.77	1.44	.243	.03
Teacher type x education level	2	45.65	.43	.653	.01
Error	84	106.74			
	Advantages and Disadvantages of Inclusion subscale				
Teacher type	1	264.65	10.79	.001	.11
Education level	1	20.76	.85	.432	.02
Teacher type x education level	2	23.78	.97	.383	.02
Error	89	24.53			
	Professional Issues of Inclusion subscale				
Teacher type	1	575.55	44.10	< .001	.31
Education level	2	42.32	3.24	.043	.06
Teacher type x education level	2	8.56	.66	.521	.01
Error	100	13.05			
	Logistical Issues of Inclusion subscale				
Teacher type	1	3.56	.64	.426	.06
Education level	2	23.76	4.27	.017	.08
Teacher type x education level	2	3.61	.65	.525	.01
Error	103	5.57			

For the full STATIC scale, there was a significant main effect for teacher type, $F(1, 84) = 19.13$, $p < .001$. Special education teachers held significantly higher attitudes towards inclusion ($M = 79.74$, $SD = 7.27$) than general education teachers ($M = 66.90$, $SD = 11.32$). Teacher type had a large effect on attitudes, partial $\eta^2 = .19$, and explained 19% of the variance in attitudes.

For the Advantages and Disadvantages of Inclusion subscale, a significant main effect was found for teacher type, $F(1, 89) = 10.79$, $p = .001$. Special education teachers held significantly higher attitudes towards the advantages and disadvantages of inclusion ($M = 25.15$, $SD = 4.12$) than general education teachers ($M = 20.96$, $SD = 5.32$). Teacher type had a medium effect on attitudes towards the advantages and disadvantages of inclusion, partial $\eta^2 = .11$, and explained 11% of the variance in attitudes.

For the Professional Issues of Inclusion subscale, a significant main effect was found for teacher type, $F(1, 100) = 44.10$, $p < .001$. Special education teachers held significantly higher attitudes towards the professional issues of inclusion ($M = 22.21$, $SD = 2.42$) than general education teachers ($M = 15.87$, $SD = 4.09$). Teacher type had a large effect on attitudes towards professional issues of inclusion, partial $\eta^2 = .31$, and explained 30.6% of the variance in attitudes. Moreover, a significant main effect also was found for education level, $F(2, 100) = 3.24$, $p < .05$. Teachers who held bachelor's degrees ($M = 19.63$, $SD = 3.22$) and master's degrees plus 30 units ($M = 17.91$, $SD = 4.80$) had significantly higher attitudes towards professional issues on inclusion than teachers holding a master's degree ($M = 15.82$, $SD = 4.61$). Teacher education level had a moderate effect on attitudes towards professional issues on inclusion, partial $\eta^2 = .06$, and explained 6% of the variance in attitudes.

For the Logistical Issues of Inclusion subscale, a significant main effect was found for education level, $F(2, 103) = 4.27$, $p < .05$. Teachers who held master's degrees ($M = 6.57$, $SD = 2.21$) and master's plus 30 units ($M = 6.49$, $SD = 2.45$) had significantly higher attitudes towards logistical issues of inclusion than teachers with bachelor's degrees ($M = 4.89$, $SD = 2.40$). Teacher education level had a moderate effect on attitudes towards logistical issues of inclusion, partial $\eta^2 = .08$, and explained 8% of the variance in attitudes.

Research Question 2

To answer the research question, Does teachers' sense of efficacy predict teachers' attitudes towards inclusion while controlling for teacher type and education level?, two separate multiple regression analyses were conducted.

In the first model (see Table 4), both the TSES total scale and teacher type variables were found to be significant predictors of the STATIC total scale score—$F(5, 83) = 8.73$, $p < .001$. The higher the teachers' total self-efficacy, the more favorable attitude towards inclusion the teachers had. Additionally, special education teachers had more favorable attitudes towards inclusion than general education teachers. Combined, these two variables explained 31% (adjusted $R^2 = .31$) of the variance in teachers' attitudes towards inclusion.

Table 4
Multiple Regression Analysis: Effect of TSES Total Scale in Predicting the STATIC Total Scale Score While Controlling for Teacher Demographics

Variable	*B*	*SE B*	ß	*t*	*p*
TSES scale	.30	.09	.31	3.508	.001
Teacher type (general or special education)	12.18	2.35	.46	5.17	< .001
Education level					
Bachelor's	1.03	4.44	.03	.23	.817
Master's	-4.79	4.15	-.19	-1.15	.252
Master's plus 30 units	-1.83	3.95	-.08	-.46	.644

Note. $R = .59$, $R^2 = .35$, adjusted $R^2 = .31$, $F(5, 83) = 8.73$, $p < .001$.

In the second model, two variables, Efficacy in Instructional Strategies and teacher type, were found to be statistically significant predictors of STATIC total score—$F(6, 83) = 7.94$, $p < .001$ (see Table 5). The higher the teachers' Self-efficacy in Instructional Strategies, the more favorable attitude towards inclusion the teachers had. Additionally, special education teachers had more favorable attitudes towards inclusion than general education teachers. Combined, these two variables explained 32% (adjusted $R^2 = .32$) of the variance in teachers' attitudes towards inclusion.

Table 5
Multiple Regression Analysis: Effect of TSES Subscale Scores in Predicting the STATIC Total Scale Score While Controlling for Teacher Demographics

Variable	*B*	*SE B*	ß	*t*	*p*
Efficacy in instructional strategies	.90	.32	.33	2.79	.007
Efficacy for classroom management	.07	.30	.03	.22	.825
Teacher type (general or special education)	12.01	2.31	.46	5.19	< .001
Education level					
Bachelor's	1.73	4.40	.06	.39	.695
Master's	-3.81	4.15	-.15	-.92	.361
Master's plus 30 units	-1.49	3.89	-.07	-.38	.703

Note. $R = .60$, $R^2 = .37$, adjusted $R^2 = .32$, $F(6, 83) = 7.94$, $p < .001$. Efficacy of Student Engagement subscale was removed from the model due to multicollinearity.

Discussion

Although teachers overall generally had positive attitudes towards inclusion ($M = 70.19$, $SD = 11.83$) as measured by scores on the STATIC total scale (Research Question 1), special education teachers' attitudes towards inclusion ($M = 79.74$, $SD = 7.27$) were significantly more positive than those of general education teachers ($M = 66.90$, $SD = 11.32$) as demonstrated by a mean score difference of 12.84 on a 100-point scale. These results are supported in the literature.

Researchers have posited that special education teachers have more positive attitudes compared to general education teachers because they have specialized training in implementing inclusive strategies (Parker, 2009) and more experience in doing so (Malinen, Savolainen, & Xu, 2012). In fact, in Orr's (2009) study, special education teachers reported themselves as having more positive attitudes than their general education peers, citing their peers' lack of knowledge and preparation for the perceived difference in attitudes. In another study, general education teachers expressed confidence in their ability to implement IEPs, adapt lessons, and provide accommodations, but they still maintained their negative attitudes towards special education students (Cassady, 2011). However, while Ross-Hill (2009) did not compare teachers by type, results from her study indicated that general education teachers at the elementary and secondary levels were generally positive about inclusion.

Additionally, the analysis revealed that special education teachers had more positive attitudes towards advantages and disadvantages of inclusion and professional issues of inclusion (e.g., training and ability) than general education teachers had. These results also are supported in the literature. General education teachers reported that the design and delivery of specialized instruction required to teach special education students interferes with the instructional routine of the general education classroom (O'Rourke & Houghton, 2009) and is too time consuming (Horne & Timmons, 2009). In one study, regular education kindergarten students' reading and math performance decreased 10% by the beginning of first grade when special education students were included in the general education classroom (Fletcher, 2010). The results of these studies have shown that general education teachers find teaching special education students in the regular education classroom to be professionally challenging and a disadvantage to general education students.

With regard to education level, the results showed that teachers who held bachelor's degrees and master's degrees plus 30 units had significantly higher attitudes towards professional issues on inclusion than teachers holding a master's degree. This result is hard to explain based on the varying results in the literature. Because teachers can begin professional practice with a bachelor's degree and later obtain a master's degree to move up the salary schedule (Clotfelter, Ladd, & Vigdor, 2007), more teachers who have bachelor's degrees are likely to be young and inexperienced compared to teachers with master's degrees. (Younger teachers naturally have less experience than older teachers although not all older teachers necessarily have more experience.) While Berry (2010) found that less experienced teachers were more positive towards inclusion and more experienced teachers were less likely to be positive, Ross-Hill (2009) did not find significant differences in overall teacher attitude between groups of teachers based on experience. Similarly, Buford and Casey (2012) found that as years of experience increased, teacher attitudes appeared to remain generally positive. Moreover, Buford and Casey also found that teachers who are younger often are more positive about inclusion than are teachers who are older.

For Research Question 2, the TSES scale, the subscale Efficacy in Instructional Strategies, and teacher type were found to be significant predictors of overall teachers' attitudes towards inclusion. These results are supported in the literature. Malinen et al. (2012) noted that teacher self-efficacy did predict teacher attitudes towards inclusion. Likewise, Sokal and Sharma (2014) found that training in special education and a teacher's level of confidence in teaching students

with disabilities predicted teacher attitudes towards inclusion. Confidence in teaching students with disabilities is similar in nature to overall self-efficacy measured by the TSES scale in this study, and training in special education is equivalent to teacher type: special education.

Limitations

The choice to use convenience sampling to recruit participants limits the ability to generalize these results to the larger population of teachers in other school districts in the state or at the national level. An additional limitation was the small sample size. Small samples may overestimate the magnitude of the association or effect size between the independent and dependent variables in regression models. Despite this study's limitations, the results provide a valuable addition to the body of literature on inclusion of special education students in the general education classroom.

Implications for Practice

The results of this study have practical application in the educational setting. Sze (2009) asserted that teacher attitude is an important predictor of teacher effectiveness with regard to the capacity to facilitate the integration of students with disabilities into the general education setting. Specifically, teachers with negative attitudes are less effective than those with positive attitudes (Sze, 2009). Ultimately then, a teacher's attitude towards inclusion can be an integral part of the successful implementation of inclusive practices, which can contribute to student achievement (Hwang & Evans, 2011). Results of this study demonstrated that general education teachers in the schools of the focus district have less positive attitudes than special education teachers have. Based on Sze's assertions, these teachers presumably are less effective than they could be with regard to inclusive practices in the educational setting, which means that special education students may not be receiving the level of support they need to be successful in the general education classroom. School administrators, however, have the potential to initiate change. By helping teachers improve their attitudes towards inclusion, administrators can help teachers become more effective with regard to implementing inclusive strategies and, ultimately, improving student outcomes.

Also, the results showed that overall teacher efficacy, Efficacy in Instructional Strategies, and teacher type were predictors of teachers' attitudes towards inclusion and that higher levels of self-efficacy were associated with more positive attitudes towards inclusion. Based on these results, teachers' attitudes towards inclusion potentially could be improved by improving teacher levels of self-efficacy. School administrators could do this by implementing training not only in instructional strategies but in inclusive practices as well. By doing so, teachers' levels of self-efficacy could be improved, which could help improve teachers' attitudes towards inclusion, again with the potential to improve student outcomes and reduce the learning gap between students with disabilities and those without.

Future Research

Future research on this topic is warranted. It would be beneficial to explore differences in teachers' attitudes towards inclusion at various grade levels. It is possible that the duties associated with inclusive practices and/or the unique needs of students with disabilities at various age levels impact teachers' attitudes differently. Additional research should be conducted to explore other variables that may be related to teachers' attitudes towards inclusion such as the

impact of collective teacher efficacy, efficacy for implementing inclusive strategies in the classroom, age, and years of teaching experience. Because there were too few teacher responses to analyze the data for gender and the educational level doctoral degree in the current study, future research should consider these personal teacher characteristics as well.

Conclusion

Inclusion is a requirement of NCLB (2002), IDEA (2004), and ESSA (2015); therefore, administrators, general education teachers, and special education teachers involved in educating students with disabilities are mandated to modify instruction and provide instructional strategies to accommodate students with disabilities. When teachers have low levels of self-efficacy with regard to inclusive practices, they are not likely to actively put forth effort to implement these strategies. However, by improving teacher self-efficacy and attitudes towards inclusion among the teachers, the amount and quality of inclusive practices implemented in the classroom may be improved and, ultimately, student outcomes may be improved.

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Steps to Becoming Independent: Toilet Training Challenges Facing Children with Autism Spectrum Disorder

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Abstract

Learning toileting routines often occurs later for students with autism spectrum disorder (ASD). Many factors affect the delay that a family may experience in trying to toilet train a child with ASD, so having teamwork between home and school is vital for success at mastering the routines associated with independent toileting. Consistency, communication, and routine are the hallmarks of success. There must also be some consideration for the unique sexual, emotional, and sensory needs of a child with autism who is trying to learn any new task.

Steps to Becoming Independent: Toilet Training Challenges Facing Children with Autism Spectrum Disorder

Children with autism spectrum disorder (ASD) face many challenges that can hamper their ability to master toilet training. This basic right of passage for typically developed two- and three-year old children can become a nightmare for children with autism and their families and teachers. An older child wetting and soiling clothes or using disposable briefs will result in the loss of time, energy and money for their family. The ability to perform functional tasks- like eating, using the toilet, grooming, and basic household chores- is vital for independent living. Without such skills, an individual's potential to flourish in educational, vocational, and domestic settings is limited (Pierce & Schreibman, 1994). According to Wheeler (2007, p.3) there are several characteristics of people with ASD that must be addressed when planning an intervention for toilet training a child with autism. She lists the following 10 characteristics: "communication needs, literal communication, sensory awareness, sensitivity to stimulation, preference for routine or ritual, motor planning difficulties, limited imitation, sequential learning, increased levels of anxiety and difficulty adjusting behaviors to fit new situations." Parents, caregivers and educators need to be aware that these challenges exist but are not insurmountable. With patience, consistency, clear communication, and teamwork, a child with ASD can master toilet training. The challenges of teaching a child with autism spectrum disorder to use the bathroom can be so daunting that many families give up in frustration. Students who have ASD as a learning disability often go to school without having mastered this important life skill. Educators then must devote valuable classroom time to toileting needs, and the child's education inevitably suffers a loss. To successfully overcome this waste of resources, we must learn to train the parent in addition to the child. Parents have a major impact on successful toilet training for any child, and this is especially true for children with ASD (Kroeger & Sornsen, 2010). They write "by training parents and subsequently their children within the home, issues of generalisation are circumvented in that the training is provided in the child's most common environment with the

child's most frequent caregiver (parents)." The norm is for children with autism to live at home and to have the most interaction with their parents, thus the parents serve a critical role in providing consistency for a new toileting program. Problems generalizing skills, as children with ASD tend to have, means that applying a skill learned in one environment, such as home, is difficult to apply to a different environment, such as school. Learning a skill that will be used most frequently at home is best taught at home.

Unfortunately, parents are often unaware of how to deal with the specific challenges that ASD presents, especially when it comes to the often emotionally-charged subject of toilet training. Carol Kranowitz (2007) points out that there are three things that you simply cannot force another human to do: sleep, eat and poop. All children experiment with controlling their own body. She gives the example of a girl, Annie, who can do everything correctly regarding toileting, but refuses to flush, "because she cries, 'Annie made it!'" Annie cannot stand the thought of discarding something that was once a part of her body. Other stories include boys with ASD who cannot tolerate to use the bathroom at school because the harsh, loud sounds of a school bathroom are unbearable to them. Some children with ASD cannot figure out the complex series of actions required to disrobe, use the bathroom, wipe, get dressed again, and wash their hands, so they simply give up. Kranowitz even mentions that some children refuse to become toilet trained because they enjoy the warm sensation the excrement causes on their skin. Students who are not successfully toilet trained may end up trying to hold it -- which can become physically harmful. They may also simply insist on soiling their clothes -- which can be potentially embarrassing for their families. Disposable briefs can become expensive for families. Students who are not successfully toilet trained will drain valuable time and money from their families and schools (Wheeler, 2007).

Communication

For any attempt at toilet training intervention to be successful, all of the adults in a child's life must be on the same page. Clear communication and mutual respect are the hallmark of any strong team. The same words, pictures, schedule, and routines must be agreed upon and used by everyone at home, at school, at the daycare, and at Grandma's house -- wherever the student routinely spends time and needs to use the bathroom. As we will discuss further, simple progress and reward charts should be filled out and moved with the child from location to location throughout the day. These simple communication tools will allow everyone on the team to know where progress is being made and where challenges still exist. They can also help motivate the student towards success.

While communication among the team is important, communication to the child must also be clear and consistent. Words should be kept brief and to the point, and picture symbols may help overcome communication barriers. The steps of toileting must remain the same regardless of who is helping the child go to the bathroom. It is also important for everyone to demonstrate patience with the process and consistently communicate the importance of learning to use the potty. A child with autism will have a much harder time mastering the skills of toilet training if everyone does not patiently demonstrate that toilet training is a high priority. A child who knows he can get by with soiling his clothes or wearing a diaper once he goes to his daycare center (or

whichever location is not committed to helping him master the routine) will be much less likely to put in the effort required to master this new skill.

Consistency

A helpful way to begin implementing toilet training is to create a routine of consistent times for a child to use the bathroom and to use a chart to track successful toileting. According to Boswell and Gray (1998), "Even in typically developing children, toilet training is often a difficult skill to master. While the child may have good awareness and control of his body, there are other factors, social factors, that determine how easily toileting skills are learned" (p.1).

To create this schedule, parents and educators must begin by tracking data. Tracking when a child is wet or soiled for a period of one or two weeks allows for data to show at what times in the day the child will need to use the bathroom. Parents and educators should note whether or not the child is aware of being wet. This initial data will indicate if a child can remain dry for a significant portion of the day. If a child knows when she is wet and can remain dry for a significant period of time, then she may be ready to begin independent toileting (Boswell & Gray, 1998). Even if a child cannot stay dry or doesn't know when he is wet, a consistent toileting routine should still be established for the child. This will help normalize using the bathroom for children with ASD and to keep them in line with what is socially appropriate for children their age.

While a chart that records the times and details of toileting is an important communication tool among the adults, it is advisable to keep incentive charts for the child simple. Tracking how many times a child can successfully void in the bathroom allows both the adult and the child to see progress and to work towards a goal. A good tool to use with children who have autism is a "first, then" incentive. A child first needs to use the bathroom; then he earns a preferred activity. Finding the reward or activity that a child with autism is willing to work for is often the key to success. Again, everyone on the team must be consistent, and the reward must only be given out for success. Adults who allow the child to have the agreed upon reward without successfully using the restroom will only make it that much harder for a child with ASD to master this important life skill. Children with ASD can be master manipulators when they want to get their favorite reward. Everyone involved must be ready to patiently and steadfastly withhold the reward when a child does not use the toilet -- regardless of how elaborate the meltdown. If everyone is consistent, the child will eventually understand that the reward is ONLY available if she voids in the toilet.

For children with higher functioning forms of ASD, incentive charts can be used to motivate them toward more successful and consistent voids which will allow the child to earn more powerful incentives. Some examples of these types of charts are provided in figures 1 and 2.

ELIMINATION RECORD

CHILD'S NAME:	
DATE BEGUN:	

	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
Time	Pants	Toilet	Pants	Toilet	Pants	Toilet	Pants	Toilet	Pants	Toilet	Pants	Toilet	Pants	Toilet
7:00														
8:00														
9:00														
10:00														
11:00														
12:00														
1:00														
2:00														
3:00														
4:00														
5:00														
6:00														
7:00														

Figure 1: Elimination record; Available at http://connectability.ca/2011/10/19/how-to-use-an-elimination-record/

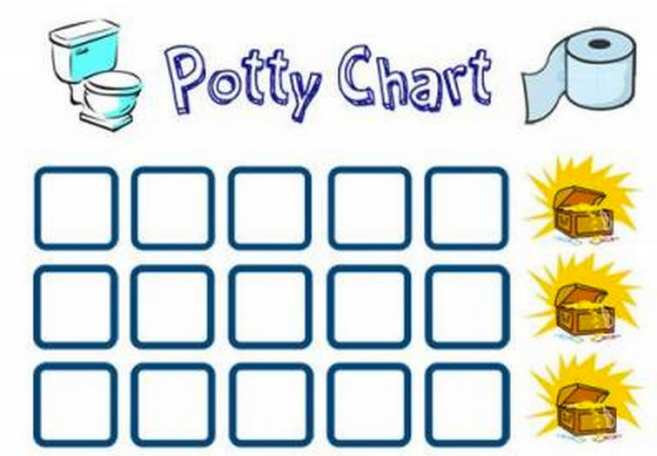

Figure 2: Example of an incentive chart for toilet training; Available at http://www.themommynest.com/entry/adventures-in-potty-training

Regardless of where a child falls on the autism spectrum, there must only be rewards for success. There can NEVER be punishment, negativity, or displays of frustration or anger. All family members, educators, and caregivers must clearly understand that accidents can and will happen- and everything will have to stop while the mess is patiently cleaned up. A momentary display of

frustration that results in an adult yelling at a child can easily reverse any progress that has been made. Months of work can be erased in the flash of an eye. A child who experiences a display of anger and frustration while trying to master toileting skills may no longer want to participate out of fear. Conversely, some children may find great amusement in causing an adult to "flare up" and decide that they get a greater and more immediate rewards from an adult's negative reaction. Attention is attention, however one is able to achieve it.

Along with progress charts that move with the child, signs that list the toileting steps should be clearly posted at all the bathrooms the child uses on a regular basis. It should start at pulling down the pants and list the steps from there until it concludes with drying hands and throwing away the paper towel. An example can be found in figure 3. When working with a child, it is important that everyone involved remains consistent with the steps. An author of this manuscript made the mistake of telling an older child with autism, "pull up your pants" after the student completed the task of voiding. The student complied with the request pulling his pants up, but failing to pull up his underwear first. In the realm of concrete thought used by many students with ASD, the teacher needed to say, "pull up underwear." The details are extremely important!

Figure 3: An example of the individual steps that need to be made clear during the toileting process (Summar, n.d.)

Routine

One method for teaching a routine to a student with ASD is forward chaining. Forward chaining states all steps that should be included in a task in sequential order where one step, or link in the chain, is built on the step before it. This is as common and effective a tool for students with ASD

as it is consistent. However, generalization to a different task, such as using the urinal versus using the toilet, should be taught as a new skill. An example of forward chaining that is particularly effective is point-of-view modeling, or POVM. POVM records the completion of a task from the target individual's perspective (Hine & Wolery, 2006). The video shows exactly what the target individual would see as if they were successfully completing a task. Reviewers have concluded that video modeling can be considered an established intervention procedure, which yields a large effect across a range of participants, target behaviors, settings, and people prompting the student to perform the task (McCoy & Hermansen, 2007; Shukla-Mehta et al., 2010; Shrestha, Anderson, & Moore, 2013). This method can be helpful if different people are prompting the student through using the steps in the bathroom as what the student sees is consistent to the location and independent of the person making the request. POVM can be used for toilet training to show each sequential step of how to successfully use the bathroom with editing made to ensure privacy for the student. Darden-Brunson et al. (2008) offer a possible explanation for the limited use of video-modeling with toileting. They suggest that video modeling may be unsuitable for teaching some private behaviors because of limitations with explicit visual depiction of personal self-care behaviors.

Toilet training a child with ASD comes with a unique set of challenges due to the child's varying need and aversion to sensory input. A child with autism may also have difficulty integrating sensory information and establishing the relationship between body sensations and everyday functional activities. Therefore, he may not know how to "read" the body cues that tell him he needs to use the toilet. Boswell and Gray (1998) conclude "He may also be overly involved in the sensory stimulation of the 'product'-- smearing feces is not uncommon in young children with autism." If this sort of stimulation is the case, staff should neutrally block the child from playing and clean him. One way to replace and replicate this sensation is to provide play dough for the child to play with while on the toilet. A child with ASD may be overwhelmed with the sensory experience of a toilet as well. Loud noises combined with the thought of having to sit over open water may be too much for a child. Boswell and Gray (1998) suggest if a child is resistant of sitting on a toilet:

- allow the child to sit without removing clothes allow to sit with toilet covered (cardboard under the seat, gradually cutting larger hole, or towel under the seat, gradually removed)
- have the child use potty seat on the floor rather than up high if strategies are helpful for sitting in other places, use in this setting also (timers, screens, picture cues, etc.)
- ask the child to take turns sitting, or use doll for model
- let children sit together to add physical support
- help the child understand how long to sit (sing potty song, length of 1 song on tape player, set timer 1 minute, etc.)
- provide the child with entertainment as he gradually begins to tolerate sitting

By considering the reasons a child does not want to complete a step of using the toilet or perseverating on one aspect of the routine, the adult can learn how to alleviate the child's aversion. Additional sources remind caregivers "a further consideration is that the removal of clothing for toileting may trigger exaggerated responses to the change in temperature and the tactile feeling of clothes on versus clothes off" (Boswell & Gray, 1998, p.2-3).

Privacy and Sexual Issues

An important aspect of toilet training for students with autism spectrum disorder is privacy and the sexual issues that may occur during toilet training. Because toilet training may occur later than in typical development, children with ASD may be more developed or near adolescence. Making not only the students but also others working with the students aware of appropriate touching and boundaries is not only critical to the success of toilet training, but it also ensures the safety and privacy concerns of the student. Koller (2000) observes, "the goal of sexuality education should be to protect the individual from sexual exploitation, teach healthy sex habits, and increase self-esteem. Education needs to be provided with consistency and common sense. It will need to be on-going to constantly reinforce appropriate behaviors" (p.131).

An adolescent who is learning how to use the toilet may come with a unique set of challenges, including masturbation and menstruation. Teaching these components of toilet training needs to be handled appropriately and is best taught as private versus public skills. Teaching private skills includes awareness of other people, identifying private body parts, identifying rooms and spaces that are private, discussing what ensures privacy, and making visual reminders that a place is a private location (Thompson & Reed, 2011). Even with all of these techniques and reminders in place, inappropriate masturbation may still take place. Inappropriate masturbation may be caused by changes in routine, unresolved sexual problems, lack of sexual education, lack of privacy, medication side effects, or seeking tactile stimulation (Koller, 2000). If a caregiver encounters this situation, they should "interrupt the behavior, remind the student of appropriate time and place for behavior, redirect to another activity requiring both hands, focus, and physical activity or redirect to a specific appropriate private place" (Koller, 2000, p.128). When this situation occurs, the child or act should not be labeled as "naughty," "wrong," or "bad" (Thompson & Reed, 2011). This stigmatizes the act and lowers the child's self-esteem.

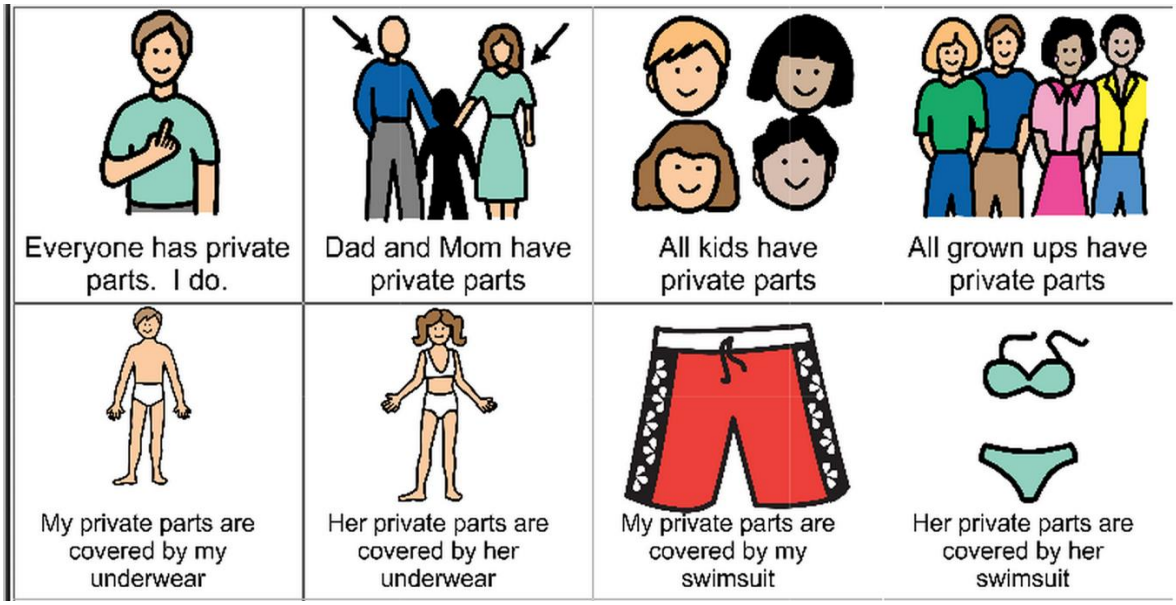

Figure 4: A social story addressing privacy and private parts. (Curtiss, 2013).

The example social story in Figure 4 can be used with children with ASD to explain privacy and private parts. Students with ASD need consistency and structure, and providing information in a story format allows the reader to be able to provide the information in a script that can be repeated verbatim later on.

Another issue unique to adolescents is menstruation. This time can be a scary occurrence for a girl if she is not taught and prepared before she has her first period. Thompson and Reed (2011) suggest talking about menstruation before a girl receives her first period and to normalize it to reduce anxiety. It is suggested to practice with tampons and pads before a girl's first period and to discuss good hygiene habits, including hand washing and what to do if there is an accident (Thompson & Reed, 2011). As previously stated, this should also be emphasized as a private event that is discussed with only specific people and should be handled in specific private locations. The amount of explanation provided to a child should be balanced with how much information one feels that the child can understand and handle. It would be beneficial for a child to understand that a period comes and goes monthly and what signs she should be aware of before she gets her period, such as cramping. However, basic understandings—such as a period being private and good hygiene-- are needed, and should be most closely tied into a toilet training routine.

Conclusion

Toilet training may seem like a daunting task for both the child with autism and the educators or parents who are implementing the plan. However, breaking the task into smaller, more manageable parts allows both the child and educator to master each step before tackling the next one. Having a child who is toilet trained before he reaches adolescence or adulthood allows for better placement in adult programs as he will learn greater independence and require less care from staff. Using the bathroom is also more socially appropriate and normalizing for a child compared to using a diaper into later childhood. With appropriate planning, time, and effort, children with autism spectrum disorder can experience toilet training success, greatly improving their quality of life.

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Leadership Style of Head Teachers of Basic Special Schools as Correlates of Retention of Special Needs Educators in Southern Ghana

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Abstract

The study aimed at establishing relationship between leadership style of head teachers and retention of special education teachers in Southern Ghana. The study was purely quantitative and utilized descriptive correlation design which allowed the researcher to establish the strength and direction of the relationship between the independent variable and the dependent variable. Data was collected with questionnaire from 140 teachers from nine special schools. Data was analyzed descriptively and inferentially. The study found a significant positive correlation between the leadership style and retention of special needs education teachers. Head teacher's leadership style was also found to have a statistically significant impact on retention of the teachers. It was recommended that head teachers of special schools should involve their teachers in the decision making process regarding the progress of the school so as to enhance teachers' job satisfaction and retention.

Leadership Style of Head Teachers of Basic Special Schools as Correlates of Retention of Special Needs Educators in Southern Ghana

Introduction

The kind of leadership provided by head teachers of pre-university institutions is very critical in improving schools, creating job satisfaction and retaining teachers. Effective leadership and employee job satisfaction are two factors that have been regarded as fundamental for organizational success (Voon, Lo, Ngui & Ayob, 2011). A good leader provides direction for the institutions they head and lead subordinates towards achieving the desired goals. In the same vein, teachers who are contempt with the leadership style of their head teachers are likely to be retained at post and put in more effort in their assigned duties and pursue the school's interests. In Ghana, special schools are administered by the Ministry of Education and managed by the Ghana Education Service through the Division of Special Education. Ghana has constantly improved the provision of special needs education through the expansion of facilities and training of teachers since independence in 1957. After the government established the University of Education, Winneba, in 1987, the number of teachers trained for the special schools had increased tremendously. However, a large number of teachers in special education had been reported to have abandoned their teaching profession as a result of job dissatisfaction (Chambers,

2008; Duesbery & Werblow, 2008; Thornton, Peltier & Medina, 2007). In America, Ingersoll (2001) reported that the attrition rate among teachers had been higher than other professions in the United States, and this situation affected the ability to retain high quality teachers in the classroom.

The situation in Ghana had not been very different from the global picture. In a report published by Kwarteng on the study conducted by the University of Cape Coast in the daily graphic edition of 1st October, 20012 indicated that about 6% of qualified teachers in the special schools had abandoned their jobs between 2010 and 2012 academic years. Earlier on, Avoke, Offei- Nyadu and Mensah (1999) noted that most special education teachers who graduate from the University of Education, Winneba tend to be unwilling and adamant in taking up teaching positions in the special schools after their specialist training. Cobbold (2010) citing Ghana News Agency (GNA) report stated that the media news of Wednesday, 19th June 2002, the Ghana Education Service expressed concern about teachers abandoning the classrooms after benefitting from study leave for their further studies. In Ghana, several studies (Boateng, 2001; Cobbold, 2010; Appiah-Agyekum, Suapim & Peprah, 2013; Saani, 2013; Sam, Effah & Osei-Owusu, 2014) had been conducted with the aim to understand this phenomenon. However, most of these studies only looked at factors such as compensation, remuneration packages and its effect on retention of mainstreamed teachers. For instance, Boateng (2001) studied Ghanaian primary school teachers' satisfaction with their job and what can be done to retain them in the profession. The study found that teachers were generally dissatisfied with the Low salary rates paid to them. In a similar study, Saani (2013) investigated the influence of compensation and teacher supervision on teacher work performance of private school teachers in Ghana and found that compensation and teacher supervision related positively to teacher work performance. At the time that this study was being considered, the researcher had not come across, any study on the relationship between head teachers' leadership styles and retention of special needs education teachers in Ghana and as a result, not much literature is available on the subject. According to Cole (2002), Leadership at the institutional set up is a process whereby the leader is not only responsible for the institutional tasks but rather collaborates with the subordinates in achieving group goals. Balunywa (2000) reported that the major occupation of a leader is not only to examine tasks to be performed and who performs them , but also seeks to include greater reinforcement attributes like recognition, service conditions, cohesion and rewards.

It is observed that teachers behave differently under different head teachers or principals. Therefore, head teachers could motivate teachers to be happy and be retained in the schools by identifying their needs and trying to meet them. The head teachers must provide the kind of leadership that make the teachers feel at home. The style of leadership usually adopted by head teachers of special schools in Ghana is an issue that is subject to investigation. It was against this background that this study was purposed to ascertain critically the type of leadership style(s) that special education teachers prefer and also to establish the relationship between head teachers' leadership styles and retention of special needs education teachers in Southern Ghana. Furthermore, the study was also to determine the impact of head teachers' leadership style(s) on retention of the teachers in the special schools.

Study Objectives

The study was guided by the following specific objectives:

1. To determine the preferred leadership style(s) by special needs education teachers in Southern Ghana.
2. To establish the relationship between leadership styles of head teachers and retention of special needs education teachers in Southern Ghana.
3. To ascertain the impact of head teachers' leadership style on retention of special needs education teachers in Southern Ghana.

Research Questions

To address the above objectives, the following research questions were posed to guide the study;

1. Which of the leadership styles used by the head teachers of special schools is usually preferred by the special needs educators in Southern Ghana?
2. Is there any statistically significant relationship between leadership styles used by head teachers of special schools and retention of special needs educators in Southern Ghana?
3. To what extent does the leadership style of the head teachers significantly impact on retention of special needs education teachers in Southern Ghana?

Review of Literature

Educational managers had identified leadership as important agent for the success of any educational institution, since it is the driving force for most institutions. This recognition had come at a time when the challenges of education development worldwide are more demanding than ever before (Nkata, 2005). Aghendta (2001) defined leadership as the ability of the leader to ensure that institutional tasks are performed with the help and co-operation of the group within the institution. Also, Northouse (2010) described leadership as an interactive process between leaders and their subjects where the leader tries to influence subordinates to achieve organizational goals. Oyetunyi (2006) posited that in an organization such as a school, the importance of leadership is reflected in every aspect of the school like instructional practices, academic achievement, students' discipline, job satisfaction and school climate, to mention but a few.

Liberman et.al cited by Adeyemi (2011) identified three approaches of leadership styles that are common among institutional leaders namely; Autocratic, Democratic and Laissez-faire leadership styles. In the autocratic leadership style, authority and decision-making is in the hands of the leader. The leader decides how things should be done and the subordinates are expected to comply. This kind of leadership is usually characterized by unclear channel of communication between the leader and the lead. The democratic style of leadership emphasizes clear channels of communication and group participation in the decision making process. Decisions relating to institutional issues are jointly taken after consultation and communication with all members of the group. Under democratic leadership, every individual member of the organization feel part and parcel of the organization. Mba (2004), reported that this style of leadership improves staff motivation. With regards to Laissez-faire leadership style, there is absolute freedom to group decision without the involvement of the leader. Thus, members of the organization have the freedom to do what they deem fit. The main responsibility of the leader is to ensure that subordinates are provided with the necessary working tools. Talbert and Milbrey as cited by

Adeyemi (2011) posited that with laissez-faire, the leader does not interfere with or participate in the course of events determined by the members of the organization.

Nyanjom (2013) defined retention as policies and practices companies use to prevent valuable employees from leaving their jobs. It involves the strategies that institutions adopt to encourage their employees to remain in the organization for some period of time. Teacher retention within a given school is operationalized as the percentage of teachers retained from one year to the next. If in a given year a teacher is employed at the same school they taught at the year before, they would be considered "retained". Evidence suggests that teachers tend to leave certain schools at higher rates than others; research also suggests different types of teachers are more likely to leave certain schools, or teaching altogether, than others. In particular, high-quality teachers are more likely to leave, especially if the school serves students who are impoverished and low-achieving (Lankford, Loeb & Wyckoff, 2002).

Several researchers have found a relationship between leadership styles and retention of teachers (Bogler, 2001; Bogler, 2005; Sigilai & Bett, 2013). For instance, Bogler (2001) conducted a study on the influence of leadership style of principals on teacher job satisfaction and retention. The study revealed that leadership styles of head teachers or principals significantly influenced the job satisfaction and retention of the teachers. The study also discovered that a leadership style that involves the teachers in the decision-making processes gives the teachers a higher level of job satisfaction than if they were not involved. The teachers report greater satisfaction in their work when they perceive their principal as someone who shares information with them, who delegates authority, and who keeps open channels of communication with them.

In a related study, Ngururi (2013) conducted a study on the influence of teachers' job satisfaction on pupils' performance in public examinations in Nakuru County, Kenya. The findings revealed that job satisfaction of the teachers was affected by the head teachers' administrative styles used in schools. Similarly, Bhatti, Maitlo, Shaikh, Hashmi and Shaikh (2012) explored the impact of Autocratic and Democratic Leadership style on job satisfaction in private and public school. Self-developed questionnaire was the main tool for data collection. The data were collected from two hundred and fifty (250) teachers of both public and private schools. Inferential statistics was employed in the data analysis. It was found that leadership style had a positive impact on job satisfaction and public teachers had high level of job satisfaction rather than private teachers. The study found, among other things that employees feel uneasy when working under autocratic leaders.

In a related study, Adeyemi (2011) investigated principals' leadership styles and teachers' job performance in senior secondary schools in Ondo State, Nigeria. The study population comprised all the 281 secondary schools in the State. Out of this population, a sample of 240 senior secondary schools was selected and out of 7,460 teachers in the schools a sample of 2,040 teachers was selected through the stratified random sampling technique. This sample was made up of 240 principals and 1,800 teachers. The data collected were analysed using both descriptive and inferential statistics. It was found that the democratic leadership style was the most commonly used leadership style among principals of senior secondary schools in the State. The study further found that teachers' job performance was found to be better in schools having principals using autocratic leadership style than in schools having principals using democratic or laissez-faire leadership styles.

Omeke and Onah (2012) conducted a study to investigate the influence of principals' leadership styles on secondary school teachers' job satisfaction in Nsukka Education Zone of Enugu State, Nigeria. The design of the study was a descriptive survey design. The study used stratified random sampling technique to select a total of 28 public secondary schools from three Local Government Areas in the zone. Some 280 classroom teachers were used as respondents for the study. Answers to the research questions were analyzed using mean and standard deviation and t-test.The results revealed that the principals adopted three leadership styles in their administration namely; autocratic, laissez faire and democratic according to their dominance. Teachers irrespective of gender agreed that only democratic leadership enhances their job satisfaction.

In a similar study, Nsubuga (2008) conducted a study on the analysis of leadership styles and school performance of secondary schools in Uganda. The study aimed at investigating the relationship between leadership styles of head teachers and school performance of secondary schools in Uganda. The study employed mixed methodology that used both the qualitative and quantitative methods in data collection and analysis. It adopted a correlation survey research design that helped in establishing the relationship of leadership styles and school performance. Data for the study was collected through observations, questionnaires, and interviews and focused group discussions. A sample of 625 respondents was chosen for the study and out of the 625 respondents, purposeful and random sampling was used to select 24 head teachers, 200 teachers and 351 students, 49 parents and 10 officials from the Ministry of Education. The finding of the study revealed that the democratic leadership was the most preferred form of leadership style in school. It was also found that although the democratic style was most preferred, school leaders tend to vary their leadership style and at times used the autocratic style of leadership. It was also established that where the democratic style of leadership was practiced, the school was likely to achieve a good overall school performance.

In a related study, Voon, Lo, Ngui and Ayob (2011) investigated the influence of leadership styles on employees' job satisfaction in public sector organizations in Malaysia. The objective of the study was to determine the relationship between two leadership styles and job satisfaction among employees in the public sector. Two hundred Malaysian executives working in public sectors voluntarily participated in this study. Data was collected through survey questionnaires from targeted employees working in public sector. A total of 300 questionnaires were distributed to selected public sectors using a convenient sampling method. However, only 200 employees responded to the survey, resulting in a 66.7 per cent response rate. The study findings revealed that the leadership style had direct relationships with employees' job satisfaction. The results further showed that transformational leadership style had a stronger relationship with job satisfaction. This implies that transformational leadership is deemed suitable for managing government organizations.

Methodology

The study adopted non-experimental, quantitative and correlational survey design to establish the correlation between head teachers' leadership styles and retention of special needs education teachers in Southern Ghana. Correlational design enables the researcher to describe and measure the strength, direction and the degree of relationship between variables under study (Cresswell, 2005). The quantitative method was adopted because establishing relationships between two or more variables require strict computational approaches.

This study targeted all the 375 special education teachers from the 14 special schools located in Southern Ghana. This consisted of 49 teachers of the Blind, 72 teachers of the Intellectually Challenged and 254 teachers of the Deaf. Stratified, simple random and quota sampling techniques were employed to select a sample size of 150 teachers from 9 accessible special schools within the study locale. Proportional representation method was used to select the participants from the three categories of schools namely; Schools for the Deaf, School for the Blind and Schools for Intellectually Challenged. The study used 140 responses for analysis giving a return rate of 93%.

The study utilized self-developed questionnaire to investigate the relationship between leadership style and teacher retention. The questionnaire was made up of three parts A, B and C. Part A elicited personal information about each of the respondents. These include type of school, gender, age, qualification and teaching experience. Part B requested information on types of leadership styles being used by the head teachers while Part C elicited responses on teachers' perception about their job satisfaction and retention. The questionnaires were personally administered by the researcher after obtaining the necessary permits and consent from head teachers and the teacher participants respectively.

Validity of the questionnaire was determined through a review by experts who ensured that items in the questionnaire were capable of measuring the variables that the researcher intended to measure. The reliability was determined through the internal consistency approach. In determining the reliability, data was collected from 17 teachers from non- sampled schools for pre-testing and Cronbach- Alpha formula was employed to ascertain the reliability coefficient. A reliability coefficient of 0.77 was found indicating that the teachers' questionnaire was reliable for the study.

In the analysis of the data, the five-point Likert-Scale ranging from strongly agree to strongly disagree was used to measure the teachers' responses as follows; Strongly Agree = 5, Agree =4, Undecided = 3, Disagree =2 and Strongly Disagree = 1. However, responses to negative statements were coded in reverse to reflect the coding values. The data were analyzed descriptively and inferentially using means, standard deviation, Pearson Product Moment correlation and regression model while the hypotheses were tested at 0.05 alpha levels.

Results of the Study

Research Question 1: Which of the leadership styles used by the head teachers of special schools is usually preferred by the special needs educators in Southern Ghana?

This question sought to determine which of the leadership styles used by the head teachers of special schools is mostly preferred by their teachers. The objective was measured by 21 items in the teachers' questionnaire which was focused on the different types of leadership styles namely; democratic, autocratic and laissez-fare leadership styles. To obtain the responses of the teachers, descriptive statistics were run to determine the mean values of the various types of leadership styles under study. Table 1 represent the mean values.

Table 1: *Mean scores of teachers on preferred leadership style*

Types of leadership	Mean	Standard Deviation	Rank
Democratic	2.89	1.26	1st
Autocratic	2.78	1.30	2nd
Laissez-faire	2.23	1.16	3rd

The results from Table 1 revealed that the most preferred leadership style by special education teachers in Southern Ghana was democratic leadership style which had a mean of 2.89 and a standard deviation of 1.26 while autocratic leadership style scored second with a mean of 2.78 and standard deviation of 1.30. Laissez-faire leadership style placed 3rd position with mean value of 2.23 and standard deviation of 1.16. From the results of the analysis, it was worth noting that the democratic leadership style could yield high teacher retention if properly adopted. Thus overall results revealed that the teachers responded favourably to democratic leadership style of their head teachers.

Research Question 2: **Is there any statistically significant correlation between leadership style used by head teachers of special schools and retention of special needs educators in Southern Ghana?**

The research question sought to find out if there was any statistically significant correlation between leadership style and retention of teachers in the special schools in Southern Ghana. To address the issue, the research question was transformed into the following null hypothesis; **H_{o1}**: There is no statistically significant correlation between leadership style used by head teachers of special schools and retention of teachers in the special schools in Southern Ghana. The hypothesis was tested using Pearson's correlational method. In testing this hypothesis, data on head teachers' leadership style and teachers' retention were collected from the responses of the teachers' questionnaire. Table 2 shows the correlation coefficient results from the Pearson Product Moment Correlation Coefficient.

Table 2: *Correlation analysis of leadership style and retention*

		Retention	Leadership style
Retention: Pearson	Correlation	1	.683**
Sign	(2-tailed)	-	0.009
N		140	140
Leadership style	Correlation	.683**	1
Sign	(2 – tailed)	.009	-
N		140	140

Correlation is significant at the 0.05 level (2-tailed).

Table 2 indicated the results of the correlation between leadership style of head teachers and retention of teachers. The analysis showed a significant positive correlation between the leadership style and retention of special needs education teachers in Southern Ghana (r = 0.68, n = 140; $p<0.05$) rejecting the hypothesis that there is no statistical significant correlation between head teacher's leadership styles and retention of special education teachers. The correlation coefficient of r = 0.68 and the p value being less than the significant level ($p<0.05$) indicate that there was a strong, positive and significant correlation between the two variables.

Research Question 3: **To what extent does the leadership style of the head teachers significantly impact on retention of special needs education teachers in Southern Ghana?**

The research question was posed to ascertain the extent to which leadership style of head teachers of special schools impact on retention of special educators in Southern Ghana. In addressing this question, the following null hypothesis was formulated.

H_{o2}: The leadership style of the head teachers of special schools does not significantly impact on retention of special needs education teachers in Southern Ghana?

To test this hypothesis, data on head teachers' leadership style and retention of teachers were collected from the responses of the teachers' questionnaire. Linear regression method was used to determine the impact of the independent variable of leadership styles on the dependent variable of retention. Table 3 shows the output from the regression analysis.

Table 3. Regression Analysis

Model	Unstandardized Coefficient		Standardized Coefficient	Degree of Freedom	R	R^2	Adjacent R^2	F	Sig
	B	SE	Beta						
Constant	.603	71.52		1	.51	.26	.39	5.13	.005[b]
Leadership	.415	1.08	0.619	138					
Total				139					

Table 3 showed that leadership had a statistically significant impact on retention of the teachers. The regression equation found from the output could be stated as; F (1,138) =5.13, $p < 0.05$). This implied that fitting a model between the two variables would be valid. Thus, the linear regression model obtained from the standardized beta would be stated as follows;

$$Retention\ (Y) = .603 + .415\ Leadership\ (X)$$

Where Y is the value of retention; X is the value of independent variable of Leadership. This showed that every single unit of improvement in head teachers' leadership style would increase teacher retention by approximately 0.415 but if the constant is given as 0, then retention (Y) would be equal to .415 indicating that leadership style of head teachers in the study had a significant impact on retention of teachers. The results in Table 3 also showed R^2 of 0.26 which represented the coefficient of determination that explained the proportion of variation of the independent variable of leadership style to retention. Thus, the leadership style of head teachers contributed about 26% to retention confirming the rejection of the stated hypothesis that leadership style of head teachers does not significantly impact on retention of Ghanaian special educators in the Southern Sector. The rest of the 74% may be attributed to combination of other variables in the school environment.

Discussion of Findings

In the analysis above, it was revealed that the teachers responded favourably to the democratic leadership style of their head teachers. Thus the study found that the most preferred leadership style by special education teachers in Southern Ghana was democratic leadership style which had a mean score of 2.89 followed by autocratic leadership style which scored second with a mean of 2.78. This finding was consistent with the findings of several studies (Bogler, 2001; Nsubuga, 2008; Bhatti et.al, 2012 & Ngururi, 2013) that found that the democratic leadership style was the commonest style of leadership used by heads of educational institutions. The teachers' choice for democratic leadership style was an indication that the other forms of leadership styles may not be a good style of leadership that could enhance retention of special education teachers. This finding was in consonance with the findings made by Nsubuga (2008) who found that consultative form of leadership was the most preferred form of leadership style in Ugandan schools.

In a related study, Adeyemi (2011) investigated principals' leadership styles and teachers' job performance in senior secondary schools in Ondo State, Nigeria and discovered that the democratic leadership style was the most commonly used leadership style among principals of senior secondary schools in the State. The finding of the current study is quite revealing because the general notion among head teachers in Ghana was that teachers prefer leaders who adopt laissez-faire style at the expense of democratic form of leadership style. Similarly, Bhatti, et. al (2012) explored the impact of autocratic and democratic leadership style on job satisfaction in private and public schools and found, among other things that employees feel uneasy when working under autocratic leaders than democratic leadership. Furthermore, in their study, Omeke and Onah (2012) also discovered that teachers irrespective of gender agreed that only democratic leadership enhances their job satisfaction.

Results from the present study also indicated that there was a significant positive correlation between the leadership style and retention of special needs education teachers in Southern Ghana ($r = 0.68$, $n = 140$; $p < 0.05$). This is perfectly in agreement with the findings of Voon et.al (2011) who noted that the leadership style have direct relationships with employees' job satisfaction. The results showed that democratic leadership style had a stronger relationship with job satisfaction. This confirmed the fact that democratic leadership style is the most workable style of leadership that could enhance better retention among teachers in special schools in Southern Ghana.

The analysis regarding the impact of head teachers' leadership style on retention of special education teachers in Southern Ghana, the study established that the leadership style had a significant impact in teacher retention. The results of the study revealed that leadership style contributed approximately 26% of the variation in teacher retention. The present study is perfectly in agreement with Bogler (2001) who found that leadership styles of principals significantly influence the job satisfaction and retention of the teachers. The findings again related well to Ngururi (2013) who observed that job satisfaction of the teachers is affected by the head teachers' administrative styles used in schools.

Conclusion

The main aim of the study was to establish special education teachers' preference for leadership styles used by the head teachers of special needs schools and how they relate to retention of special educators in Southern Ghana. The results showed that special education teachers in Southern Ghana preferred their head teachers to use democratic style of leadership as against autocratic and laissez fare leadership style. The Pearson moment correlation coefficient analysis showed a significant positive correlation between the leadership style and retention of special needs education teachers in Southern Ghana ($r = 0.68$, $n = 140$; $p < 0.05$). With regards to the impact of leadership style on teacher retention, the present study found a statistically significant impact of leadership style on retention of special needs education teachers in Southern Ghana with leadership style contributing about 26% to variation in teacher retention. On the whole, the findings of this study had led the researcher to conclude that the type of leadership style employed by head teachers of special schools play a critical role in special educators' job satisfaction and retention in the special school. It is therefore imperative that head teachers of these schools adopt acceptable management and leadership styles that would enhance job satisfaction and boost retention of teachers in the schools.

Recommendations

Based on the findings, the study recommended that head teachers of special needs schools in Southern Ghana should be encouraged to adopt democratic leadership style in the governance and and leadership of their schools. However, Laissez faire and autocratic kinds of leadership should be discouraged among the head teachers since it has the potential of affecting school outcomes. The Ghana Education Service needs to organize frequent in–service training workshops for head teachers of special schools on leadership and management. This would help to equip the head teachers with the best leadership approaches that could enhance teachers' job satisfaction and their retention in the special schools. This is important to ensure that the schools attract and retain quality teachers to provide quality education to the special needs child.

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Revisiting the Regular Education Initiative: Multi-tiered Systems of Support Can Strengthen the Connection Between General and Special Education

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Abstract

In 1986 Madeleine Will proposed the Regular Education Initiative (REI) to share possibilities for eliminating the divide between general and special education. Although great strides have been made over the past several decades in regard to the inclusion of students with disabilities, a significant divide between general and special education still exists. The purpose of this article is to discuss how multi-tiered systems of support (MTSS) models for implementing evidence-based instruction to students with and without disabilities are used to create a culture of inclusive practices that encourage collaboration between general and special education. We offer suggestions for schools looking to establish and/or strengthen a model that is both cohesive and integrated.

Revisiting the Regular Education Initiative: Multi-tiered Systems of Support Can Strengthen the Connection Between General and Special Education

In the mid 1980's when Madeleine Will was serving as the United States Department of Education Assistant Secretary for Special Education and Rehabilitative Services, she published a landmark manuscript entitled "Educating Students with Learning Problems: A Shared Responsibility" (Will, 1986). This publication paved the way for the Regular Education Initiative (REI), which encouraged educators to re-conceptualize the way special education services are delivered. The main call to action suggested by the REI was for schools to eliminate the divide between general and special education to better serve students with disabilities and other struggling learners. Will's (1986) vision described what true collaboration and integration should encompass and how the skill sets and expertise of general and special educators should compliment one another to deliver high quality, evidence-based, differentiated instruction to all students.

Unfortunately, there was not global embracement of the REI at national, state, and local levels across the United States. Opponents of the REI argued that it was a method for replacing special education and expressed concern that students with disabilities would not receive the individualized services and supports they needed (Mostert, 1991). However, the vision of the REI was not to take away specialized instruction, it was to deliver this instruction in general education classrooms through the collaboration of general and special education teachers. Will argued that special education should not be thought of as a "place," but the coordination of services and supports to promote the learning of students with disabilities. There could be many reasons why there was misinterpretation of the message behind Madeleine Will's manuscript and

the REI. Possibly the name "Regular Education Initiative" led people to believe that proponents of the REI were suggesting that students with disabilities simply needed to receive the same instructional approaches as their non-disabled peers. In other words, the unfounded belief that specialized instruction could only take place in segregated settings may have led opponents to action against the REI.

Although the REI was never completely brought to fruition, it certainly led to great strides in the delivery of inclusive practices. More students with disabilities are now receiving instruction in general education classrooms alongside their typically developing peers than they were when the manuscript was published (McLeskey, Landers, Williamson, & Hoppey, 2012). However, the divide between general education and special education still exists. Self-contained classrooms and resource rooms continue to be the places in which many students with disabilities receive their specialized instruction and supports. As Will suggested long ago, pulling students out of general education and placing them in other educational settings is based on a myth that underperformance is explained solely in terms of deficiencies in the learner rather than deficiencies in the classroom environment (Will, 1986). In actuality, when there is true collaboration between general and special educators to effectively include students with disabilities through the use of evidence-based instructional practices, students with disabilities demonstrate greater academic gains compared to students served in self-contained settings (Cole, Waldon, & Majd, 2004; Cosier, Causton-Theoharis, & Theoharis, 2013; Dessemontet, Bless, & Morin, 2012; Kurth & Mastergeorge, 2010).

If published today, the REI manuscript would likely have a different, more positive, interpretation than it had in 1986. Through of the expansion of inclusive practices over the last several decades, it has been shown that the delivery of specialized services can certainly occur in general education classrooms. For example, inclusive movements led to the development and advocacy for co-teaching approaches when delivering services and supports to students with disabilities in general education classrooms (Cook & Friend, 1995). Additionally, in the late 1990's professional development initiatives began to focus on the use of differentiated instruction (Tomlinson, 1999) and universal design for learning (Meyer, Rose, & Gordon, 1998) to meet the needs of diverse learners in inclusive classrooms. In recent years, the implementation of positive behavioral interventions and supports (PBIS) to improve student behavior is widely used across the country providing educators with additional strategies and approaches to successfully include students with behavioral challenges (Bradshaw, Mitchell, & Leaf, 2010).

Today, many states and school districts are using multi-tiered systems of support (MTSS) frameworks, combining response to intervention and PBIS initiatives into one comprehensive academic and behavioral support model. This comprehensive approach to addressing academic and behavioral concerns can potentially have the greatest impact on eliminating the divide between general and special education. When implementing MTSS, the aim is to deliver effective instruction to all students and increase the level of academic and behavioral support for some learners based on needs identified through screening and progress monitoring (Copeland & Cosbey, 2008). Because the Individuals with Disabilities Education Improvement Act (IDEA, 2004) encourages the use of student responses to evidence-based instruction as a formal part of the disability identification process, most states are implementing MTSS models to provide

intervention and support to struggling learners (Prasse, Breunlin, Giroux, Hunt, Morrison, et al. 2012).

Revisiting the REI Through an MTSS Lens

In her manuscript, Madeleine Will shared four main strategies to minimize the significant divide between general and special education. These include: 1) empower principals to control all programs and resources at the building levels; 2) provide a support system for general education teachers; 3) use successful instructional approaches to address the needs of students with disabilities; and 4) increase instructional time in classrooms to support learners with disabilities (Will, 1986). In direct alignment with Will's recommendations, MTSS focuses on empowering principals to align the appropriate levels of academic and behavioral supports students need to be successful with an emphasis on increasing instructional time in classrooms, providing support systems for general education teachers, and using evidence-based instructional practices to address challenges and improve student learning. The sections that follow discuss how the use of MTSS models for implementing evidence-based instruction to students with and without disabilities can create a culture of inclusive practices that encourage collaboration between general and special education. Each section includes suggestions for schools looking to establish and/or strengthen a model that is both cohesive and integrated.

Empowering Principals

The individuals who are likely to make the greatest impact on reducing the divide between general and special education are school administrators (Ainscow & Sandhill, 2010; Waldron & McLeskey, 2010). These leaders play a key role in shaping the vision of collaboration in their schools, holding educators accountable for fulfilling the vision, and supporting teachers in the implementation of collaborative instructional practices. While district-level special education administrators should guide and support school administrators as they work on blending the programs and resources in the school to support more students effectively in inclusive classrooms, the building level administrators must have authority to make decisions related to service delivery options.

Many general educators still view response to intervention and MTSS as special education initiatives, in contrast to special education teachers who generally understand these frameworks as initiatives to meet the needs of all learners (Gallagher & Coleman, 2009). Fortunately, school-based administrators do have authority over MTSS implementation decisions. Thus, they have the power to reshape the way general education teachers view tiered support systems that moves them to understanding and valuing the impact that collaboration and co-teaching with special educators can have on the learning of all students. The most common MTSS model being used is the three-tiered system that was originally introduced through PBIS and response to intervention frameworks. This system includes the delivery of universal instruction for all students (Tier I), targeted intervention and supports for some students who require additional supports and/or specialized instruction (Tier II), and individualized interventions and supports for the few students who continue to require intensive specialized instruction (Tier III) (Shinn, 2013). Principals need to systematically plan how these tiered supports are delivered, however, so that MTSS does not become one more way to provide segregated services. For example, instead of providing specialized interventions at tier two and three levels using pullout approaches, it is best

to layer these supports within the structure of general education classrooms through the collaboration and co-teaching of general and special education teachers. When this approach is utilized, students with disabilities, students at-risk, students performing on grade level, and students performing above grade level can all receive the differentiated instruction they need to thrive academically and behaviorally. Below are recommendations for school-based administrators to consider as they design and evaluate MTSS models to move toward increased collaboration and co-teaching between general and special education teachers:

1. Research models of MTSS and co-teaching to determine how the models can be implemented across the content and settings in the school. Murawski and Hughes (2009) provide a thorough review of the different co-teaching models used to enhance the delivery of tiered interventions in general education classrooms.
2. Involve the School Leadership Team in the design of the school's MTSS model. Ensure each member of the team can articulate how the model works. Include this information in the School Improvement Plan, and communicate the details about the MTSS model to all faculty and staff.
3. Identify ways to assess how the model is working. For example, include specific items on walk-through observation forms, survey teachers and support staff, and develop systems for analyzing student growth. Designate specific times to review the information and make informed revisions as needed.

Support Systems for General Education Teachers

The original purpose of response to intervention was to deliver evidence-based interventions with different levels of intensity and progress monitoring (Fuchs, Mock, Morgan, & Young, 2003). The goal was to decrease the necessity for special education referrals for students who respond well to the interventions and open the doorway to earlier identification of students who continue to need intensive academic and/or behavioral supports. Schools can take this a step further with MTSS by viewing these tiered supports as opportunities to effectively include more students with disabilities in general education classrooms and better meet the needs of advanced and gifted learners. To do so, however, we must create structures of support within general education classrooms utilizing special education teachers, teachers of gifted students, curriculum coaches, literacy coaches, behavior specialists, speech and language pathologists, and other related service providers as collaborators. It is unwise to expect general education teachers to implement the diversified and intensive interventions that some students may need without the shared responsibility with other professionals.

As more and more general education teachers have opportunities to collaborate and co-teach with special education teachers and other instructional support personnel, they will increasingly enhance their use of evidence based practices to meet the needs of their current and future students (McDuffie, Scruggs, & Mastropieri, 2007). This continued professional development will not eliminate the need for co-teaching in the classroom. However, it may make the planning and delivery of interventions more efficient and effective, reduce teacher stress, and increase teacher competence and confidence in meeting the needs of all learners. Likewise, when special education teachers have opportunities to co-teach with general education teachers, they learn more about the general education curriculum and ways to engage learners in instructional

activities to address the national and state standards (McDuffie et al., 2007). Ultimately, if MTSS models increase collaboration in schools, general education teachers, special education teachers, and other school-based professionals will receive the support systems they need to effectively reach and teach the students they serve. Below are recommendations school-based administrators can consider when creating support systems for general education teachers:

1. Talk with faculty and staff regarding their beliefs about inclusion, experiences with inclusion, potential barriers, specific needs of teachers in order to be successful implementing these models, etc. This can aid in the decision making process and create buy-in for an inclusive model that is effective and sustainable.

2. Match professional development to the specific needs of the school. Be sure there is time for the general and special education teachers to work together to plan and monitor the instructional program. Additionally, administrators can participate in these professional development experiences. This will send the message to faculty and staff that the experiences are essential to the improvement of the school.

3. Clearly articulate the roles of the general and special education teachers in the co-teaching model. Allow time for the teachers to build rapport, plan together, and create individualized systems for monitoring student progress to inform instructional decisions.

Evidence-Based Practices and Increased Instructional Time

Often, when students with disabilities fail to thrive in general education classrooms, they go to special education classrooms to receive specialized, evidence-based instruction. In other words, students experience failure and then receive instruction to help them learn skills and concepts they were unable to learn in the general education classroom. When students with disabilities receive their special education services and supports using pullout models, there is significant loss of instructional time. For example, students must transition back and forth from the general education classroom to the special education classroom. Also, when students with disabilities receive their instructional interventions and supports outside of the general education classroom, instructional time in the general education classroom is typically not fully utilized. With the use of pullout models, general education teachers receive minimal support from special education teachers to ensure that instructional time in the classroom is best utilized to promote student learning. However, if general education and special education teachers are co-planning and co-teaching lessons using differentiated instruction and evidence-based practices, they are able to take full advantage of instructional time in the classroom.

MTSS frameworks focus on the use of evidence-based practices when teaching all learners in all classroom settings. If collaboration exists between general education and special education, these teachers can work alongside one another to implement evidence-based instructional practices at tier one, two, and three levels to deliver quality instruction within general education classrooms. This model prevents students with disabilities from experiencing failure before having the opportunity to receive evidence-based instruction. Instead, general education and special education teachers utilize evidence-based instructional practices to improve student learning

when delivering literacy, math, and content area instruction. While general education teachers have the content expertise in regards to subject matter, special education teachers have expertise related to evidence-based instructional practices that will promote student learning across the content areas. Thus, bringing together content specialists and intervention specialists promotes the delivery of instruction that is based on empirical research to address the learning needs in diverse classrooms. Finally, teachers should select practices that will enable them to teach more in less time (Konrad, Helf, & Joseph, 2011). This may include examining the grouping arrangements for instruction and strategies for increasing student opportunities to respond. Increased instructional time will have a positive impact on the learning of students with and without disabilities. Below are recommendations for increasing the use of evidence-based practices and optimizing instructional time in general education classrooms:

1. When planning the master schedule, make strategic decisions in order to make the most of the school's resources (e.g., time, staff). Consider how grade levels can block their instructional content to most effectively and efficiently use the support staff to implement the instructional program. Be sure there is joint planning time for general and special education teachers. Ensure that general and special education teachers have joint opportunities for professional development.

2. There is evidence that teachers' participation in Professional Learning Communities (PLCs) improves student learning (Vescio, Ross, & Adams, 2008). As you select topics for study, consider how they fit with the vision for MTSS and inclusive practices. Ensure that general and special education teachers participate in the PLCs together.

3. Utilize support staff (e.g., assistant principal for instruction, curriculum coach, literacy facilitator) to build capacity and help teachers focus on achieving the school's vision. These leaders can (a) provide on-going training related to the school's MTSS framework; (b) ensure that decision making is collaborative, systematic, and used by teachers to monitor student progress and plan future instruction; (c) bring together teachers, paraprofessionals, and support staff when common challenges are observed; (d) find ways to recognize effectiveness and build capacity at the school level (e.g., have teachers excelling in specific instructional practices serve as models for others and arrange schedules to allow teachers to observe those practices in action).

Conclusion

It is important to examine existing barriers that may be preventing a greater unification of general and special education. Considerations for alternatives to funding structures that support collaborative efforts must be at the forefront. While a small portion of special education funds are currently being allotted for early intervening services such as response to intervention and MTSS, there is not an existing funding structure that encourages school districts to utilize special education teachers to work in collaboration with general education teachers to support all learners. Given the evidence that general education students benefit academically and socially from inclusive classrooms that utilize inclusive service delivery models, it is time to devise creative solutions across departments in order to fund the additional teaching staff necessary to support inclusive schools and classrooms.

Additionally, belief systems create obstacles for advancement. Although decades of research indicate positive academic, behavioral, and social outcomes of inclusive education, there are still special educators, general educators, administrators, and parents who believe students with disabilities are better served in segregated settings. The question is, though, are they "better" served in segregated settings or is it easier to serve them in segregated settings? If the latter is true, are we providing special segregation as opposed to special education?

True collaboration leading to high-quality, effective instruction does not come easily to all educators. Innovative professional development opportunities for in-service teachers and transformations to teacher education programs must take place to support the development of general and special educators who are equipped with the required collaboration skills, pedagogical expertise, and knowledge of evidence-based instructional practices to effectively meet the needs of all learners. It is time to generate solutions to barriers and be more progressive in our inclusive education efforts. Leaders in education should revisit Madeleine Will's Regular Education Initiative to guide efforts to eliminate the divide between general education and special education for the purpose of enhancing the learning of students with and without disabilities.

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Effects of Inclusion Classrooms on Academic Achievement of Students with Learning Disabilities and Students in General Education

Sharon Ware

Abstract

The purpose of this study was threefold: (a) to examine the academic progress of students in reading, who have a learning disability in reading, as they transfer from pull-out support services to inclusion services; and (b) to examine the academic progress of general education students in reading, as they transfer from a general education setting to an inclusive setting; and (c) to determine teachers' attitudes toward including children with special needs. The quantitative portion of the study involved two years of Tennessee Value-Added (TVAAS) scores for general education students as well as scores of students with a reading disability. The qualitative portion of this study utilized a modified scale of teachers' attitude toward inclusive classrooms. Participating teachers received a teacher opinion survey that determined teacher attitude toward including students with special needs. The results from this study revealed that most teachers have positive attitudes toward including students with special needs. Approximately 10 elementary school teachers were recruited to participate in the survey. The quantitative portion of the study indicated there were statistically significant differences in scores of general education students as they moved into an inclusive environment. General education students' test scores significantly declined once they were placed in an inclusive setting. However, the finding from this study showed no statistically significant difference in scores of students with a reading disability once they were moved from a pull-out support setting to an inclusion support setting. It is recommended that future research include larger and more heterogeneous participant pools that include race and gender variables.

Effects of Inclusion Classrooms on Academic Achievement of Students with Learning Disabilities and Students in General Education

With inclusion being a present-day, developing teaching practice, continued research is necessary to generate the best results. This study was conducted in hopes of contributing to such research. The main interest in this study was to assess the effectiveness of inclusion support services as compared to support service instruction provided on a pull-out or self-contained classroom basis. Specifically, this study considered the impact of partial inclusion support services on students' academic achievement in reading as measured by Tennessee Value-Added Assessment System (TVAAS). The consideration of these areas, led to the formation of three general questions:

1. In Tennessee public schools where inclusion is implemented, does the academic achievement of students in reading, with learning disabilities in reading vary as they transfer from pull-out services to inclusion services as measured over time by the Tennessee Value-Added Assessment System (TVAAS)?

2. In Tennessee public schools where inclusion is implemented, does the academic achievement in reading of general education students differ as they move from general education to an inclusive setting as measured over time by the Tennessee Value-Added Assessment System (TVAAS)?

3. What factors impact the attitudes of regular education elementary teachers toward including students with disabilities?

The aim of this study included exploring the academic achievement of learners in reading with respect to inclusion support services with a collaborative teaching model. The following chapter is divided into four sections to delineate the exact course of this study. The first section provides the purpose for the study. A description of the school's setting, the composition of the student population, and teaching instruction is also included in the first section. The second section details the materials employed as well as the measures applied in this study. The third section discusses the data collection procedure for each measurement exercised in this study. The fourth section presents the analysis of the data collected for each measure.

This study examined the academic achievements of special education and general education students in a public elementary school located in an urban school district. Additionally, it considered teacher attitude toward inclusion. The school that participated in this study had introduced the inclusion method of instruction to the school for the past two years. The goal of the participating school was to replace all special education students in age-appropriate general education classrooms where students would be able to receive appropriate support services and assessment. Offered to all students on every grade level, this inclusion approach attempted to empower the general education and the special education teachers to work with all students within the classroom setting.

Purpose of the Study

This study examined the success of inclusive classroom settings as compared to self-contained classroom settings. This study also examined Tennessee Value-Added Assessment System (TVAAS) scores of special education and general education students in self-contained, pull-out, or general education settings in fifth grade and assigned to the same inclusion teacher for Grade 6. One hundred and fourth nine students met the above criteria for this study. Cohort 1 consisted of special education students in Grade 6 who received pull-out support services, or self-contained support services in Grade 5 and inclusion classroom support services in Grade 6. Cohort 2 encompassed general education students in Grade 6 who were assigned to a non-inclusion class in Grade 5 and assigned to an inclusion classroom support services in Grade 6. Students in Cohort 1 and Cohort 2 shared a common general education (English Language Arts) teacher and special education teacher. Both teachers simultaneously taught both cohorts. The teachers shared an inclusion classroom for ELA. Additionally, this study also examined teachers' attitudes and their perceptions regarding to the district's inclusion practices.

Variables

Research Question 1. In Tennessee public schools where inclusion is implemented does the academic achievement of students in reading, with learning disabilities in reading vary as they transfer from pull-out services to inclusion services as measured over time by the Tennessee

Value-Added Assessment System (TVAAS)? Research question one is quantitative in nature; it identified which academic setting produced the greatest gains. Therefore, variables included in this study determined if inclusion settings produce an effect on students' academic achievement as measured by the Tennessee Comprehensive Achievement Program.

Research Question 2. In Tennessee public schools where inclusion is implemented does the academic achievement in reading of general education students differ as they move from general education to an inclusive setting as measured over time by the Tennessee Value-Added Assessment System (TVAAS)? Research question is two quantitative in nature; it identified which academic setting produced the greatest gains. Therefore, variables included in this study determined if inclusion settings produce an effect on students' academic achievement as measured by the Tennessee Comprehensive Achievement Program.

Research Question 3. What factors impact the attitudes of regular education elementary teachers toward including students with disabilities? This research question is qualitative in nature. It sought to determine the factor involved in teachers' attitudes toward inclusion.

Method

Instrumentation

This study attempted to determine the impact of partial inclusion support services on students' academic achievement in reading as measured over time on the Tennessee Value-Added Assessment System (TVAAS). In hopes of establishing academic achievement that had conceivably been influenced by the implementation of partial inclusion support services, all academic data were taken from the participating students' existing scores. The researcher examined existing TVAAS data of students randomly selected through coded information to protect students' identities. The research assistant selected students according to their homeroom teacher in an inclusion classroom. With the assistance of the classroom teacher, the research assistant determined whether the students met the classifications to be considered in general education or special education. Students were listed by an identification number. The research assistant created a spread sheet with each student's identification number, demographic information, classroom certification, and test scores. The researcher viewed the spread sheet and selected the first 149 students meeting the requirements and had received instruction in an inclusion classroom setting during the 2012-2013 year as fourth graders and again as fifth graders in the 2013-2014 academic year. The scores of these students were followed, obtained, and analyzed over a period of two years of tests scores.

These participating students were matched according to their homeroom teachers in an inclusion classroom. The researcher examined students' scores with the same homeroom teachers. The students' placements consisted of a common inclusion classroom for homeroom and the same homeroom teacher for reading and language arts. All students diagnosed with a learning disability in reading were eligible to participate in the research. These students shared a common inclusion and general education teacher.

During the 2012 -2013 year as fifth graders, all students with Specific Learning Disabilities in reading had either received pullout support services (resource) or were placed in self-contained

classrooms. In addition, all of the selected general education students during the 2012-2013 school year as fifth graders were in a general education setting. The students selected to participate in this study were placed in a common inclusion classroom for the 2013-2014 school year. The classroom consisted of a special education teacher and a general education teacher collectively teaching English and language arts.

Tennessee Department of Education (2013) reports Tennessee's educational assessments are designed to provide a broad range of related measures of achievement. In general, for many elementary schools to provide a comprehensive assessment of their students' progress of intellectual skills and abilities, they have chosen to use the Tennessee Comprehensive Assessment (TCAP). The Tennessee standardized test is used by elementary schools for three purposes: (a) to describe each student's developmental level within a test area, (b) to identify a student's areas of relative strength and weakness in subject areas, and (c) to monitor year-to year growth in the basic skills. To determine these goals, this investigator used the educational assessment for each student over a period of two consecutive test years to determine reading achievement (Tennessee Department of Education, 2013).

As stated by the Tennessee Department of Education (2013), TCAP Achievement Test is a multiple-choice test designed to measure students' academic achievement in certain skills in four content areas: reading/language arts, mathematics, science, and social studies They are further divided into 13 subtests comprising of Vocabulary, Reading Comprehension, Spelling, Capitalization, Punctuation, Usage and Expression, Mathematical Concepts and Estimation, Math Problem Solving and Data Interpretation, Math Computation, Social Studies, Science, Maps and Diagrams, and Reference Materials. For the purpose of this study, the researcher collected reading data to test for literacy, as follows. The reading totals was used to evaluate for literacy and administered in two subtests: (a) Vocabulary and (b) Reading Comprehension. The subtests assessed word analysis, factual meaning, inferential meaning, and evaluative meaning. Students were presented with a word in the context of a short phrase or sentence where students select the answer that most closely represents the same meaning as the given word. The reading comprehension subtest included excerpts from fiction and nonfiction text such as fables, tales, poems, interviews, diaries, and biographical sketches. Students' growth was measured by considering individual's progress on TCAP. Students' growth is measured using the Tennessee Value-Added Assessment System (TVAAS).

Subjects

Ten elementary school teachers at least 18 years of age and certified to teach in a County school district took the survey. Teachers were chosen based on location and convenience for the researcher. Additionally, 149 students attending a county public school, both special education students and general education students, were chosen for the study for the years 2011-20012 and 2013-2014. The demographic make-up of the target school consisted of a school with more than 60% free and reduced lunch, which would classify it as a Title 1 school. The researcher included both males and females in this study as well as both African-America and Caucasian students; the research assistant viewed the spread sheet and selected 149 students which met the requirements and received instruction in an inclusion classroom during the 2012 -2013 academic year as fifth graders and again as a sixth graders during the 2013-2014 academic year.

After district and principal approval, the research assistant asked the principal for approximately 30 minutes to speak to staff at the beginning of the next staff development meeting. The research project was thoroughly explained to the staff by the researcher. The research assistant gave all teachers a link to the survey monkey form. Teacher consent was located at the top of the first page of the online survey. Once participating teachers read the consent page, they took the survey; taking the survey was considered the participant's implied consent. The participants had the options of participating in the study or declining to participate in the study before the study began. This process took place before participation began. Participation involved completing a questionnaire related to including students with reading disabilities in regular education classes, and completing the survey took no more than 3-5 minutes. Due to the anonymous nature of the questionnaire, the researcher considered all responses.

The researcher examined existing (TVAAS) data of students randomly selected through coded information to protect the students' identity. The research assistant selected students according to their homeroom teacher in an inclusion classroom. With the assistance of the classroom teacher, the research assistant determined whether the students met the classifications to be considered as general education or special education students. Students were listed by an identification number. The research assistant created a spread sheet with each student's identification number, demographic information, classroom certification, and test scores. The researcher viewed the spread sheet and selected the first 150 students that met the requirements and had received instruction in an inclusion classroom setting during the 2012-2013 year as fifth graders and again as a sixth graders in the 2013-2014 academic year. The scores of these students were followed, obtained, and analyzed over a period of two years of tests scores.

Participating students were matched according to their homeroom teachers in an inclusion classroom. The researcher examined scores of students with the same homeroom teachers. The students were placed in a common inclusion classroom for homeroom and the same homeroom teacher for reading and language arts. All student participants in this study were certified as special education under the identification of learning disabled. All students diagnosed with Specific Learning Disabilities (SLD) in reading were eligible to participate in the research. These students shared a common inclusion and general education teacher.

During the 2012 -2013 year as fifth graders, all students with SLD in reading had either received pull-out support services (resource) or placed in self-contained classrooms. In addition, all of the selected general education students during the 2012-2013 school year as fifth graders were in a general education setting. The students selected to participate in this study remained in a common inclusion classroom for the 2013-2014 school year. The classroom consisted of a special education teacher and a general education teacher collectively teaching English and language arts.

To clarify, where resource provisions proposed support services to exceptional education students in the special education setting, the partial inclusion philosophy reassigned the support services to be provided in the general education classroom. With the transformation to inclusion teaching approach, special education students were also placed the general education classroom with their support service and special education instructor.

For the purpose of this study, participants were placed into two academic categories: special education students and general education students. A total of two cohorts were documented: two cohorts of students in each of the two academic categories. These cohorts are described as the first and second cohorts. The first cohort moved from Grade 5 through Grade 6, general education students transferring from a traditional general education setting to a partial inclusion support setting. The second cohort moved from Grade 5 through Grade 6 during the period in which their school transformed from providing pull-out support services to initiating partial inclusion support services in the general education classrooms.

Prior to partial inclusion support services being implemented in the school system, special education students received support services in a special education setting with the special education teacher or the special education aide. These same students, although placed in the general education classroom for part of the day, did not receive additional support services while situated in the general education classroom.

Research Procedures

Prior to initiating this research study, the researcher received permission to access the existing Tennessee Value-Added Assessment System (TVAAS) scores of the students from the school principal/superintendent. Participants in this study included both regular education students and special education students (served in inclusion classrooms) and were drawn from a suburban public middle school in Middle Tennessee. At the time of this study, the school had an enrollment of 700 fifth- through eighth-grade students. The demographic makeup of the target school consisted of a school with more than 60% free and reduced lunch, which would classify it as a Title I school. Both males and females were included in this study as well as African-American and Caucasian students. The researcher examined existing TVAAS data of students randomly selected through coded information to protect the students' identity. The research assistant, who is a general education teacher in the school district, selected students according to their homeroom teacher in an inclusion classroom. With the assistance of the special education teacher, the research assistant determined whether the students met the classifications to be considered in general education or special education. Students were listed by an identification number. The research assistant created a spread sheet with each student's identification number, demographic information, classroom certification, and test scores. The researcher viewed the spread sheet and select the first 149 students that met the requirements and had received instruction in an inclusion classroom during the 2012 -2013 year as fifth graders and again as a sixth graders during the 2013-2014 academic year. The scores of these students was followed, obtained, and analyzed over a period of two years of test scores. These scores consisted of archived data. The researcher randomly selected the students from the group of students who met inclusion criteria.

Additionally, a 10-item survey instrument consisting of statements regarding teacher attitude towards inclusion was utilized. The survey was designed as a Likert scale, using the following format: 1. Strongly disagree; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly agree.

Prior to the survey being administered, the researcher developed an expert panel of five teachers who had at least five or more years of experience in teaching special education and/or inclusion

to review the survey instruments. The five teachers determined the face validity of the survey statements to ensure the survey addressed the intended constructs the researcher intended to measure. Once the expert panel defined the survey as having face validity, the researcher created the survey statements and included a bipolar scaling method using a five point Likert scale. The researcher then piloted the survey with 10 teachers. After the pilot survey, the researcher conducted an exploratory factor analysis using SPSS to verify the content validity and internal reliability of the survey measures. The researcher removed all measures of poor quality and confirmed survey items correctly correlated to measure preferred constructs.

To assess the qualitative portion of this study, the attitudes and perceptions of inclusion support services among general education teachers were evaluated. Participating teachers received a Teacher Opinion Survey to determine teachers' attitudes toward including students with special needs. After district/principal approval, the research assistant asked the principal for approximately 30 minutes to speak to staff at the beginning of the next staff development meeting. The research project was thoroughly explained to the staff by the researcher. The research assistant gave all teachers a link to the Survey Monkey form. Teacher consent was placed as the first page of the online survey. Once participating teachers read the consent page, they began the survey; the researcher considered this act as participants implied consent. Participants had options of participating in or declining to participate in the study before the study began. Teachers selecting to participate in the study were required to provide an e-mail address. This process took place before participation began. The research assistant explained that participation in this study was completely voluntary. Ten elementary school teachers were recruited to participate in the survey. The researcher e-mailed a link to Survey Monkey to participating teachers. One week after e-mailing the initial link, the same link was e-mailed a second time automatically through survey monkey for teachers that did not take the survey. A link was sent to selected teachers automatically a third time. The researcher placed a repeat setting in Survey Monkey that allowed the survey to be generated automatically to teachers who had not responded. The setting was set in one- week increments. This process continued until there were 10 participating teachers. The link included a questionnaire about including students in regular education classrooms. Teacher surveys were conducted electronically. Teachers responded to questions on the survey anonymously. The researcher designed the teacher and student surveys using Survey Monkey online survey software. The consent forms, informing survey participants of their rights and obligations, were included on the first page of the surveys as a prerequisite to participants answering survey questions. The researcher analyzed the survey information using the Survey Monkey online survey software. The questionnaire data were recorded anonymously by using Survey Monkey. Due to the anonymous nature of the questionnaire, all responses were considered.

Data Analysis

This study examined the success of inclusive classroom setting as compared to self-contained classroom settings. This study examined Tennessee Value-Added Assessment System (TVAAS) scores of special education and general education students in self-contained or general education settings in fourth grade and assigned to a common inclusion teacher for fifth grade. This study began in April 2011-2012 school year and finished during the 2012-2013 school year. The data collection was used to determine the effectiveness of a partial inclusion setting on students'

academic achievement as measured over time by students' (TVAAS) scores. The researcher randomly selected students from the group of students who met inclusion criteria. Archival data retrieved from TVAAS scores were assessed to determine the level of academic growth from Grade 4 to Grade 5. An analysis of repeated measures (ANOVA) determined the performance trend over time between the two groups. The *p* value was examined to determine if it was less than .05. If the *p*-value was less than .05, the pairwise comparison was analyzed to determine where the significant difference remained.

Findings

The purpose of this study was to provide information on student academic achievement in reading and teacher perceptions of inclusion support services. To ascertain these results, this researcher employed the following instruments and measures: (a) Tennessee Value Added Assessment Scores (TVASS) was used to determine student academic growth over a two-year period of time, (b) an attitude survey: Teachers Opinion Survey, to evaluate teacher attitudes toward inclusion.

Research Questions

To accomplish the purpose of this study, the following research questions guided the methodology:

1. In Tennessee public schools where inclusion is implemented, does the academic achievement of students in reading with learning disabilities in reading vary as they transfer from pull-out services to inclusion services as measured over time by the Tennessee Value-Added Assessment System (TVAAS)?
2. In Tennessee public schools where inclusion is implemented does the academic achievement in reading of general education students differ as they move from general education to an inclusive setting as measured over time by the Tennessee Value-Added Assessment System (TVAAS)?
3. What factors impact the attitudes of regular education elementary teachers toward including students with disabilities?

Participant Demographics

Participants in this study included both regular education students and special education students (served in the same inclusion classrooms) and were drawn from a suburban public middle school in Middle Tennessee. At the time of this study, the school had an enrollment of 712 fifth- through eighth-grade students. The participating school included 214 sixth-grade students. The sixth-grade students consisted of 172 students without IEPs and 42 sixth-graders with IEPs. Of the 214 students enrolled, 175 students were chosen to participate in the study. The researcher identified 140 students without IEPs and 25 students with IEPs. This research study involved the collection of TVAAS scores from students enrolled in Grades 5 and 6. Selected students had participated in the inclusion approach to teaching for one year. The year prior, all students participated in either general education or a self-contained class. To determine the impact of inclusion support services on students' academic achievement, data were collected from students' existing TVAAS scores.

Data and Statistical Results

Research Question 1. In Tennessee public schools where inclusion is implemented, does the academic achievement of students in reading with learning disabilities in reading vary as they transfer from pull-out services to inclusion services as measured over time by the Tennessee Value-Added Assessment System (TVAAS)?

To determine the effect of an inclusive setting on students with learning disabilities, the researcher examined TVAAS scores of 25 students with a diagnosed reading disability. A Repeated Measure ANOVA was conducted with the factor being learning disabled students receiving inclusion services in reading and the dependent variable being the TVAAS scores for 2012 and 2013. The means and standard deviations for TVAAS scores are presented in Table 1. The results for the ANOVA indicated no significance in learning disabled students receiving inclusion services in reading on their TVAAS scores for 2012 and 2013; therefore, the null hypothesis cannot be rejected, Wilks's $\Lambda = 1.00$, $F(1, 24) = .02$, $p = .96$, multivariate $\eta^2 = .00$.

Table 1

TVAAS Scores for students with learning disabilities

Years	*M*	*SD*
TVAAS 2012	*16.28*	*15.21*
TVAAS 2013	16.12	14.85

Note. N = 25

Research Question 2. In Tennessee public schools where inclusion is implemented, does the academic achievement in reading of general education students differ as they move from general education to an inclusive setting as measured over time by the Tennessee Value-Added Assessment System (TVAAS)? Research question two was quantitative in nature; it identified which academic setting produced the greatest gains. Therefore, variables included in this study sought to determine if an inclusion setting would produce an effect on students' academic achievement as measured by the TCAP.

A Repeated Measure ANOVA was conducted with the factor being general education students receiving inclusion services in reading and the dependent variable being the TVAAS scores for 2012 and 2013. The means and standard deviations for TVAAS scores are presented in Table 2. The results for the ANOVA indicated significance in general education students moving from no inclusion services to inclusion services in reading on their TVAAS scores for 2012 and 2013; therefore, the null hypothesis can be rejected. The results for the ANOVA were significant, Wilks's $\Lambda = .97$, $F(1, 148) = 4.63$, $p = .03$, multivariate $\eta^2 = .03$.

Table 2
General Education Students TVAAS Score

Years	*M*	*SD*
TVAAS 2012	45.23	23.10
TVAAS 2013	42.69	22.69

Note. N = 149

Research Question 3. What factors impact the attitudes of regular education elementary teachers toward including students with disabilities? This research question is qualitative in nature. It sought to determine the factor involved in teacher attitude toward inclusion. The data analysis suggested 90% of teachers surveyed strongly agreed that all students can learn. The remaining 10% of surveyed teachers agreed that all students can learn. Additionally, teachers concurred on the statement special education students have higher self -esteem when included. Teachers "strongly agreed" with this statement 50% of the times. The remaining 50% of teachers "agreed" with the statement, which indicates 100% of teachers believe inclusion increases exceptional education students' self-esteem. Eighty percent of teachers surveyed disagreed with the statement "Special education students have higher academic achievement when included."

Table 3
Teachers' Opinions on Inclusion

	Strongly Disagree	*Disagree*	*Neither Agree or Disagree*	*Strongly Agree*	*Agree*
1. Special education students should be in special education classes	30%	20%	20%	10%	20%
2. Special education students learn social skills from general education students.	50%	50%	0%	0%	0%
3. Students in special education have higher academic achievement when included.	0%	0%	0%	50%	50%
4. Students in general education show more growth when placed in an inclusive setting.	0%	40%	30%	10%	20%
	0%	0%	0%	20%	80%

5. Students with disabilities have higher self-esteem when included.					
6. Special education students hinder academic progress of general education students	0%	60%	20%	0%	20%
7. Special education students should be in general education classes	10%	10%	30%	20%	30%
8. All students can learn	0%	0%	0%	50%	50%
9. Special education children interfere with the teaching of general education students	10%	60%	10%	0%	20%
10. Special education students can learn.	0%	0%	0%	80%	20%

Conclusions and Discussion

This study examined the success of inclusive classroom settings as compared to self-contained classroom settings. This study also examined Tennessee Value-Added Assessment System (TVAAS) scores of special education and general education students in self-contained, pull-out, or general education settings in fifth grade and assigned to the same inclusion teacher for Grade 6. The first 149 students meeting the above criteria were selected for this study. Cohort 1 consisted of special education students in Grade 6 who received pull-out support services, or self-contained support services in Grade 5 and inclusion classroom support services in Grade 6. Cohort 2 encompassed general education students in Grade 6 who were assigned to a non-inclusion class in Grade 5 and assigned to an inclusion classroom support services in Grade 6. Students in Cohort 1 and Cohort 2 shared a common general education (English Language Arts) teacher and special education teacher. Both teachers simultaneously taught both cohorts. The teachers shared an inclusion classroom for ELA. Additionally, this study also examined teachers' attitudes and their perceptions regarding to the district's inclusion practices.

Academic Achievement of Students in Reading with Learning Disabilities

The results for Research Question 1 information obtained from TVAAS indicated for the special education students with learning disabilities in reading, no significant differences in academic achievement level occurred between the times of pull-out support services and inclusion support

services for year 1 and year 2. Therefore, no significant differences were determined before inclusion support service scores were compared with after- inclusion support service scores for these special education students. Therefore, the amount of learning and academic achievement that occurred, as defined by these change scores, did not differ significantly in the pre-inclusion support service scores and the post-inclusion support service scores for these special education students. Despite this finding, other research emphasizes the importance of inclusion support services. According to McCormack (2008), the inclusion approach to teaching accommodates appropriate support services to special education students to insure they remain successful in an inclusive environment. Inclusion allows all students to learn together in one classroom, thereby allowing the normalization of the special education students and the elimination of any stigma brought on by disability labels. Whether practiced through a partial or full time application, inclusion provides special education students with significant behavioral, cognitive, and social skills. The inclusion method addresses all learning styles in a child-centered, risk-free, and dialogic environment (Beninghof, 2006).

Academic Achievement of Students in Reading without Learning Disabilities

Results for Research Question 2 showed a significant difference in achievements for students without learning disabilities. Students without disabilities showed a decline in test scores once they were taken out of general education and placed in an inclusive environment. This finding differs from findings by other researchers. Luster and Durett (2003) explored the relationship between inclusion rates and the performance levels of students without disabilities on standardized state assessments for fourth and eighth graders as well as graduation rates for students with disabilities. They determined a positive correlation between inclusion and higher rates on district performance scores and high school diplomas earned by students.

Teachers' Attitudes Toward Inclusion

Results of Research Question 3 revealed all teachers surveyed agreed all students can learn. Current results correlates with research by Evans (2006), who concluded all children can learn with the implementation of differentiated instruction, consistently exposing students to high-quality instruction, varying instructional approaches to match the learning styles of students, providing access to high-quality preschool programs, consistently scaling up implementation of best-practice instructional strategies and approaches in all classrooms and in all content areas, and generating support from families and communities. Additionally, teachers concurred on the statement "special education students have higher self-esteem when included," which indicates 100% of teachers believe inclusion increases exceptional education students' self-esteem. Eighty percent of teachers surveyed disagreed with the statement "special education students have higher academic achievement when included."

Other Findings

The repeated measures ANOVA results did show a weak significance in learning disabled students receiving inclusion services in reading on their TVAAS scores for 2012 and 2013 (2012 mean = 16.28; 2013 mean = 16.12). TVAAS scores of students in exceptional education revealed a slight decrease from 2012 to 2013. While these low significance levels were not within the scope of the researcher's study, they are interesting, nonetheless. Authors Saint-Laurent et al. (1998) found significant effects for special education students in the areas of reading, writing and, mathematics; but no significant differences were found for students with

disabilities. As in the previous study, these results concluded the partial inclusion philosophy benefits some students' progress, but not all. Whereas Saint-Laurent et al. (1998) examined reading, writing, and mathematics in a fully integrated classroom, the present study focused specifically on reading achievement in a partial inclusion setting. Also, while Saint-Laurent et al. (1998) examined 13 different schools to determine the effects of inclusion, the present study focused exclusively on one particular suburban school to ensure consistency in the teaching style students received and the population composition, limiting the generalizability of this study.

Additionally, the teachers' opinion table revealed teachers have a generally positive acceptance of inclusion among most respondents. These findings are consistent with the results suggested by previous research.

Avramidis et al. (2000) found teachers who had been implementing inclusive programs for multiple years held significantly higher attitudes when compared to their counterparts. Likewise, Minke et al. (1996) reported that regular education teachers who co-taught in an inclusion setting held the most positive views of inclusion while regular education teachers in traditional settings held the least positive perception.

These findings are consistent with the results suggested by previous research.
Manset and Semmel (1997) compared eight inclusion programs for elementary students with learning disabilities. Their research concluded students with learning disabilities placed in inclusive classrooms received no significant benefits from their placement (Manset & Semmel, 1997). Likewise, Minke et al. (1996) reported regular education teachers who co-taught in an inclusion setting held the most positive views of inclusion while regular education teachers in traditional settings held the least positive perception. These findings are consistent with the results seen by previous research. Avramidis et al. (2000) found teachers who had been implementing inclusive programs for multiple years held significantly higher attitudes when compared to their counterparts.

Strengths and Limitations
Strengths of this study are related, in part, to the study's small sample size. For example, the study included a single school, a single classroom in that school, a single survey instrument, and a single set of archived test data in one content area. Utilizing such a narrow scope allowed the researcher to expedite data collection, allowing more time to explore, analyze, and interpret the results.

Sample size also contributed to limitations of this study. In addition to being small, the study sample was nonrandom and homogenous; therefore, conclusions from this research can be generalized to only the current sample and may not apply to a larger, more diverse population.

Recommendations
In light of the small sample size and the negative statistically significant findings resulting from this study, the researcher offers the following recommendations to educators in the participating school: (a) Administrators should assure the workloads for general education students remain rigorous. Administrators can assure an appropriate workload for general education students by examining teachers' lesson plans, as well as providing in-services for teachers to assist with

rigorous reading lessons; (b) It is also recommended administrators in the participating school should then share this information with classroom teachers, lead teachers, and lead educators on staff and work together to find ways to apply survey results in the classroom.

In addition, the researcher recommends administrators educate general education teachers and exceptional educators on how they can best help all children improve TVAAS scores. Administrators can contribute to educators' knowledge of assisting all children by releasing the results of this study to the classroom general education teacher as well as the exceptional education teacher. I would also recommend in-services on teaching inclusion.

The researcher further recommends the use of outside observers to monitor how teachers apply differentiated instructions in their classroom. These outside observers could include lead general education teacher, lead exceptional education coach, or a district level supervisor.

Implications

Kinney (2008) argued American schools continue to struggle to find the appropriate balance to educate students with special needs. Due to PL-94-142, public schools' requirements to provide all students with a "free appropriate public education" remains an essential part of the education system (Kinney 2008). Focus should remain on ensuring the nation's exceptional education system provides all required services to students with disabilities.

While results of this study do not mirror results found in earlier studies, the researcher uncovered a few comparable findings. For example, special education students who participated in this study showed no significant on academic achievement. In Signor et al. (2005), researchers found that when all data were considered, the students in the inclusive class setting performed slightly better on the ELA, but no better on the math section. Signor et al. (2005) declared, "Results of this study and previous inclusion studies appear to indicate that students who are educated in inclusive settings achieve at a rate that is comparable to, if not better than those in self-contained settings" (p. 29).

Additionally, this study also revealed a significant decline between general education students when they were placed in an inclusive setting. This result is interesting because the findings of McDonnell et al. (2003) on inclusive placement on both the general student population and the special education students' population yielded a slightly different result. Researchers concluded when special education students and regular education students are educated in the same classroom, everyone benefits (McDonnell et al., 2003). Inclusive classrooms reduce or eliminate the need for separate placement for identified students (McDonnell et al., 2003). The benefits observed in these studies were a reduced fear of human differences when around others and significant growth in social cognition (McDonnell et al., 2003). In addition, the development of personal principles and ability to assume an advocacy role toward peers and friends with disabilities were also observed (McDonnell et al., 2003). While my study examined data from students' academic scores, McDonnell et al. (2003) looked at students' social emotional growth. Therefore, general education students' growth continues while placed in an inclusive environment.

Lastly, results of this study revealed most teachers have a positive opinion of inclusion. Overton (2004) found teachers' attitudes played a significant role in students' referrals into the special education program. In a study involving low achievers who were referred for special education services and low achievers who were not referred, researchers found teachers with a natural tendency to refer students for special education services maintained a higher number of referrals (Overton, 2004). Over the years, legislators have tried to resolve these issues through a more stringent application of pre-referral procedures (United States Commission on Civil Rights, 2005). Unfortunately, many of these safety nets have merely become a procedure rather than successful practice (Overton, 2004).

Results of the repeated measure ANOVA showed no significant difference between scores of students in special education after being placed in an inclusive setting. However, there was a significant decline in the scores among general education students after being placed in an inclusive setting. Moreover, this research revealed the following relationships are worth further exploration: (a) the relationship between students with disabilities who are participating in an inclusive program and the students' social skills, (b) the relationship between students without disabilities who are participating in an inclusive program and the students' social skills, and (c), the relationship between teachers' opinions and student achievement.

Recommendations for Future Research

Until we develop a better understanding of the many variables that contribute to student achievement, our knowledge about influences on student academic growth will be minimal. A qualitative study on a larger group of teachers with students involved in the study might allow the researcher to take an in-depth look at how teachers' perception of inclusion affect students' growth.

This research included a small number of middle school students in the state of Tennessee. Due to the small sample size, the researcher's ability to generalize the findings to a larger population was limited. The researcher recommends future research include students from other middle schools throughout the area, the state, or even in other regions of the United States. Due to the small and homogenous participant sample in this study, the researcher did not include ethnicity or gender as variables. The researcher recommends future studies include larger and more heterogeneous participant pools that include race and gender as a variables.

Closing Summary

The success of inclusive classroom settings as compared to self-contained classroom settings remains an interest among stakeholders. Results of this study found no significant difference between reading scores of students with special needs once they were placed in an inclusive setting. However, this research discovered a significant decline in general education students' reading scores once they were placed in an inclusive setting. A survey of teachers' attitudes toward students in inclusion indicated teachers maintain a positive attitude toward inclusion. While result of this research cannot be applied to the larger population of middle school students and their teachers, educators should examine inclusive practices to determine ways to assist all students to achieve their maximum potential.

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