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Effectiveness of inclusion in an Indiana middle school

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COLLEGE OF EDUCATION

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2009

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M.A., Indiana Wesleyan University, 1997
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Doctoral Study Submitted in Partial Fulfillment
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ABSTRACT

Repeated poor performance by students with special needs on the Indiana Statewide Test of Educational Progress (ISTEP) in an Indiana middle school supported the need for instructional changes. Following the implementation of a full inclusion program, a problem arose in that the program had not been evaluated and effectiveness was in question. This study, grounded in the constructivist and social reproduction theoretical frameworks, is important in explaining the effectiveness of a fully inclusive school**.** Whether placing middle school aged children with special needs in inclusive classrooms in the middle school setting is an effective practice is the research question guiding this work. A program evaluation was used to determine effectiveness by examining same student test score data in math and English from 2005 through 2007. The 2007 test scores reflected the first scores following a full year of inclusion. The test score data were compared using repeated-measures ANOVA to study overall performance from year to year. The findings of the project show that inclusion had a significant positive effect on ISTEP scores and is an effective method of instructing children with special needs in the least restrictive environment. The information gained from this work could be used to provide improved learning opportunities for middle school students with special needs in their current setting as well as influence their future learning opportunities through high school and beyond resulting in positive social change. Students with special needs may realize higher graduation rates and academic success while this work could be used to guide the implementation of an inclusion program by examining the methods explained in this paper.

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SECTION 1: THE PROBLEM

Introduction

Due to consistently substandard results on the Indiana Statewide Test for Educational Progress (ISTEP) at the local level by students with special needs in grades seven and eight over several years, the researcher chose to seek alternative methods of instruction to improve scores and learning outcomes for these students. Because of recent legislation, the current trends in the placement of children with special education needs in public schools call for these children to be placed in the general education classroom as the least restrictive environment, a practice known as inclusion. Although governmental entities have never truly defined inclusion, Hallahan and Kaufman (2000) define the practice in the following way:

1. All students with disabilities attend all classes in general education. There are no separate special education classes.
2. All students with disabilities attend their neighborhood schools. There are no separate facilities for disabled children.
3. General education, not special education, assumes primary responsibility for students with disabilities.

Special education programs can produce negative consequences for identified students, particularly when these students are being removed from the general education setting and placed into a more limited special education curriculum (Ladner, 2003). Coffey and Obringer's (2000) research supports the movement toward inclusion classrooms while Reynolds (1994) concluded that research "shows school children

classified as special needs do not require different types of instruction but, rather, more intensive forms of instruction" (p. 238).

In this first section, the problem at the local level is defined and rationales for the actions taken are presented. A review of professional literature relating to special education and inclusion is presented and the problem relating to the school's paradigm shift toward full inclusion for children with special needs will follow.

Definition

Repeated poor performance by students with special needs on the ISTEP in an Indiana middle school supported the premise that dramatic methods of instructional change were needed for students with special needs. In an attempt to improve student learning and comply with mandates from both the federal and state governments, the school investigated and began a rigorous professional development program during the 2005-2006 school year to educate teachers and provide information to students and parents regarding the move toward a full inclusion school. After a year of utilizing inclusion instruction, a problem was realized in that the program had not been evaluated and no effectiveness data existed. I evaluated student scores on the ISTEP test for this study to determine if a significant increase in student scores existed following the implementation of the inclusion program. Depending on the outcome of the comparison of test scores in the overall special education population, generalizations can be made when considering the move to an inclusion model for other grades or middle schools. Table 1 shows special education student performance on statewide standardized testing

over a 3-year period beginning with the 2004-2005 school year (Indiana Dept. of Education, 2007).

Table 1

Special Education Pass Rate on ISTEP Test

	7th English	7th Math	8th English	8th Math
2006-2007	32%	45%	29%	76%
2005-2006	21%	70%	21%	70%
2004-2005	27%	61%	34%	57%

As a school principal, I have been intrigued by the practice of inclusion throughout my doctoral programs. In the winter of the 2005-2006 school year, I proposed, mandated, and supported extensive professional development for the teaching staff in preparation to move toward full inclusion in the fall of 2006.

Rationale

Evidence of the Problem From Professional Literature

Since the inception of the No Child Left Behind law in 2002, much attention has been paid to its effects on the special education population of students (U.S. Department of Education, 2006). This law, as well as the Individuals with Disabilities Education Improvement Act of 2004 (IDEA), required school districts to include students with special needs in general education classrooms to provide an atmosphere of least restricted environment (LRE; U.S. Congress, 2004). This practice has come to be known as *inclusion*. Even though it is not specifically mentioned or mandated in IDEA, it has come to the forefront of educating students with special needs in public schools. Inclusion continues to be a controversial practice and matter of debate within educational circles

(Scherer, 2003; Smelter, Rasch, & Yudewitx, 1994). While the evidence of inclusion's efficacy on children with special needs is still being determined, many supporters argue the practice has been investigated thoroughly enough to justify it as a fair and ethical way to educate children with special needs (Fisher, 1999; Gartner & Lipsky, 1987; Giangreco et al., 1993; Jorgensen, 1994; Lipsky & Gartner, 1995; Sapon-Shevin, 2003; Stainback, et al., 1990; Stainback & Stainback, 1995; Thomas, 1997; Villa & Thousand, 1995).

For many years, a stigma has been attached to children with disabilities, and these students with special needs have been educated amongst their peers in self-contained classrooms (Weintraub, 2005). Connor (2005) asserted that "schools look at disabled students through a lens of deficit and role of devaluation" (p. 160). If this is correct, children with special needs are experiencing separation and segregation based on disabilities, or the lack thereof.

According to Heward (2003), special education students should be entitled to four rights:

1. The right to an effective education
2. Individualized, intensive, goal-oriented instruction
3. An education based on a reliable knowledge base
4. Instruction based on research-tested tools (p. 186).

If schools fail to ensure that these rights are being protected, children with special needs are devalued as citizens as they are forced into an undemocratic environment. To address these issues and remove stigmatization, educational policymakers and researchers have proposed that full inclusion of students with special needs fulfills the students' right to

attend classes with their peers to benefit from general education instruction regardless of their disability (Arnold & Dodge, 1994; Friend & Bursuck, 1998; Friend & Bursuck, 1999; Hay, Courson, & Cipolla, 1997; Lipskey & Gartner, 1992). Others feel each case should be dealt with individually based upon a student's abilities and disabilities (Avramidis & Bayliss, 2000; Lehman, Podell, & Soodak, 1998).

When examining inclusion, it is important to keep in mind the various perspectives of each stakeholder. One must understand how students, teachers, administrators, and policymakers perceive the inclusion model and its effectiveness because this perception helps in defining implementation goals and determining possible professional development opportunities in planning and preparing to move toward a full inclusion program. Even though inclusion has been found to be successful in several cases, it does not have overwhelming support throughout the field of special education (Brown, Odom, Liu, & Zercher, 1999; Gartner & Lipsky, 1987; Lombardi, 1995; McDonnell & Hardman, 1989; Petch-Hogan & Haggard, 1999; Stainback, Stainback, & Forest, 1990; Walther-Thomas, Korinek, McLaughlin, & Williams, 2000; Wang & Birch, 1984), and this must also be considered when implementing an inclusion program.

Evidence of the Problem at the Local Level

Locally in the past, students with special needs were educated in traditional pull-out programs with special education teachers in self-contained special education rooms amongst their special education peers. Little interaction with general education students, teachers, or curriculum took place. Poor performance on state standardized test scores for students with special needs, over several years, provided evidence that changes in

instructional techniques were required. Table 2 compares the percentage of students passing each portion of the ISTEP at the local level in both English and math over a 3-year period (Indiana Dept. of Education, 2007).

Table 2

Student Body Passing Percentages on the ISTEP

	English	Math
2004		
Overall	71.2	73.7
Special ed	29.4	51.5
2005		
Overall	70.0	75.0
Special ed	27.8	58.3
2006		
Overall	68.0	75.5
Special ed	29.4	50.7

These data, coupled with the previously mentioned mandates of federal law, provided the impetus for a school-wide move toward inclusion in an effort to address the problem of poor performance by students with special needs. This study attempted to evaluate the effectiveness of the inclusion program on the students with special needs involved in inclusion instruction. Research has shown inclusion did not have a significant effect on ISTEP scores for high school aged students in Indiana (Bibler & Gilman, 2003), but no research was found relating to the effect of inclusion on ISTEP scores for middle school students. The support of the local special education cooperative and the office of the superintendent, as well as the local school board, led to the ongoing professional development and site-based teamwork to begin the necessary paradigm shift toward the

inclusion model. Furthermore, grant money provided by the Indiana Department of Education and the local special education cooperative made the necessary training possible.

Definition of Terms

IDEA: The Individuals with Disabilities Education Act of 2004. "The *Individuals with Disabilities Education Act* (*IDEA*) is a federal law that requires each state to ensure that a free appropriate public education (FAPE) is available to all eligible children with disabilities residing in that state" (United States Department of Education, 2004, para. 1).

Inclusion: "100% placement in age appropriate general education classes or a range of learning opportunities both within and outside of the general education classroom" (Berry, 2006, p. 3).

Indiana Statewide Test of Educational Progress: (*ISTEP*). State standardized test given to all students in Grades 3 through 9 in the state of Indiana, unless excused due to Individualized Educational Plans for students with special needs, to determine yearly educational progress.

Learning disability: (LD). "A disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, in which the disorder may manifest itself in significantly below average academic achievement corresponding to a percentile rank of about 16 on at least two measures of ability to listen, think, speak, read, write, spell, or do mathematical calculations. Evidence of co-occurring functional impairment in adaptive functioning must also be present" (Brueggemann, Kamphaus, & Dombrowski, 2008, p. 6).

Least restrictive environment: LRE. " Each state must ensure, to the maximum extent appropriate, that intervention services are provided in natural environments, including the home and community settings in which children without disabilities live" (Etscheidt, 2006, p. 2).

Special education: "Highly specialized and individualized academic instruction to promote growth in skills and content area in response to a cognitive impairment that has a demonstrable negative impact on academic achievement" (Krezmien, Mulcahy & Leone, 2008, p. 4).

Significance of the Problem

Due to poor student performance on statewide standardized test scores, legislative demands, and extensive supporting research, I chose the inclusion approach to address the poor performance of students with special needs. Based upon the fact that students with special needs were passing the ISTEP test at a much lower rate, over 42% lower in some areas, a significant change was necessary to help students with special needs become more successful and integrated into the general education curriculum. To address this issue, the school implemented a full inclusion program, but the program had not been evaluated and the effectiveness of this program was in question. The problem of unknown effectiveness of the implemented inclusion program was of great significance. Poor performance on the ISTEP test is indicative of inadequate learning which can lead to a depressed graduation rate, lack of employability, and a greater burden to society due to placement on state welfare roles. Without sufficient evaluation of data showing student improvement on ISTEP performance, one cannot know the effectiveness of the practice.

Furthermore, one cannot ensure the best possible educational opportunities are provided for students with special needs to help the individual better prepare for a successful education with less stigmatization and segregation in the school setting. Also, if the data showed insufficient effectiveness, the school would need to explore alternative means of instruction to educate students with special needs.

Research Question

The research question guiding this study asks if placing eighth grade children with special needs in inclusive classrooms in the middle school setting resulted in the improvement of scores on the state standardized tests. The practice of inclusion has come about due to the combined efforts of governmental entities, educators, parent focus groups, and researchers in the field who have identified inclusion as a viable practice to better educate students with special needs. The area of serving children with disabilities has been highly legislated, and state government mandates from laws created at the federal level are pressuring local school districts to consider inclusion as a practice to use in special education programs. At the local level, student struggles for success, coupled with legislative initiatives, were forcing a fundamental shift toward inclusive education in an attempt to better serve the disabled population. Researchers have studied the effects of inclusion on both general and special education students and attitudes towards the practice with parents, teachers, and students alike but little has been done with middle school students, and this study will provide data for a better understanding of the effectiveness of inclusion at the middle school level following significant and

concentrated professional development provided to both general and special education teachers.

The problem was that several years of ISTEP results showed special education students' test scores were low and stagnant compared to their general education peers in the school setting of this study. No innovative changes in the special education program had taken place over many years, in spite of the evidence of ineffective instruction of students with special needs as shown on ISTEP testing outcomes. The school in the study continued to educate students with special needs in self-contained special education classrooms with no regard to the standards evaluated on the ISTEP test.

This project was chosen to investigate whether children with special needs, being taught the same material and at the same level as general education students, showed improvement on the ISTEP based on use of the inclusion model through the evaluation of ISTEP test score data over a 3-year period. An important goal of this project study was to determine overall effectiveness of the move to the inclusion model.

Review of Literature

To better understand the problem surrounding the education of students with special needs and the implications of poor performance on state standardized tests, a short history of the education of students with special needs will be explained, followed by a presentation of current research related to the trend of educating these children in general education classrooms as the least restrictive environment. This review will include research related to the instruction of students through inclusion and an analysis of studies that have addressed the perspectives of these individuals. A primary focus of the

literature review was the acceptance of inclusion by various stakeholders and an exploration of the practice as a viable method to educate children with special needs as a solution to the effectiveness problem outlined in this study. The strategies used to search for literature included the use of ERIC on the Internet, the use of the Walden University, Nova Southeastern University, and Hanover College library services, and the use of texts relating to the Walden University doctoral program. Searches were conducted using keywords such as *inclusion, inclusion effectiveness, learning disabled and inclusion*, and *special education and inclusion.* Resources were downloaded from the Internet or provided through the library services named earlier.

A Short History of Special Education in the United States of America

Mann (1891) believed that common schools should be open to all children regardless of religious, social, or ethnic background when he introduced the idea of public schools in 1849. Even though it was advertised when these schools opened that all children were welcome, many children were refused entrance and were turned away from school. In the mid-1800s diversity had little value and educators still expected conformity (Mitchell & Kugelmass, 1997). Children with mental or physical disabilities often found that the schoolhouse was not opened to them. Schools were characterized by little socioeconomic or racial diversity and education was reserved for the privileged white population in the mid to late 1800s, but by the end of the 1800s Mann's concept of common schools for everyone was gaining support.

The first compulsory attendance laws in the United States were passed by New York in 1899. The passage of these laws created instant havoc within the education

system of New York City. Children with various needs immediately appeared at the school gate. The obstacles these students faced included both mental and physical disabilities that interfered with learning. Also, a large number of immigrant children who spoke little or no English had educational needs. Because of the overwhelming number of atypical children, educators coordinated the first attempt to create a learning environment for them by recognizing individual needs (Kode, 2002).

By the early 1900s, nearly one-seventh of the population of New York City was foreign born and lacked English language skills. Many of these immigrants had little income and their state of despair led many to live in slums, shantytowns, and similar areas of poverty (Kode, 2002). The immigrant children had little or no education before the compulsory attendance laws were passed in New York, and many dealt with improper grade placement. Oftentimes, they also lacked basic reading and math skills. Not only did the children's education suffer from the negative effects of poverty, but some also had physical disabilities that interfered with their ability to learn or attend school on a regular basis (Kode, 2002). The New York City school system struggled for several years to properly educate these children. Due to the need for programs to help these children learn, but with no alternatives to general classrooms available, educators approached the Board of Education with some suggestions.

The Board decided that a proper curriculum must be created to provide a solid, alternative form of education and acted on this decision. After recognizing the growing needs, the New York City Board of Education approved the creation of one class on a trial basis to provide an alternative education. The class curriculum was based upon the

supposition that these children should be provided an education that was individualized and free from conventional structure. This class was an overwhelming success and was the first documented special education classroom within the United States. The individualized instruction, based on each student's weaknesses, led educators within the schools of New York City and the citizens of the city to pressure the Board to create more *special instruction* classrooms (Kode, 2002).

The Board recognized the improvements brought about by the creation of the first alternative classroom and approved an additional 10 special instruction classes in the Bronx and Manhattan by 1903 (Kode, 2002). Although this move was highly publicized and drew widespread accolades, the motives were not completely altruistic. The Board was dealing with the realization that 10% of the district's budget was being allocated to reteach those children who had previously failed in their education and therefore rationalized the expenditure of additional funds for more alternative learning environments throughout the district. By educating these children the first time through school, and not having to reteach them after completing their individualized special program, the Board hoped to save resources (Kode, 2002). The further development of special program classes throughout New York City continued at a rapid pace, and as innovations continued and identification methods were refined, greater numbers of children were referred to the special program classes.

By 1905, the number of children identified as needing placement in the alternative classrooms was estimated at between 6,000 and 12,000. As the numbers of students identified as needing special help skyrocketed, some educators in the district began to

question if the numbers truly reflected the needs of the children (Kode, 2002). In 1912, the Board released a public statement that "most immigrants entering the United States were of low intelligence" (Kode, 2002, p. 68), which made being an immigrant in New York City a burden in and of itself. This stance led to automatic placement of immigrant children into special education programs. Many educators began to take the position that special classes were becoming a tool with which to discriminate based on disability, socioeconomic class, or race (Kode, 2002).

Members of the district's administration described to the Board how the separateness of special classes stigmatized the students assigned to them (Kode, 2002). Due to this large-scale backlash, moderation returned to the identification of students in need of placement in special classes and the number of students receiving special services became more manageable. Great strides were also made in the development of methods of identification and testing for children in need of services. Some educators even observed that a child may be in need of special services to correct speech and comprehend the simplest arithmetic but may have above-ordinary ability in reading and English. These findings of various abilities within the same child were great strides for the early 20th century (Kode, 2002).

As special education continued to grow and evolve through the middle and late 1900s, it became an outgrowth of the overall human rights movement characterized by helping citizens with disabilities (Murdick, Gartin, & Crabtree, 2002). The ground on which the special education banner was raised was based upon the Brown vs Board of Education of Topeka, Kansas (1954) case. In their ruling on this case, the U.S. Supreme

Court found that *separate but equal* was inherently unequal due to diminished opportunities and reduced individual interactions. Although the case resulted in an order ending the practice of educating children based upon racial segregation, advocates for the disabled used the ruling to argue that separate but equal educational facilities for the disabled were also inherently unequal (Nolan, 2004). Thus, educators began using special education supports and services to ensure equal access to education for all children regardless of mental, physical, or other disabilities. Furthermore, society's attitude toward people with disabilities was improving due to the placement of special education students in regular education schools and classrooms (Heward, 2003). Further civil rights legislation that addressed the education of disabled students included the Rehabilitation Act of 1973 that required disabled access to public buildings and set the stage for the Education for All Handicapped Children Act of 1975.

Today, the area of special education has been highly legislated at state levels. This legislation has been based on the premise that students with disabilities are entitled to educational opportunities that should be provided for all citizens (Mitchell & Kugelmass, 1997), including placement in and access to the general education curriculum (inclusion). Due to heavy legislation, special education has become a high-stakes area of funding from the local to the federal levels of government. Between 1975 and 2000, the number of special education students identified as learning disabled had increased from one fourth of the students with disabilities to one half, and by 2000 the United States was spending approximately $50 billion yearly on special education support and services. This represents an average cost of $12,639 yearly to educate a child with a disability as

compared to $6,556 spent yearly to educate a general education student (Chambers et al., 2002). These figures show that much is at stake and are evidence of the importance placed on educating students with special needs by legislative entities. They are the most recent numbers available since states are no longer required to report these dollar figures to the federal government.

Model of Inclusion, Legality, and Successes

In 1975 the federal government passed the Education for All Handicapped Children Act (EHA) with the Least Restrictive Environment Amendment, the original version of the IDEA that was renamed as such after the 1990 reauthorization. The EHA guaranteed a free appropriate public education to all citizens, up to the age of 21, who had a physical or other disability and included the following subsections (United States Congress, 1975).

1. Zero Reject: All disabled children were entitled to a free appropriate public education regardless of disability.
2. Least Restrictive Environment: The preferred placement of any disabled child would be a general classroom, but other placements could be considered in cases where the child's success could not be achieved in the general classroom.
3. Procedural Due Process: Outlined procedures to be followed when parents and school districts disagree over identification, placements, programs, and other services.
4. Individualized Education Plan: Provided for a written program document that

addresses and outlines a student's placement.

5. Non-discriminatory Assessment: Required that any testing relating to the child's disability must be conducted in the child's native language or mode of communication and administered by trained personnel.
6. Parental participation: Required written parental permission for student evaluation and participation in the prescribed program as well as annual reviews of the program.

Based upon these outlines, the educational placement of the disabled child was to be determined by committee and could include any and all accommodations for that child the committee deemed appropriate for success (Nolan, 2004). The LRE Amendment was written in general language, thereby leaving interpretation to the states and local school districts as to exactly what LRE included. Originally, the LRE Amendment led to the creation of dual programs: special education or general education. Special education was approached as a pull-out program exclusive of general education classes and teachers. Currently, all state guidelines address the LRE amendment through assessment of the student and providing that student with the appropriate accommodations based on the assessment outcomes (Clapper et al., 2005; Elliott et al., 1996; Thurlow et al., 2002; Thurlow et al., 1996). Not all researchers agree, though, that the LRE for a student with special needs is always placement in a general education classroom and argue that the practice of inclusion should not be a default mandate for these students (Chelsey & Calahuce, 1997; Fuchs & Fuchs, 1998; Kauffman, 1999; Kavale & Forness, 2000; Zera & Seitsinger, 2000; Zigmond, 2001).

The word inclusion was adopted at the state and local level by school districts and special education advocates to satisfy compliance for the new LRE federal regulations in the 2004 reauthorization of the IDEA, although Lipsky and Garner (1998) felt inclusion was the full intent of the law. Others feel inclusion has arisen due to the definition of the practice as righting a moral dilemma, court rulings, and refined governmental legislation over the last thirty-five years that have led to growing discussions about students with special needs placement, service delivery, and a fragmented approach to special education (Leonardi, 2001). The current move toward the practice of inclusion began with the Regular Education Initiative in 1986. This refinement of the LRE Amendment was proposed by the Assistant Secretary of Education at the time, Madeline Will. Assistant Secretary Will delivered a federal government opinion of the IDEA that called for a less fragmented and less exclusionary approach to special education services. Furthermore, the Regular Education Initiative criticized poor accountability in services, stigmatization of children with special needs, and put special education and general education educators at odds with one another (Kubicek, 1994; Will, 1986).

In addition to the Regular Education Initiative, the case of Oberti vs. Board of Education of Clementon Schools in 1993 is seen as a focus case in which the federal courts have supported a movement toward inclusion. In this case, "the federal court upheld the right of children with disabilities to be educated in regular classrooms with their non-disabled peers" (Baker, Wang, & Walberg, p. 34). Further court cases that include Daniel v. State Board of Education, 1989; Greer v. Rome City School District,1991; and Sacramento City Unified School District v. Rachel H., 1994 defined

and narrowed the term inclusion. These cases provided support for the practice of inclusion by defining who should be involved in each child's case, how the curriculum should be modified for that student, how the child's placement in classes should be effected, and how schools should collect documentation and provide evidence for changing the child's placement (Holmes, 1999).

Proponents of inclusion use the Regular Education Initiative, the Oberti v. Clementon case, and other research found throughout this paper to support and accelerate the inclusion movement we see today. Some of these supporters go so far as to redefine schools as communities and inclusion as the democratic right of children with disabilities (Leonardi, 2001).

As previously stated, many researchers argue against the practice of inclusion, but other researchers have found benefits for special needs inclusion students both academically and socially (Brucker, 1994; Freagon, 1993; Giangreco, 1997; Moore, 1998; Sharpe, York, & Knight, 1994; Waldron and McLeskey, 1998). These researchers provide credence to the call for reform in student inclusion.

In 2001 Congress passed, and in 2002 President Bush signed into law, the No Child Left Behind Act. Among many reforms, the law dramatically reduced and, in some cases, completely removed individualized instruction for children with special needs based on accountability standards (U.S Department of Education, 2006). This language has led to inclusion becoming the standard for LRE for children with special needs in public schools in the United States. Educators are quickly adapting to the new guidelines in response to the LRE reform movement.

Some researchers question the speed at which inclusion is becoming entrenched and the effect that the inclusion movement is having within the educational setting. Researchers question the effectiveness of the practice, lack of research support relating to effectiveness, and the effects the practice may have upon both general education students and students with special needs. Due to these ongoing concerns, Dyson and Gallannaugh (2007) urged the government to become a resource center for inclusive education and that educators draw upon these resources and national policy to further the cause of inclusive education.

King and Young (2003) argue that inclusion can be successful in particular individual settings with a properly trained, committed educator leading the classroom. The principal's leadership, vision, and development of culture within the school set the tone for the staff if the importance of implementing inclusion is seen as a method of instruction to benefit all students. In addition, Jones (2004) supports the move to inclusion in finding that inclusion helped the school's principal and teaching staff to better understand special education, improve collaboration, and create a positive school environment.

One common denominator in many studies is the finding that success in inclusion is closely tied to teacher professional development and collaboration (Avramidis & Bayliss, 2000; Beirne-Smith et al., 2000; Jones, 2004). Collaboration among the teachers of a school is the cement that binds the practice together (Edmiaston & Fitzgerald, 1998). It appears that teachers learning and working together and sharing ideas, methodology, and suggestions leads to a successful overall program. The special education teacher

would naturally be most trained in the variety of student accommodations and the needs of the special education student and should, therefore, be seen as the leader in inclusion reform.

Teacher Perspectives Toward Inclusion

The perceptions of teachers involved in inclusion classes have been widely studied. In a study on inclusion in high schools, for example, teachers in core subjects have a less positive attitude toward inclusion than those in non-core subjects, and science teachers overall had the most negative attitude toward inclusion (Ellins & Porter, 2005). In the elementary and middle school setting, Sharma, Forlin, Loreman, and Earle (2006) found positive attitudes toward inclusion overall, while many others have found concern with the practice due to lack of planning and support for more intensive training in inclusion practices (Friend & Cook, 1993; Houck & Rogers, 1994; Kochar, West & Taymans, 2000; Salend, 1999; Shade & Stewart, 2001; Yasutake & Lerner, 1996). Lambe and Bones (2007) and Boardman, Arguelles, Vaughn, Hughes, and Klingner (2005) found that even though teachers showed positive attitudes toward inclusion, they also continued to have strong attachments to current practices in traditional general education, noninclusive classrooms.

An area of teacher discontent identified in several studies is the inclusion of students with behavioral disabilities due to increased disciplinary problems in teachers' classrooms and inadequate training of the teacher to manage these students (Fuchs & Fuchs, 1994; Hastings & Oakford, 2003; Kaufman, Gerber, & Semmel, 1998; Kochhar, West, & Taymans, 2000; Lieberman, 2000; Scrugg & Mastropieri, 1996). Brotherson et

al., (2001), Dinnebeil et al., (1998), Gallagher et al., (1997), and Stoiber et al., (1998) also discovered little support for inclusion, which was attributed to little collaboration, little support, and insufficient professional development cited earlier as necessary for successful inclusion programs. This finding was echoed by Bauwens and Hourcade (1995), Pugach and Wesson (1995), and Walther-Thomas (1995), who found that many teachers believed they were poorly trained as collaborators and coteachers in preparation for taking on an inclusion class. Cook, Cameron, and Tankersley (2007) and Meegan and McPhil (2006) found in their work that some of these teachers, disenchanted with inclusion classes, rejected included students and showed both indifference and lower rates of involvement with the children with special needs placed in their classes.

Teachers may or may not support inclusion. For the practice of inclusion to be carried out, communication and collaboration between the special education and general education teachers must take place regardless of personal feelings. Both Barton (1992) and Bang (1993) found this to be one of the most important ingredients for success in their work.

Another ingredient for a successful inclusion program is a positive teacher attitude and belief toward the practice as well as the attitude taken by the administrator of the school (Praisner, 2003). If the teacher sees the move to inclusion as a journey and asks questions and seeks information then the teacher can develop a more positive attitude about the practice (Morley, Bailey, Tan, & Cooke, 2005), and teacher attitude has been found to be a predictor of success for inclusion (Bruce, Shade, & Cossaint, 1996; Coates, 1989; Jones, 1984; Ringbladen & Price, 1981; Tucker, Shephard, & Hurst, 1986;

Van Reuson, Shoho, & Barker, 2000). Without a positive, open attitude within the teacher, the practice of inclusion cannot succeed. The teacher must recognize the classroom diversity, have high expectations for all students, and show enthusiasm for achievements and successes of the students (Bernard, 1991; Center, 1993; Flem, Moen, & Gudmundsdottir, 2004; Hamill, 1999; Hines, 2001; Johns & Guetzloe, 2004; McGregor & Vogelsburg, 1998; Rife & Karr-Kidwell, 1995; Schoenholtz, 2000; Smith-Davis, 2003; Soodak, Podell, & Lehman, 1998). The teacher must also believe in and focus upon the daily practice of inclusive education (Hanson et al., 1998; Harper & McCluskey, 2002; Mulvihill et al., 2002; Lieber et al., 1997; Lieber et al., 1998; Marchant, 1995), which can lead to greater acceptance of students with disabilities by teachers as well (Glashan, Macke, & Grieve, 2004).

These factors are so important in a successful inclusion class that researchers have spent considerable time investigating the attitudes and skills of inclusion teachers. Their work urges administrators to give careful examination to attitudes and skills of educators who are to teach inclusive classes because these factors have a direct relation to the outcomes of the children in inclusion classes (Bricker, 2000; Eiserman, Shisler, & Healey, 1995; Gallagher, 1997; Guralnick, 2001; Odom, 2002; Odom & Bailey, 2001; Soodak et al., 2002). Also, administrative support, feedback, and funding for professional development have been shown to improve teacher's attitudes toward students with special needs, the quality of the inclusive education presented, and the prevention of teacher burnout (DiGennaro, Martens, & Kleinmann, 2007; Reiter & Vitani, 2007; Weisel & Dror, 2006).

The research is very contradictory regarding inclusion, and it is difficult to draw conclusions based upon the conflicting data, which both support and reject the model. To better judge support for inclusion, and the steps necessary to better educate teachers about the model, further research is needed across all grade levels and subject areas.

Student Attitudes Toward Inclusion

Much has been researched and written about the impact of inclusion on students. The plethora of research includes many facets in approaching the use of the inclusion model, including the perceptions of nondisabled students in the inclusion classroom to the attitudes of included students with special needs toward their inclusion classrooms.

Students with special needs in high school are at a greater risk than nondisabled students to fail school or to drop out. Inclusion in the high school may better prepare students with special needs, both socially and academically, to complete high school and move onto higher paying jobs and education. For inclusion to be successful for these students, they must see inclusion as a positive force in their education and their placement must be appropriate as it relates to their disability (Marschark, Pelz, Convertino, Sapere, Arndt, & Seewagen, 2005).

In examining the perceptions of students with special needs included in general education classes, it has been discovered that inclusion is an overall positive experience for the student (Norwich & Kelly, 2004; Szivos, 1992). Students with special needs explained that they felt being given the chance to succeed in the general education setting led to greater challenges but added that carrying the burden of being labeled as special education led to negative perceptions from nondisabled peers. This feeling of belonging

and greater social acceptance has also been found in studies by Arnold and Dodge (1994), Baker and Zigmond (1995), Gresham and Reschly(1986), Lipsky and Gartner (1996), Slavin (1997), and Udvari -Solner (1996). Being given the chance to succeed also includes the chance to be assessed differently than their peers based upon the child's disability (Roach & Elliott, 2006).

Gentilucci (2004) discovered inclusion as a positive force for students at the elementary level. Inclusion allowed the students an opportunity to understand individual differences and experience reciprocity in activities between disabled and nondisabled peers. Furthermore, inclusion helped all students in the class to understand equal participation and acceptance of others in personal relationships. Based on the findings, Gentilucci (2004) recommended teachers consider the disabled students' perspectives in the general education classroom because it was concluded that both disabled and non-disabled elementary students fully understand learning is the reason for school. Since disabled students understand the importance of their own education, their voices should be heard when determining their placement in the general education setting.

In addition to student perceptions of inclusion, researchers have also asked what students perceive as making an inclusion classroom successful. Several mentioned that the teacher being organized, well-trained, and working well with the students as issues that made a real difference in the success of the model (Burnard, Dillon, Rusinek, & Saether, 2008). Paterson (2007), as well as Stough and Palmer (2003), found that a teacher who was attentive to a student's differences and nurtured individual relationships with students developed not only a greater rapport with the students but also more

effective instructional techniques. Furthermore, when a special education teacher was present in a cotaught inclusive classroom, Magiera and Zigmond (2005) and Idol (2006) found students with disabilities received more individualized attention and instruction from both teachers and were, therefore, more successful. The practice of coteaching has also been show to improve teacher attitude about the practice of inclusion (Weisel & Dror, 2006). Co-teaching between the general education and special education teachers is at the forefront of current inclusion practice (Weiss, 2004).

One other area of note is in the investigation of parent attitudes regarding inclusion. Although not researched to the extent that students and teachers have been investigated, some researchers have considered this population. Wesley, Buysse, and Tyndall (1997) found that parents felt communication was the key to a successful inclusion class for their child. Beckman et al. (1998) found similar results but also emphasized that parents felt their children with special needs needed to maintain social relationships with other children for success. Several researchers have found parents have a positive attitude and support their child's move to inclusive classes and view the move as a success as long as the teacher built a trusting relationship, opened lines of communication, and continued appropriate special education support (Hallahan & Kauffman, 1995; Hoare & Taylor, 2005; Odom & Diamond, 1998; Seery, Davis, & Johnson, 2000; Sodak & Erwin, 2000; Wilkinson, 2005).

In the middle school setting, little research has been carried out. It is important for researchers to investigate and provide an up-close, detailed view of the perceptions of middle school students and their teachers in the inclusive classroom as well as the

effectiveness of the practice. The lack of research in the middle school setting is one reason the current study was undertaken.

The laws governing special education practice have been created and refined based upon equal opportunity rights to protect the citizens and improve the treatment of those with disabilities (Mitchell & Kugelmass, 1997). Schools may be the only agency that "can influence educational outcomes to change the cycle of special education placement" (Thurston, 2003, p. 1). Society must consider the impact of researched practice and methods of instruction upon children with special needs because schools that do not adapt to change will continue to perpetuate mediocrity and doom subsequent generations to further segregation and substandard academic performance.

Theoretical Base

Two theories ground this study. The constructivist theory is based in the works of Dewey, Piaget, Vygotsky, and Bruner. The viewpoint of Dewey (1916) was that children learn through their experiences and experimentation. They then use the experiences to purposely modify their world. Therefore, preset possibilities in children must be recognized by educators who should then create experiences to build upon these possibilities. Furthermore, education should be a social continuity of the life found outside of the school that has shaped the child and for students to reach their full potential they must be allowed to experiment as individuals and with others. This view is valid today for learning disabled children in that the experiences of these children inside and outside of school have shaped them with different stimuli than children of general

education backgrounds, and independent thinking activities should be used to nurture their originality.

Feelings are an important part of Piaget's (1981) view of constructivism. Piaget's stance was that learning takes place only when the student has interest or a need for the information. Furthermore, success or failure in learning is dependent upon feelings including fatigue, boredom, pleasure, or disappointment. Ideas, Piaget believed, are assimilated, interpreted, and constructed. Since the experiences of children with learning disabilities create strong individual and interpersonal feelings, educators must understand the influence of these feelings when educating the child.

Vygotsky's (1962) concept of the constructivist theoretical framework added social interaction as a fundamental role in developing cognition. Of utmost importance was interpersonal communication and social participation as the driving force behind complex processes that transform changes over time. The implication that constructivism advocates for a learning disabled child fosters open group instruction and verbal communication.

Bruner's (1996) interpretation of the constructivist framework was based upon the culture in which a child is raised and the effects of that culture on education. Bruner postulated that "education is a complex pursuit of fitting a culture to the needs of its members and of fitting its members and their ways of knowing to the needs of the culture" (p. 43). Bruner proposed that education must take place within the culture's systems. Learning disabled children bring needs to the classroom beyond the mainstreamed ideals. Based on Bruner's interpretations, education cannot take place until

educators take these differences into account and students are allowed to construct knowledge.

Constructivism is not a teaching model but is instead a model of learning. Teaching and learning are two very different things. Teaching is the method of delivery of knowledge while learning is the assimilation and construction of knowledge by the individual. Constructivism is a learner-centered model. Oser and Baeriswyl (2001) defined the approach as one "in which the learner is seen as someone who constructs the world through his or her actions" (p. 1040). The model attempts to create a framework based on the learner's prior knowledge and change that comes about through the learning process.

Osterman (1998) observed that "people behave in very predictable ways and these actions reflect ideas and behaviors learned through a lifetime of experiences" (p. 4). It is through these experiences that people construct a basic knowledge. When students come into a classroom, they bring with them a preformed knowledge based on their previous experiences. All learners have had different life experiences and, therefore, all learners come with different sets of knowledge. Osterman went on to explain that, based on these experiences, learners develop concepts about their world through active involvement in the learning process and then act accordingly. As time passes, experiences build, knowledge is constructed, and patterns of action become habitual.

The emphasis in constructivism is on learner centered experiences. Plourde (2003) pointed out that the learner creates new meaning and understanding by combining the current knowledge base with the new experiences with which they are confronted. It

is important for the learners themselves to be a part of the experience and the experience meets the learners' interest and needs because only those experiences that are relevant to the learner can bring about the motivation to learn. Abdal-Haqq (1998) stated that teachers must break out of the banking model of teaching in which "teachers fill students with deposits of information, considered by the teacher to be true knowledge, and the student stores these deposits until needed" (p. 2). Instead, through the constructivist approach, teachers should build learning activities "characterized by active engagement, inquiry, problem solving, and collaboration" (Abdal-Haqq, 1998, p. 2). Through these active processes, students become engaged. Once students are engaged, new experiences take place that lead to changes in understanding and new knowledge built upon the former knowledge base. In this way, the learners *construct* their own knowledge.

It must be understood that the teacher's role is not one of an active participant in the process. Constructivism requires the teacher be a facilitator to guide growth in the learning process. The teacher must create an environment conducive to learning through activity building and problem solving, but it is the learner who must experience the activities to construct the knowledge. The teacher should help students focus on the challenge and assess and provide feedback, but the students must discover on their own (Osterman, 1998). Plourde (2003) went on to point out that the

> constructivist philosophy does not dictate how one should teach; however, it does make it incumbent upon the teacher to deal with each learner as an individual, to value diversity of perspective, and to recognize that the learner's behavior is a direct reflection of his/her life experiences. (p. 2)

The second theory that supports the conceptual framework of this study is the social reproduction theory. Bourdieu and Passeron's (1977) view of this theory was that

one generation of a group insures reproduction of itself in the next. Taken within the context of this research, general education students and their teachers have learned classroom values that children of special needs backgrounds have not. Children from each background learn and interact as their educational upbringing has dictated. Therefore schools, which operate upon dominate preexisting social and cultural general classroom values, reproduce those values without regard to the needs of the learning disabled child in the classroom. Children of special needs have not learned these values or experienced them in their special education classrooms and do not conform to the school's general classroom cultural setting. Taking these lower functioning children, who do not fit the general student mold, and placing them in the general educational setting without regard to the students' emotional needs may develop student feelings of inadequacy that could lead to decreased educational achievement.

Implications

The implications for this study could be far-reaching at the local level. If, through the data collection and analysis, a significant improvement of student performance was found, the investigator can continue to provide professional development and small modifications for the inclusion program to further enhance student learning and performance. Also, if success is documented through this study, the investigator will approach the governing body of the district to present these outcomes which could possibly lead to the adoption of the inclusion program throughout the district and, therefore, have an effect on how all students with special needs in the district receive instruction.

If the evidence pointed to inclusion as being as ineffective model and unsuccessful, the practice of inclusion would need to be rethought or reconsidered in an effort to provide the best possible education and opportunities to the children of the school. Serious discussions regarding alternative programs relating to the education of children with special needs would be considered and investigated.

Summary

The practice of inclusion has come about due to the combined efforts of governmental entities, educators, parent focus groups, and researchers in the field. The area of serving disabled children has been highly legislated and state governments, following mandates from laws created at the federal level, are pressuring local school districts to consider inclusion as a practice to use in special education programs. At the local level, student struggles for success coupled with legislative initiatives were forcing a fundamental shift toward inclusive education in an attempt to better serve the disabled population, but, due to the lack of evaluation, the resulting student performance brought about by this shift was still in question. Researchers have studied the effects of inclusion on both general and special education students and upon attitudes towards the practice with parents, teachers, and students alike.

Section 2 will present a description of the methodology used in this study. An introduction to the quantitative design approach, including the setting and sample, data collection instrument, and analysis method will be presented. The quantitative results will be discussed as well as the assumptions, limitations, and delimitations involved in the study.

SECTION 2: THE METHODOLOGY

Introduction

This doctoral study evaluation project has been undertaken to determine the efficacy of inclusion instruction on student performance on the ISTEP by students with special needs at a middle school in southern Indiana. The evaluation project provided information to help the researcher form conclusions related to the effectiveness of educating students with special needs amongst their general education peers. The process of implementing an inclusion program, performing data collection, evaluation, and analysis based upon student outcomes on the ISTEP test, and forming conclusions regarding the effectiveness of the implementation of the inclusion model are also discussed.

Section 2 provides information regarding the quantitative research design and approach. A description of the setting and sample is presented as well as the sampling method and size. A description of the data collection tool is also presented as well as an explanation of instrument reliability, validity, and availability. Furthermore, the study's variables are presented as well as the data used to measure each variable.

Quantitative Design

Research Design and Approach

The purpose of this project was to use a quantitative approach to perform an outcome-based evaluation of student test performance following the implementation of full-scale, school-wide inclusion of students with special needs. An outcome-based evaluation was chosen due to the definition provided by the University of California-Berkley (2006), which states that outcome-based evaluations "measures the effectiveness

of the program for changing the targeted attitudes, knowledge, values, skills, and behaviors of participants and the extent to which a program achieves its outcome-oriented objectives" (para. 14). The goal was to determine if the practice of inclusion produces a significant change in outcome on students' with special needs scores on the ISTEP through evaluation.

Description of the Setting and Sample

The school district involved in the study is located in southern Indiana and is in a rural setting located near the Ohio River. Although the community is rural, it is considered a part of a large metropolitan area and enjoys all that comes with a suburban setting. The school district consists of six schools: four kindergarten through Grade 6 elementary schools, one middle school with Grades 7 through 8, and one high school with Grades 9 through 12. The district consolidates students at grade seven from each of the elementary schools of the district.

A snapshot of the school's Grades 7 and 8 in 2007 is shown below in Table 3. These students enjoy a traditional curriculum prescribed by the Indiana State Board of Education separated into a trimester schedule. Grade cards are issued every 10 weeks.

Table 3

Demographics of District (Indiana Dept. of Education, 2007)

	District	Middle School Pop.
Student Population	3,012	417
Special Education Students	659	84

Besides the traditional curriculum offerings for the students, honors classes in language arts, mathematics, and band are offered for qualified students in grades seven

and eight. Students who do not pass one or both parts of the ISTEP test are placed into essential skills remediation classes. The school serves identified students with handicaps in programs for moderate, severe, or profoundly mentally disabled, mildly mentally disabled, learning disabled, emotionally disabled, and Section 504. There is a total staff of 59, including 31 teachers, 2 administrators, instructional assistants, custodians, cafeteria workers, and office, library, and technology personnel. Special services also offered but not previously mentioned include speech therapy, physical therapy, occupational therapy, and at-risk counseling.

The district has a minority population of 1.8% and English language learner population of less than .1%. The district has a special education population of 21.9%, 11% of the district's population receive high-ability services, and 21% of the population receives free lunch benefits. The annual per capita income for the district, based on 1999 census data, is $18,515 as compared to a state average of $20,396. The 2006-2007 district mobility rate is very low, standing at .8% in 2006-2007.

The school's curriculum is accepted by the local school corporation as well as aligned with the standards adopted by the Indiana State Board of Education. The teachers, under the direction of the building principal, provide instruction based upon these curricula as well as the state standards.

The sample includes all children with special needs who participated in the ISTEP test in 2005-2006 and 2006-07 prior to inclusion instruction and the same students who took the ISTEP again in 2007-2008 as eighth grade students following a year of inclusion instruction. This census method was chosen because canvassing the entire eligible target

population provided test score datum available throughout the specific time period inclusion instruction was being implemented in the school.

Bartlett, Kotrlik, and Higgins (1991) explained that "if the researcher has a captive audience, the sampling size is easily attained" (p. 46). Such is the case in this study. All students' with special needs who were present and completed the test over the 3-years outlined earlier in this section had their scores compared as allowed by a data use agreement between the researcher and the superintendent of the district. Therefore, the sample included the total population of 8th grade students enrolled over the 3-year period with special needs participating in inclusion instruction and ISTEP testing in the school district.

Data Collection Tool

Creswell (2003) tells us that, in using the quantitative approach, the investigator "collects data on a predetermined instrument that yields statistical data" (p. 18) and incorporates closed-ended questions. I gathered such information based upon student performance outcomes on the ISTEP. Student performance on the ISTEP was chosen for this study because scores for each participant are available to the investigator and year-to-year comparisons can be made in an effort to determine effectiveness of instruction. The ISTEP test was a criterion-referenced test based upon the Indiana Academic Standards set forth by the state Board of Education given to all students in Grades 3 through 9. The test consisted of an English/language arts section divided into a vocabulary and reading comprehension subskill set and a mathematics section divided into a number sense and computation subskill set. The test was pattern scored based on student answers and the

difficulty of test items to generate student scale scores (Indiana Department of Education, 2008).

It was difficult to ascertain validity and reliability of the ISTEP standardized test itself because the State of Indiana does not make that information readily available when requested. The only information supplied by the State of Indiana when tests of validity and reliability were requested for the test was that

> Indiana has created measures to ensure reliability for testing decisions. The state has defined a method for determining an acceptable level of reliability…and the state has a plan to maintain the continuity necessary for validity to comply fully with the law (Indiana Department of Education, 2003, p. 48).

This project was chosen to evaluate and determine the effectiveness regarding whether children with special needs being taught the same material and at the same level as general education students show improvement on the ISTEP test based on use of the inclusion model. If the implementation of inclusion was a success, the school should realize significant overall improvement on a majority of the raw scores of student test results as well as in statistical analysis when consecutive year scores were compared as previously outlined. Raw datum for the project is available in Appendix A. Students with special needs have traditionally been presented with material considered remedial compared to general education students. Additionally, they may have been educationally discriminated against due to their disability and, therefore, not been given the same opportunity to succeed as general education students. Inclusion research supports the premise that students with special needs can be held to the same high standards as general education students and should be presented with the same materials as all children in the

general education curriculum since they are responsible for the same material on the state standardized tests.

Data Analyses

The data for the study exists as individual ISTEP scores from the 2005-2006, 2006-2007 and 2007-2008 school year. I acquired a data use agreement signed by the superintendent of the school district granting permission to collect and analyze the data. It was necessary for me to gather test data for each individual as described earlier, enter the data into spread sheets and statistical analysis programs, run the necessary statistical tests, and then make quantitative comparisons.

The student test score data represented interval variables based on the fact that, by definition, interval measurements represent equal differences and can therefore be compared. By taking the differences in ISTEP scores before and after the application of the inclusion model, the researcher attempted to seek the effectiveness of inclusion instruction.

Creswell (2003) recommends that researchers use both descriptive and inferential statistical analyses to investigate and form conclusions based on the data. The descriptive statistics provided for this study include the means, standard deviations, and ranges for the student test data in each subject for each year. The inferential statistical test that was used for the data in this study is an analysis of variance (ANOVA). Gravetter and Wallnau (2005) define ANOVA as "a procedure that is used to evaluate mean differences between two or more populations" (p. 327). In this study, the null hypothesis assumed there would not be a statistically significant difference of overall student performance on

the state's standardized test following the implementation of inclusion. The alternative hypothesis assumed there would be a statistically significant gain in overall student performance on the state standardized test following the implementation of inclusion. The researcher computed the mean for each year in each subject represented on the ISTEP and then used ANOVA to draw general conclusions about the effectiveness of the practice of inclusion on student performance. Specifically, a repeated-measures ANOVA was used to compare student performance before the application of the independent variable inclusion model of instruction and then following inclusive instruction using the ISTEP scores as the simultaneous dependent variables. This was done to identify significant differences in student test outcomes following traditional instruction and the change to inclusive instruction. The predetermined Type 1 alpha error rate for hypothesis testing was 0.05. Although there are several programs for use by researchers to perform the repeated-measures ANOVA, this statistical analysis was performed using the computer program SPSS for Windows, version 17.0 as described by Kirkpatrick and Feeney (2005). This software was preferred by the researcher because of its widespread use and its point and click method, as compared to the necessity to learn computer syntax or commands.

Quantitative Results

The ISTEP is a two-part test including sections in English/language arts and math. The test is based upon the state academic standards for Indiana and students are tested in the fall of the school year based on the previous grade's standards. The total possible score on each test varies from year to year. The raw scores from all participants who

participated in the ISTEP test in 2005, 2006, and 2007 in Appendix A were first compiled into a spreadsheet format. Therefore, there were six sets of scores including one set of scores for English/language arts and one set of scores for math for each year.

Due to varying points possible on each test for different years, the scores were standardized by using a simple ratio conversion. For English scores in 2005, each student's score was multiplied by 770 (the highest possible score in 2007) and then divided by the highest possible score in 2005 which was 740. For English scores in 2006, each student's score was multiplied by 770 (the highest possible score in 2007) and then divided by the highest possible score in 2006 which was 750. Student English scores in 2007 stood based upon that year's highest possible score of 770.

For math scores in 2005, each student's score was multiplied by 870 (the highest possible score in 2007) and then divided by the highest possible score in 2005 which was 760. For math scores in 2006, each student's score was multiplied by 870 (the highest possible score in 2007) and then divided by the highest possible score in 2006 which was 820. Student math scores in 2007 stood based upon that year's highest possible score of 870.

The standardized scores were then analyzed using a repeated-measures ANOVA for each subject, math and English. Only the total overall score on each student's ISTEP was analyzed due to the fact that the state of Indiana uses total scores on the test and makes those scores readily available. The state of Indiana does not further breakdown the ISTEP scores into subset scores. The student scores were analyzed using Pillai's Trace as the multivariate equivalent following the repeated-measures ANOVA calculations.

Findings

In the subject of math, the analysis showed a significant effect of between group differences due to the implementation of the inclusion model on the ISTEP test, $F(2.00, 32.00) = 71.602$, $p = .000$.

Furthermore, the post hoc analysis of math scores in Table 4 between the 2005 and 2006 reference years without inclusion instruction, $F(1.00, 33.00) = 4.218$, $p = .048$, showed a significant difference in average test scores between years and even greater significance when considering the difference between the 2006 and 2007 test scores following a year of inclusion instruction, $F(1.00, 33.00) = 101.406$, $p = .000$.

Table 4

Math Post Hoc Analysis

Years	*df*	*MS*	*F*	Sig.
2005 vs. 2006	1	6832.777	4.218	.048
2006 vs. 2007	1	387725.162	101.406	.000

In an analysis of the overall math test means following standardization shown in Figure 1, the 2005 mean was 507.62, the 2006 mean was 493.45, and the 2007 mean was 600.24. The small drop in means between 2005 and 2006 is followed by a significant improvement on the 2007 mean following the implementation of inclusion in 2006. Furthermore, the partial eta of .736 for the math results was very strong.

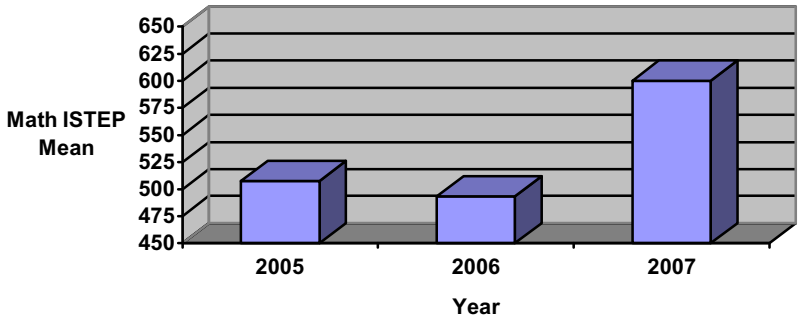

Figure 1. Mean Math ISTEP Scores 2005-2007.

In the subject of English, the analysis showed a significant effect between group differences due to the implementation of the inclusion model on the ISTEP test, $F(2.00, 32.00) = 46.774$, $p = .000$.

In Table 5, the post hoc analysis of English scores between the 2005 and 2006 reference years without inclusion instruction, $F(1.00, 33.00) = 3.381$, $p = .075$, showed no significant difference in average test scores from one year to the next but a significant difference was present when comparing scores between 2006 and 2007 following one year of inclusion instruction, $F(1.00, 33.00) = 22.032$, $p = .000$.

Table 5

English/Language Arts Post Hoc Analysis

Years	*df*	*MS*	*F*	Sig.
2005 vs. 2006	1	4203.256	3.381	.075
2006 vs. 2007	1	32960.653	22.032	.000

In an analysis of the overall English test means following standardization, the 2005 mean was 466.04, the 2006 mean was 477.16, and the 2007 mean was 508.29.

These show significant improvement in overall test scores as represented in Figure 2, especially on the 2007 mean following the implementation of inclusion in 2006. Furthermore, the partial eta of .468 for the English results was very strong.

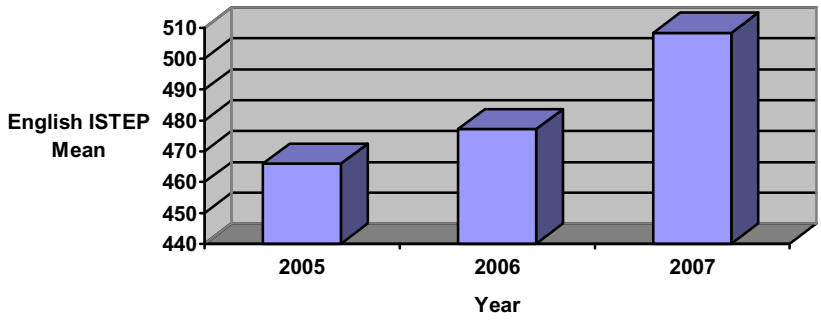

Figure 2. Mean English ISTEP Scores 2005-2007.

Project as an Outcome

The findings of the project analysis show that the implementation of inclusion instruction had a significant effect on the ISTEP scores of students with special needs. Using 2005 and 2006 ISTEP scores as baseline data, the post hoc analysis provides evidence that inclusion instruction provided for a significant gain in learning and subsequent test outcomes between 2006 and 2007 in support of the hypothesis. The test score data and analysis answers the research question regarding the effect that inclusion instruction may have on ISTEP scores. Inclusion has been shown in this study to be an effective method of instruction to improve performance on the ISTEP test for students with special needs and may have other positive impacts within a school as well.

Based upon the results of this evaluation study, it would be beneficial for educators in other middle schools to consider the practice of inclusion as a model of

instruction for students in their schools. Educators should research and investigate inclusion and the necessary training that must be undertaken for the implementation of the practice to decide if the method of instruction fits within the framework of goals they have outlined for their students and schools. The extensive professional development and dedication to the practice must also be considered but this study supports the effectiveness of the program at the middle school level.

It is also recommended that special education policymakers and those in positions of distributing educational funding consider the practice of inclusion as an effective means of improving special education learning and performance on standardized tests. This study supports the effectiveness of the practice and provides evidence that the inclusion model not only leads to improved student performance but also necessitates teacher collaboration and continued professional development.

Assumptions

Several assumptions were present regarding this study. It was assumed that students performed to their utmost capability on the ISTEP test. It was assumed that teachers have used inclusive methods and worked toward improved classroom instruction following a year of professional development provided for inclusive education. It was assumed that classroom placement is correct based upon the least restrictive environment requirement that the student to be placed in an inclusion classroom for instruction. It was also assumed that student test scores will be accurate and will be recorded based on factual information.

Limitations

The study was limited to students with special needs in Grade 8 and, therefore, the results cannot be generalized to elementary or high school students' special education settings. The numbers of students participating did not represent the population beyond the local school district. The study took place in a restricted location for participant selection. Participants were 100% White and generalizations regarding heterogeneous race assumptions cannot be inferred. This study only measured ISTEP results while other instruments such as the Northwest Evaluation Association Measure of Academic Progress exam could also be studied. Also, the general structure of the typical school day and class schedule limited instructional time and, at times, the quality of instruction for the students.

Delimitations

The research setting was one middle school containing Grades 7 through 8 with less than1% minority population in southern Indiana. The participants were students identified as eighth grade students in need of special education services and receiving instruction in general education classes under the practice of inclusion with teachers who have undergone significant professional development in preparation for and implementation of the practice of inclusion within the same school district. Following the procurement of a cooperating agreement with the school district and IRB approval, the researcher accessed student standardized test performance scores provided by the state of Indiana. All student identifications markers were removed and identities will remain anonymous. This study took place during the 2008-2009 academic year comparing 2005-

2006, 2006-2007 and 2007-2008 student test score data and therefore may or may not generalize to future time periods.

Evaluation Limitations

The evaluation results of this study cannot be generalized outside of the state of Indiana and cannot be generalized to elementary or high school settings. The results of the evaluation cannot be generalized among other standardized test instruments. The results should not be viewed as indicative of similar result expectations in schools with significantly different special education populations. Results also cannot be generalized to schools without comprehensive professional development and training in the inclusion model. One other limitation is that only ISTEP test score data was evaluated and no other data was considered.

Measures for Participant Protection

All student test score data will remain anonymous. To protect the participants, names were removed from each individual's test score data and the school district provided the data using a numbering system to identify each individual student's scores to track over the three year period. Anonymity of the participants was assured and addressed directly in the data use agreement presented to the superintendent of schools so as to protect any student from identification and to protect the participants from any harm in the form of harassment or judgment.

SECTION 3: THE PROJECT

Description

This project was designed to evaluate the effectiveness of the practice of inclusion on ISTEP standardized test results with middle school students in southern Indiana. Teachers received comprehensive professional development for the move to the inclusion model, parents and students were educated about the practice of inclusion, and students with special needs began receiving full inclusion instruction in the fall of 2006. The problem addressed in this project came about due to the lack of knowledge regarding the effectiveness of the inclusion practice which required an evaluation of student test data. To accomplish this evaluation, test scores were collected for the special needs students receiving inclusion instruction for the years 2005, 2006, and 2007. The test score data for years 2005 and 2006 represented scores before inclusion instruction and scores from 2007 followed the first full year of inclusion instruction. The test score data were standardized and analyzed using the computer program SPSS.

One reason this project was chosen was that little research was found relating to the practice of inclusion in middle schools. The positive effect of inclusion on standardized test performance on the ISTEP in a middle school in this study supports other research outlining the benefits and strengths in using the inclusion model.

Beyond the positive outcomes described by researchers for students, Jones (2004) also found inclusion helped the school's teaching staff to better understand special education, improve collaboration, and create a positive school environment. Through the inherent collaboration and communication the inclusion model requires, the inclusion model forces a stronger, more open school faculty.

This doctoral project study was developed to evaluate the overall efficacy of the practice of inclusion in an Indiana middle school. Following the successful implementation of inclusion program, it was necessary to evaluate the ISTEP test data to determine if the goals of improving student learning and increasing standardized test scores were realized. To accomplish this, students test scores on the ISTEP were collected from a 3-year period before and after inclusion implementation and analyzed to evaluate student performance.

Goals

This project attempted to evaluate inclusion as a practice to educate special needs students in the middle school setting. In previous chapters, the methods undertaken to implement full inclusion were outlined. Supporting educational research and theories were presented and implications of this project were discussed. In this chapter, the evaluation and results of the project are presented.

The repeated poor performance on the ISTEP by students with special needs within a rural Indiana middle school showed that special education students' test scores were low and stagnant compared to their general education peers. A quantitative approach was chosen to perform an outcome-based evaluation of student test performance following the implementation of full-scale, school-wide inclusion of students with special needs. Individual ISTEP scores from the 2005-2006, 2006-2007 and 2007-2008 school year were gathered, examined, and analyzed. It was necessary for the scores to be standardized for comparison purposes due to the fact that different values existed as perfect scores for each year. The scores were then analyzed using a repeated-

measures ANOVA to draw general conclusions about the effectiveness of the practice of inclusion on student performance.

The goal of this project was to evaluate and determine the effectiveness of inclusive instruction on students with special needs in an attempt to improve educational outcomes as supported by increased overall scores on the ISTEP test. The data analysis showed inclusion to be effective because of significant positive differences in results between the years inclusion was not used and the year inclusion was used as a method of instruction.

Rationale

The IDEA required school districts to include students with special needs in general education classrooms to provide an atmosphere of least restricted environment. At the local level, poor performance on state standardized test scores for students with special needs over several years presented evidence that changes in instructional techniques were required. Therefore, the school investigated and embraced the professional development required and implemented inclusion as the primary practice when educating students with special needs. This study attempted to evaluate of the effectiveness of the inclusion program on the students involved in the program.

An evaluation study was chosen to determine the overall effectiveness of the program. This type of study was necessary to provide the evidence that inclusion was either successful as a means of educating children with special needs or insufficient in dealing with the educational needs of these children, which would necessitate the

consideration of alternative methods or practices to fulfill the needs of students with special needs.

The National Science Foundation (2009) states that "evaluations provide information to help improve a project" (p. 3). Thus, to evaluate the data in an attempt to discover evidence that the implementation of inclusion made a difference in student test results to improve student performance, this project was designed around an outcome-based evaluation. An outcome-based evaluation was chosen because this type of evaluation "obtains descriptive data and documents short-term results on a project" (United States Department of Health and Human Services, 2009, para. 6). This data and the results of the evaluation project were needed to determine the effectiveness of the inclusion program in the middle school for the students with special needs.

The data analysis in Section 2 supports the practice of inclusion. The data and analysis used to evaluate the practice showed a significant increase in student ISTEP performance following the implementation of inclusion. This can be seen in both math and English with a $p = .000$ in the post hoc analysis between the years of 2006 and 2007, 2006 being a year of test scores without the inclusion practice and 2007 being the year following the implementation of the inclusion practice. Furthermore, the overall mean scores were significantly higher in both math and English in 2007 following a year of inclusion education for students with special needs. The evaluation project therefore supports the practice of inclusion in the middle school setting.

This project was undertaken after inclusion was implemented in the school. The problem was the uncertainty of the effectiveness of the practice. The content of this

project was to analyze the data gathered from student test performance and evaluate the effectiveness of the move to inclusion. This project was successful in that the evaluation provided the evidence that the move to inclusion for students with special needs was successful one.

Review of Educational Research and Theory

The approach to addressing any problem in an area that is highly legislated and affects large numbers of people is dependent upon the context of the problem and the underlying current themes and trends in which the problem exists. Inclusion is not a new idea and has been debated as an instructional model for several decades (Simpson, 2004). Even though this discussion has been ongoing with the practice being both embraced and criticized by different educational entities, the ultimate test was to evaluate the effectiveness of the practice on students who have been directly educated by those who were trained and used the practice in the inclusion classroom. This is the only way to check the effectiveness of inclusion in the least restrictive environment.

This project was undertaken to evaluate the effectiveness of the practice of inclusion. Because of that, it was necessary to understand both the terms *evaluation* and *inclusion*. Using the Walden University Library and Google Search as recommended by the Walden Library, Boolean searches were used to gather information regarding the definition of evaluation and the types of evaluations that are available.

The Boolean searches related to evaluation included *inclusion evaluation, evaluation types, project evaluation,* and *outcome-based evaluation*. Furthermore, *evaluation not grades* and *evaluation not business* were searched as well as *summative*

evaluations and *formative evaluations*. These search terms were used to help gain an understanding of the types of evaluations available and, specifically, the definition and explanation of outcome-based evaluations once it was decided that this project should be an outcome-based evaluation project. The words *grades* and *business* had to be eliminated to narrow the search and *summative* and *formative* were individually searched to determine all types of evaluations available.

An evaluation is defined by the National Science Foundation (2009) as "a systematic investigation of the worth or merit of an object or project" (p. 3). An evaluation approach was required for this project due to the necessity of determining the effectiveness of the practice of inclusion. It was important to examine the value of the inclusion program in improving student performance to help make the decision on whether to continue the program or to seek alternative methods to improve learning opportunities for students with special needs. To do this, the project required the collection of test score data, analysis of that data, and an informed decision regarding the effectiveness or possible alternatives. These are all hallmarks of an evaluation (Indiana University, 2009).

The purposes of an evaluation are fivefold: feedback, control, research, intervention, and power. Feedback provides the evaluator information relating to the project's objectives. Feedback tells the evaluator whether the objectives of the project have been fulfilled and whether the necessary functions of the project were carried out. The evaluator accomplishes feedback by examining data from before and after the implementation of an activity to determine whether transfer of knowledge took place

(Indiana University, 2009). In this project, feedback came from the examination of test score data from before and after the implementation of inclusion to determine if the objective of knowledge transfer took place through the implementation of the practice.

Evaluation control relates to fulfilling the organization's goals. Control considers the value of the project and a cost analysis of implementing the project (Indiana University, 2009). For this project, control referred to the importance of improving ISTEP scores for students with special needs and the cost of the implementation of the inclusion project in relation to the outcomes of improved student performance.

Research, as it pertains to the purpose of an evaluation, refers to the internal validity of the project in improving techniques that were in question before the project implementation (Indiana University, 2009). Relating the purpose of research to this project involved the evidence that inclusion did, in fact, improve student test scores on the ISTEP test as compared to teaching practices before its implementation. This led to the conclusion that inclusion should be considered an effective practice to improve student learning and ISTEP scores for students with special needs in the middle school.

Evaluation intervention has to do with how the project training and evaluation is viewed by those implementing the project's activities and how the project's outcomes lead to change in the environment in which the project took place (Indiana University, 2009). Intervention, as it relates to this project, included the professional development and aforementioned collaboration activities amongst and between the administration and teachers of the school and how this led to the need to evaluate the effectiveness of the program to prove its worth. It is also related to how the success found in the practice of

inclusion should provide a foundation for further support and continued inclusion activities and training.

The purpose of power in an evaluation relates to the how the project and the evidence for its effectiveness can be used to influence appropriate stakeholders (Indiana University, 2009). The evidence for the effectiveness of this project can be used to show that inclusion should be considered when attempting to improve the performance of students with special needs in the middle school setting. School boards, politicians, and state and federal governments should consider this evaluation project as sound evidence that inclusion can work in middle schools when the staff have received adequate training and been given fair opportunities to implement the inclusion practices in their classrooms.

Two basic types of evaluation are widely recognized and are further subdivided based on the interrelationships between subtypes. Formative evaluations begin during the development of a project and help form the project (Trochim, 2006). Formative evaluations are ongoing evaluations that assess and monitor the evolving project's activities in an attempt to improve the project and consider the delivery methods of the project, the organization, the personnel, and the context of the project over the life of the project (National Science Foundation, 2009; Trochim, 2006). Formative evaluations provide feedback on a project or program's progress to make course changes in an attempt to enhance its effectiveness. Oftentimes, formative evaluations take place over several years (Formative Evaluation Research Association, 2009).

Formative evaluations are subdivided into five categories. A needs assessment determines who needs help, what type of project may help, and how badly the help is needed. An evaluability assessment determines the feasibility of a full evaluation and how useful a project may be to an organization in need. A structured conceptualization helps an organization define the population in need and a possible project to address that population. An implementation evaluation monitors a project that has been put into place and whether that project has been implemented as planned. Finally, a process evaluation investigates how a project is being delivered to assess the project's progress and offer alternative means of delivery if necessary (National Science Foundation, 2009; Trochim, 2006). Formative evaluations take place while the project is being undertaken and, even though the implementation of the inclusion program described in this study used formative evaluations during its conceptualization and implementation, this project evaluation is not a formative evaluation study.

The project undertaken in this doctoral work should be described as a summative evaluation study or, specifically, an outcome-based evaluation that will be later defined. Summative evaluations assess the effects or outcomes of a project to judge the worthiness of the project. Summative evaluations summarize a project after the project has been completed. Summative evaluations attempt to answer if the goals of the project were realized or what effect or impact the implementation of a program had on an outcome (National Science Foundation, 2009; Trochim, 2006).

Summative evaluations are also subdivided into five subgroups. An outcome-based evaluation assesses whether the program or project affected the outcome. Impact

evaluations determine the overall effects, intended or unintended, of a program. Impact evaluations are generally broad and lengthy, considering data over many years. Cost-effectiveness evaluations consider project outcomes in terms of cost-benefit analyses and question project outcomes in dollar costs. Secondary analysis examines new problems or questions through the lens of existing data in ways the data was not initially considered. A meta-analysis uses the results of several different studies to develop a summary answer to an evaluation question (Minnesota Department of Health, 2009; Trochim, 2006).

The project at the focus of this study is an outcome-based evaluation to determine the effectiveness of the implementation of an inclusion program in an Indiana middle school. An outcome-based evaluation was chosen for this project study for several reasons. An outcome-based evaluation assesses the effectiveness of the implementation of a program, in this case the effectiveness of the inclusion program. An outcome-based evaluation must, by its nature, be a delivered program that provides measurable data with which to work toward an outcome (Centers for Disease Control, 2007). In this evaluation study, the program being delivered was the inclusion program described earlier in this paper. The data collected and analyzed was student ISTEP scores for the period of 2005, 2006, and 2007. This allowed for the measurement of change in outcomes which could be attributed to the use of the inclusion program.

It was also important to use an outcome-based evaluation because the data were the result of a project's activity. These short-term results from each of the three years provided for an interpretation of the immediate effects of inclusion on student learning and test scores. The results of the project are part of a new policy initiative (inclusion)

which is often part of an outcome-based evaluation (U.S. Department of Health and Human Services, 2009). The outcome-based evaluation provided in this study measured the effectiveness of inclusion and the positive impact this should have on the students being instructed using this method of delivery.

As discussed earlier in the paper, inclusion is being considered as a solution to problems that exist within the discipline of special education that include academic performance as well as issues of equality. Tankersley and Cook (2007) have found the practice of inclusion not only benefits those students with special needs but also general education students in the inclusion classroom. These benefits are not only academic but also include increased contact and positive perceptions of general education students toward their special needs peers, a belief among all students that students with special needs can be successful in general education classes, and increased social interactions among general education and special education students in and out of the school setting (Siperstein, Parker, Bardon, & Widamin, 2007). These types of findings have brought inclusion to the forefront of educating students with special needs.

To understand the practice of inclusion, I performed many searches using the Walden University Library, Nova Southeastern University Library, and Google Scholar as made available by Walden University. Boolean terms used included *inclusion, middle school inclusion, inclusion effectiveness, inclusion and education, inclusion and evaluation, inclusion and effectiveness, inclusion and special education*, as well as *inclusion and law*, and *inclusion and programs*. The term *inclusion* was a large part of the Boolean search because of the inherent nature of the project. The project dealt with

evaluation and *effectiveness* of an inclusion program which were added as Boolean terms and *special education, programs*, as well as *law* were included due to the fact that inclusion was an outgrowth of special education law as a means to address the least restrictive environment mandate.

The practice of inclusion has come about as researchers in education have tried to address how to better educate students with special needs in a setting consistent with their non-special needs peers. Educators can avoid exclusion of students with special needs through promoting the practice of inclusion. This certainly addresses the issue of equality, but the issue of academic performance continues to be the unknown. Vygotsky (1962) has discussed how important social interactions are in a child's development as students work on complex functions. The practice of inclusion allows for this social interaction by allowing students with special needs to learn next to their general education peers. This collaboration has been found to enhance positive attitudes within special and non-special needs students as well as promote socialization and achievement as children work together (Cesar & Santos, 2006).

Inclusion should not be looked at as simply a special education model. Inclusion should be considered a whole school model that emphasizes collaboration. The use of inclusion allows for students to collaborate and reflect upon the processes they use to learn and addresses any school's goal of an education for all (Forlin & Bamford, 2005). As a whole school model, inclusion creates an atmosphere in the school that emphasizes the needs of each student. Educators should consider inclusion as a way to specialize

instruction for all students whether they are special needs or not (Burstein, Sears, Wilcoxen, Cabello, & Spagna, 2004).

Inclusion also gives the students with special needs a voice in their inclusion classroom. The students with special needs bring their own individual experiences, struggles, and triumphs with them to their classroom as any other student does. Inclusion allows students with special needs to share their own unique views and experiences as an important addition to the general education classroom (Whitehurst, 2007).

The research has shown inclusion can be an effective method in educating students with special needs at different levels. Idol (2006) found educators had positive feelings about the practice which were attributed to the success of the students in co-taught inclusion classrooms. Cotaught inclusion classrooms are, by far, the most common method of implementing the model. In the cotaught inclusion classroom, a general education teacher and a special education teacher act as equals to coteach the subject to a classroom that includes both special education and general education students. As one teacher presents lessons, the other moves about the classroom to assist those students who are struggling with the material. The teachers will often trade off throughout the lesson and switch roles as they have predetermined when planning the lesson or as needs require.

Mastropieri (2005) explained that the collaboration between the special education and general education teacher as well as the special needs and general education students was extremely effective. This collaboration was identified as very important in promoting the success of the special needs children in the inclusive classroom. This level of

collaboration can only be possible when implementing inclusion as a co-taught model in a mixed student classroom.

Although the success of special needs students has been touted, Farrell, Dyson, Polat, Hutcheson, and Gallannaugh (2007) questioned the effect of inclusive classrooms on the general education students in those classrooms. In their work, these researchers found many factors that may impact academic achievement for students, but inclusion was not found to have any type of negative impact on either general or special education students.

Not only is it important teachers collaborate with one another as well as stress collaboration in their inclusion classroom, teachers must also nurture the relationships that develop within their inclusive classroom. Kniveton (2004) found students in inclusive classrooms are more accepting of their peers and have a heightened sense of positive perceptions of others. It has also been found that students in the inclusive classroom support the practice of inclusion and feel a greater connectivity with school and their teachers because their inclusive teachers allowed them more choices in classroom activities (Short & Martin, 2005).

For inclusion to be successful, it is important that inclusive teachers understand their roles and responsibilities. DeSimone and Parmar (2006) found even successful inclusion teachers are sometimes unclear about their responsibilities, and it is important for the general education teachers in an inclusive classroom to understand the learning issues that may be present in their students with special needs. Furthermore, general education teachers cited high levels of professional development as a necessity in

becoming an effective inclusion teacher as well as collaboration between the general and special education teachers (DeSimone & Parmar, 2006).

Oftentimes, it is the principal of the school who is identified as the one responsible to nurture the necessary educational environment and establish the collaborative culture for inclusion success (Smith & Leonard, 2005). The principal has been identified as the one needed to support teacher education on inclusive practices, support teacher collaboration for decisions regarding inclusive practices, and the one to provide positive supports for inclusion successes (Leatherman, 2007). The principal should guide the school and faculty toward an understanding of the inclusion concept and create an environment in which the model of inclusion can operate. To accomplish this, the principal must take on a multidimensional leadership role to guide teacher development, curriculum alignment, and a collaborative culture toward inclusive education (Leo & Barton, 2006). Without consistency and a supportive principal, research has shown the practice of inclusion within a school cannot be sustained (Sindelar, Shearer, Yendol-Hoppey, & Liebert, 2006).

Another barrier identified as a necessity to overcome for a successful inclusion program is to create a paradigm shift within the school in which inclusion students are seen as general students. Singal (2008) found that, even in schools finding success in inclusive instruction, students with special needs were still seen by faculty and general education students as inclusion students. Even though they were educated in general education classrooms with their general education peers, these students with special needs never became a true part of the classroom but instead were always considered the

included students. Singal (2008) identified the need to change the attitudes, values, and beliefs that existed in the school before moving from inclusion to one of full participation by all students in the school's curriculum and culture.

Besides school personnel, other stakeholders are important for the support and success of an inclusion program. Myers' (2007) research recognizes that continued support for inclusion within a school improves access to inclusive classes, provides positive parental attitudes toward inclusion, and increases awareness among all stakeholders. It is important the school invest time and energy into educating parents to support the inclusion program. Crawford and Tindale (2006) found in their work that few parents understood what guided inclusion programs and identified parent education as a priority for inclusion success. When parents were educated about the practice of inclusion, Leyser and Kirk (2004) found in their research that parents gave strong support to the concept of inclusion. Parents noted positive social and emotional benefits for their children and improved student attitudes regarding school.

Cross, Traub, Hutter-Pishgahi, and Shelton (2004) have identified other benefits of inclusion outside of academics within a school. They reported an overall improvement in attitude among inclusion students as well as improved parental relationships with the school. They also identified earlier interventions with struggling students and higher degrees of adaptations for special needs students in inclusive classrooms as important positive by-products of an inclusive education.

Tankersley, Niesz, Cook, and Woods (2007) have also researched positive impacts found within inclusive schools. Their research points out that inclusive students

have higher self-expectations and increased interactions with their teachers and peers in inclusive schools. Also, they explain that school personnel show a greater willingness to support one another and others in the school setting of an inclusive school.

Even though research has found a positive correlation between inclusion and academic achievement (Farrell, Dyson, Polat, Hutcheson, & Gallannaugh, 2007), issues remain with the practice that must be addressed before the model can be fully accepted across all academic disciplines and levels. Leyser and Kirk's (2004) research raises concerns about possible social isolation of students who remain identified as the included students in the general education classroom instead as simply another student. Their research also points out that teachers show concern with the need for continued training and professional development toward better practices of working in an inclusion classroom.

Teacher concerns regarding professional development were also an issue in DeSimone and Parmar's (2006) work. They found that, without thorough and continuing professional development, teachers had only a limited understanding of the needs of inclusion students. Furthermore, their work supported concerns in training programs for pre-service teachers who would be teaching in co-taught, inclusive classrooms.

In other research (Smith & Leonard, 2005), teachers have expressed value conflicts due to the perception of educational inequity between general education and special education students. The feeling amongst these teachers is that students with special needs enjoy an enhanced curriculum, preferential treatment, and additional attention when compared to their general education peers. Teachers have also expressed

frustration with the challenge of absorbing special needs inclusion students into the general education classroom (Watnick & Sacks, 2006).

Other research supports these findings. Santoli, Sachs, Romey, and McClurg (2008) found that even though a majority of middle school teachers agreed that inclusion was important for students with special needs, less than half felt inclusion was a desirable model to be used with general education students. Furthermore, just over 75% of these educators did not feel that students with special needs could or should be taught in general education classrooms. These results support the premise that inclusion cannot be a successful model for instruction without educating teachers and providing professional development support.

Short and Martin's (2005) research echoes teacher concerns regarding lack of professional development. The respondents in their work supported the idea of inclusion but did not believe they were adequately trained to deal with special needs students in their general education classrooms. Another concern in their findings was that inclusion dramatically effected classroom size. The movement of students with special needs into the general education setting with cotaught classrooms caused an increase in the size of the classes in the school.

Once again, proper and sustained professional development would likely alleviate many of the efficacy concerns previously mentioned. Esposito, Guarino, and Caywood (2007) found in their work that general education teacher beliefs in the efficacy of the practice of inclusion were often one of the largest stumbling blocks toward a successful inclusion program. They found that with proper training, education, and skills

knowledge, there was a significant increase in feelings of efficacy in their general education teacher participants.

It also appears that the experience level of the teacher affects the attitude of the educator toward inclusion. Kalyva, Gojkovis, and Tsakiris (2007) found in their research that teachers with greater experience in working with students with special needs had more positive attitudes toward inclusion than those without experience in working with students with special needs. This research is likely related to that of Idol (2006), who found general education teachers were often unsure about how to best educate special needs inclusion students and relied heavily upon special education teachers to provide support until they felt comfortable in the inclusion classroom.

No matter the outline for a successful inclusion program, proper professional development and support are necessary for success. Different stakeholders perceive different barriers that can significantly impede progress, but evidence has shown that the benefits of inclusion necessitate a school wide effort to overcome those barriers (Carter & Hughes, 2006). The time has come to address what is an effective means of educating students with special needs in the name of high morals and equity. Inclusion appears to be a practice that can fill the void left by traditional special education pull-out programs.

Needed Resources and Implementation Plan

This evaluation project required a great deal of preparation, development, and test data gathering, manipulation, and analysis. The move to inclusion began in the winter of 2005. At that time, pressure was applied to schools within the local special education cooperative district to investigate and implement alternative methods of educating

students with special needs outside of self-contained classrooms. A point of emphasis was made that the practice of inclusion was a preferred method of instruction to accomplish this goal. The faculty of the middle school began a series of meetings created to investigate and recommend a direction for the school. The decision was made that the faculty would undergo extensive professional development for inclusive teaching supported administratively and financially by the principal and at the district level.

The teachers of the building were provided with extensive training opportunities and professional presenters in the field of inclusive education were brought into the school for presentations and to spend time in classes that were to become inclusive in the fall of 2006. Furthermore, teachers were given professional leave time to attend inclusion conferences and visit other schools in the state that had implemented inclusion within their school.

Much of the resource money required for the move to inclusion came through grants supplied by the state of Indiana. The local special education cooperative helped to identify presenters and resources as well as supplied the school with materials for use in teacher training and inclusion classrooms.

The tremendous amount of support given to the school through the local special education cooperative made the smooth transition to inclusion possible. Also, the support of the school central office personnel, and the assistant superintendent in charge of student services in particular, provided credence for the change to the faculty and made the full transition possible.

The support of the faculty was instrumental in making the change to inclusion happen. Most faculty members fully embraced the training and transition and educated themselves on inclusive practices and implementation. The special education teaching staff in the building supplemented the needs of the general education teachers and expended great amounts of time and energy in creating a positive atmosphere for the move to inclusion. One other group that lent their full support was the parents of the special needs students. All were notified of what the practice of inclusion meant for their child and that their child, who may have been in self-contained classrooms their entire educational career, would soon be placed in general education classrooms. Parents were also notified the move to inclusion was to be made in the fall of the 2006 school year. This was accomplished through the work of the special education teachers and administration during face to face annual case reviews for the parents of students with special needs. After thorough explanations of the program, no parent asked for their child to not be placed in an inclusion class.

The move to full inclusion was implemented in the fall of 2006. At that time, all special education students who were not identified as moderate to severely mentally handicapped were scheduled into general education classrooms. Special education teachers were paired with general education teachers in math and language arts classrooms to team teach and all special education aides were assigned to general education classrooms in social studies, science, and health as inclusion support for those subjects.

The problem addressed in this project concerns the evaluation of the effectiveness of the practice of inclusion following the implementation of the program as described earlier. To evaluate the effectiveness of the practice, ISTEP test scores in math and English for each individual student who had been present before and during the inclusion implementation over a three year period from 2005-2007 were required. In Indiana, the ISTEP test was given in the fall of each year within weeks of starting school. The test was based on the state standards that were to be taught during the previous grade for each student during the previous school year. Therefore, results of the ISTEP test in 2005 and 2006 were based upon student scores following years without inclusive instruction. In the fall of 2007, the ISTEP test was given following a full year of inclusion for the students with special needs in the school. It is upon this data that this evaluation project is based.

Project Evaluation

Voelker-Morris (2004) uses two questions to define and describe an outcome-based evaluation:

1. "How has my program made a difference?" and…
2. "How are the lives of the program participants better as a result of my program" (para.2)?

Additionally, the Utah State Library (2009) defines an outcome-based evaluation as "a systematic way to determine if a program or project has achieved its goals" (para. 2) Based upon the need to answer these questions, the definitions, this project's goals, and the project's results, this project was categorized as an outcome-based evaluation. The data analysis showed that inclusion in the middle school setting in this study produced a

significant positive difference in both English and math ISTEP outcomes for students with special needs. These improved test performances have been presented through the outcome based evaluation performed earlier in this paper.

Bearing in mind that the goal of this study attempted to evaluate the effectiveness of the inclusion program on the students involved, an outcome-based evaluation is justified as the type of evaluation needed to best describe the impact of the inclusion program. This study was an evaluation of the program and the effect inclusion had upon the program participants. Improved overall means in English from 477.16 to 508.29 and in math from 493.48 to 600.24 from 2006, a year without inclusion instruction, to 2007 after a year of inclusion instruction coupled with p values of .000 in both math and English following inclusion instruction supported a strong positive outcome linked to the effects of inclusion.

The key stakeholders in this work were middle school students with special needs. Although the project took place in a middle school in southern Indiana, the results could be generalized to other middle schools and middle school students considering, attempting, or having completed the move to an inclusion model program for the education of students with special needs.

Other stakeholders include special education teachers and directors, principals, superintendents, school boards, and others who work with students of special needs. The outcome of the project provides evidence of effectiveness of the practice of inclusion and should be investigated when considering a model for the instruction of students with special needs in middle school settings.

Implications Including Social Change

With educated investigation and implementation, inclusion was shown in this study to provide a significant change in student learning and standardized test score outcomes. This evaluation should be used as a tool of social change in how special education programs are designed and implemented to better serve the special needs population. Also, by its very nature, inclusion allows general education students the opportunity to see students with special needs as equals and removes the stigma often associated with being identified as a special education student. The outcome of this evaluation also proves that students with special needs can be successful in the general education classroom and on standardized tests and should be afforded that opportunity.

This evaluation project has been important and the changes at the local level can occur quickly. Once the school moved to the inclusion model, a mind shift took place among local educators and other stakeholders. Many awaited the results of effectiveness, or lack thereof, found in this evaluation study. After word spread that the school had moved to inclusion and the effectiveness of the program were shared on a preliminary basis, increased funding to the school in the form of additional aides was provided to enhance and support the inclusion program. The director of special education and the assistant superintendent in charge of student services also took notice of the data showing the effectiveness of inclusion at the middle school, how the school had implemented inclusion, and how the program was designed to meet the needs of the school. This information was then shared, using the presentation found in Appendix B, with other

schools in an effort to educate and influence decisions regarding special education instruction.

Other stakeholders included parents who became supportive of their child's inclusive instruction and the teaching staff of the school who oversaw and implemented the inclusive practices. These teachers are continuing professional development and lesson design based upon the positive evaluation data to better educate their special education inclusive population.

SECTION 4: REFLECTIONS AND CONCLUSION

Project Strengths and Limitations

The strength of this project lies in the fact that the evaluation was based on hard data from pre and post inclusive instruction available from the same set of students over a 3-year period. There was a consistency of subjects from which the data was gathered who were in the same school setting throughout the implementation of the inclusion program. There was also strength in the quantitative analysis evaluation that showed very strong evidence that inclusion instruction was influential in increasing ISTEP scores for the population of students with special needs.

That the results are only generalized for math and language arts only was a limitation of this project. The results did not support or reject the practice of inclusion in other academic subjects. Another limitation was that these results can only be applied to middle school students. One cannot deduce that these results could be repeated in either elementary or high school settings. One other limitation was found in that these results apply to a school that supported extensive professional development before the implementation of inclusion. It was unclear if other methods or higher levels of professional development may affect the outcome.

This project was also limited to only one year of available data following inclusion instruction. Results may be different with additional years of test data to analyze. The results may also differ with the move of the ISTEP test to the spring of the year versus the fall and with new, updated academic standards as was implemented by the State of Indiana in spring, 2009. Furthermore, the project was limited in that only ISTEP test score data was evaluated and no other data was considered.

Recommendations

To address this problem differently, it would have been beneficial to consider other data sources. Since ISTEP only provides one overall score per subject, that score was chosen for evaluation. To address the problem differently, it may have been beneficial to provide a pretest and posttest before and following inclusive instruction in an attempt to determine effectives. In an attempt to study the overall effectiveness of the practice, an analysis of pretest and posttest data could provide a rich source of information.

Another consideration for this project could have been a mixed methods approach using ISTEP test score data as well as case studies for individual students. The quantitative work in this project is necessary and important to understand the impact of the inclusion model on the standardized test scores but the intangible benefits of inclusion could only be discovered through a qualitative approach. These benefits could only be explored through listening to the voices of the teachers, students, and parents. Therefore, a mixed methods approach could be beneficial in developing an overall understanding of the move to an inclusion model within a school which would provide evaluation data but also rich interpersonal information from the student's voice for a better overall understanding of the move to an inclusion program as well as effectiveness.

One could also have evaluated classroom test score and grade data. This project was an evaluation of the effectiveness of inclusion based on the ISTEP test score data but one could have also evaluated an overall change in grade data school wide or just within

the students with special needs population as well as significant changes that may have been found in individual teacher classrooms.

Scholarship

This project helped to develop a sense of the importance of research. I learned how exhausting research can be and the importance of thoroughness when developing a research project. The project has taught me that one cannot simply look at data and derive conclusions. A true researcher seeking complicated answers must be willing to spend incredible amounts of time in research and analysis to find those answers.

This evaluation project reinforced the importance of research and literature reviews when implementing new programs. This project began as an attempt to evaluate standardized test scores for special education students supported by literature found during the researcher's early classes in doctoral study. The researcher learned to be critical of research but to also embrace research that overwhelmingly supported change in the name of the advancement of the education of children.

I also learned that data analysis is not simply looking at percentages and Bell curves. One must immerse oneself in the data to seek answers. Research requires scholarly thinking and intensive work. You do not necessarily find the answer you expect, but you truly find the answer. Research is difficult, but the rewards are satisfying. To truly know that you found the answer is very rewarding!

Project Development and Evaluation

The planning and design of this project was the toughest part. I found myself assuming answers and working towards those answers instead of letting the data lead me

to the answers. This project was conceptualized over two years ago when the need to evaluate and understand the effects of inclusion led to the development of the project. I did not understand at the time how much test data and analysis would be needed to retrieve and explore. Although that journey was a difficult, time consuming process, the rewards were inherent in the project.

Additionally, I learned that planning and design require input from many sources. The inclusion implementation program began with my giving a PowerPoint presentation based upon the literature and research gathered for doctoral studies but went on to include speakers, presenters, in-class mentors, and the teachers themselves. The plethora of information gathered and disseminated over the course of the 2005-2006 school year could have been overwhelming but, taken slowly and provided in such a way that it was not seen as a directive, allowed for greater understanding and development for classroom use. Once incorporated into the classrooms, this led to the conclusion that an evaluation was needed to determine the effectiveness of the inclusion program which showed a positive influence on student growth and learning.

The use of a repeated-measures ANOVA was something I had not planned. I did not even know what a repeated-measures ANOVA was when planning and designing the project but, with the help of my committee, I came to understand what this statistical measure was and how I could use this tool to answer my research question. Once I understood what the repeated-measures ANOVA was, I saw how it could make my data analysis more rich and meaningful.

The need to convert the raw scores to standardized scores was also something I did not plan. After I started to research the ISTEP test, I noticed how the test score totals varied slightly from year to year. I notified my committee who then instructed and taught me how to compensate for this. Even though this was additional work that I had not planned, it was important that this information was discovered and compensated for so the final analysis data was true. I learned through my work that no matter how well one may plan for a research project, unknowns will require corrections, and it is important to remain flexible and attentive to these changes.

Leadership and Change

The project reinforced to me the importance of data analysis and evaluation in the development and implementation of learning opportunities and programs at the school. It was necessary for me to become a researcher and to gather, analyze, and evaluate data to ensure that the instructional methods being implemented were making a positive difference for the students of the school.

The project also led me to become even more passionate about providing a quality education for all special needs children. Although special education always existed in the school, the project put special education students, their teachers, and their quality of education in the spotlight for all general education teachers, parents, and administrators. No longer do I feel that it is adequate to simply provide an education for special needs children. From the positive outcomes that were discovered through this evaluation project, I now understand that special needs children are entitled to and can succeed in the same educational opportunities consistent with the instruction all general education

students obtain. To be consistent, this education must take place within the same classrooms using the same materials and coming from the same teachers traditionally found in general education settings.

Analysis of Self as Scholar, Practitioner, and Developer

This project helped me grow as both a person and a scholar. I never had doubts that I could accomplish this project, but it was necessary for me to read, research, ask questions, and write and rewrite to finalize the study. The project required me to learn and become an expert in my field of study and to be able to collect, evaluate, analyze, and make sense of my data.

At times I was ready to give up when the days seemed to stretch further than I could see, and the data seemed to be an overwhelming pile of numbers with no meaning. With perseverance and encouragement from my wife and family, I continued this journey and learned that I know more than I thought I knew and am a stronger person than I thought I was.

I was most surprised by my findings. I truly believed the practice of inclusion was having a positive influence on the ISTEP scores of the students with special needs but had no concrete evaluation data to support this assumption. Even though I hoped to find a positive outcome that existed between inclusion and test scores, I had always prepared to find no significant influence on the scores through the implementation of inclusion. Once I ran and re-ran the standardizations and ANOVA's over and over looking for mistakes, I finally realized the data was telling me the implementation of inclusion had made a difference for the students in the school. I asked my committee to review my data and

analysis which confirmed what I had discovered. Because of the time and energy invested in the move to the inclusion model by the teachers and administration, I wanted to see a positive outcome between inclusion and the test score data and was relieved to find that a significant positive outcome did in fact exist.

Implications, Applications, and Directions of Future Research

This work showed the practice of inclusion had a significant positive effect on ISTEP test scores for students with special needs in the middle school. This work is important on several levels. At the local level, the results of this work in the middle school must be considered when deciding upon models to be used in other schools when educating students with special needs. Furthermore, professional development should continue and the use of the inclusion model should be expanded to more classrooms and subjects in the middle school setting.

At the state and national levels, this project could be considered when evaluating the effectiveness of the practice of inclusion on middle school students with special needs. This work could become part of the work available to researchers and school personnel when considering the move to a full inclusion school. The project's findings could influence decisions regarding what models may be most effective in teaching students with special needs. The fact that this project found significant differences between group improvements in test scores due to the implementation of the inclusion model on the ISTEP test is an important one to consider for middle school students.

In the future, I will continue to monitor and evaluate student performance as it relates to inclusion. The other schools of the district do not currently implement full

inclusion as is found at the researcher's school. Using the work in Appendix B, I will present the results gathered for this project to other administrators as well as the superintendent and school board of the district so that they may consider the performance of the middle school children with special needs following a year of full inclusion and make appropriate decisions.

I will continue to support professional development opportunities for the faculty of the school relating to the inclusion model. Further education and modern methods of instruction will enhance the special education program and provide added benefits for the special needs students. I will also continue to further research and review the practice of inclusion to remain informed on changes or enhancements that may be identified as being beneficial to its continued implementation.

As an educational leader, I must be an agent of change to enhance the field of education. Only through being an advocate for education and supportive of best practices that directly influence student learning can I carry out this tremendous responsibility.

Summary

Section 4 provided a discussion relating to this project's strengths and weaknesses. Alternate ways to address the research problem were presented and what was learned through the project's design and data analysis was discussed. This section also provided a self-assessment of how this project affected the researcher both personally and professionally. I also discussed what was learned while carrying out this project as both a scholar and as a practitioner. A discussion relating to the overall relevance and importance of this work at the local as well as higher levels was also

presented. An argument relating as to how this work may influence other decision makers was also given. Future plans for the practice of inclusion in the researcher's school are provided in this chapter along my reflections outlining this project.

In conclusion, I have found this project to be fulfilling, knowing that the hours, days, weeks, and months of work, as well as the research and the evaluation of the inclusion project, have helped me grow as a person and as an educator. Hopefully others can use this material to help them understand the practice of inclusion. The findings of this evaluation project support the conclusion that significant between group differences existed on the ISTEP test at the middle school level due to the implementation of the inclusion model. The implementation of the inclusion model led to improved student performance on the ISTEP test for students with special needs. The proper education of students with special needs is imperative to insure that these students are given the same educational opportunities as their general education peers. It should be the goal of all educators that no child is left behind, and this work should be considered when deciding what is best for children.

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APPENDIX A: STUDENT RAW AND STANDARDIZED SCORES

Table A1

ISTEP Language Arts Scores Standardized to 2007 Scores

Student	Raw Scores Lang. Arts 2005	Standardized Lang. Arts 2005	Raw Scores Lang. Arts 2006	Standardized Lang. Arts 2006	Raw Scores Lang. Arts 2007
1	497	517.148649	537	551.32	525
2	498	518.189189	507	520.52	533
3	434	451.594595	461	473.29333	479
4	464	482.810811	475	487.66667	523
5	448	466.162162	419	430.17333	506
6	446	464.081081	450	462	514
7	437	454.716216	456	468.16	505
8	442	459.918919	440	451.73333	483
9	396	412.054054	450	462	510
10	475	494.256757	520	533.86667	511
11	439	456.797297	412	422.98667	505
12	464	482.810811	441	452.76	556
13	428	445.351351	394	404.50667	461
14	418	434.945946	356	365.49333	461
15	478	497.378378	581	596.49333	539
16	454	472.405405	460	472.26667	522
17	413	429.743243	405	415.8	464
18	424	441.189189	447	458.92	492
19	520	541.081081	555	569.8	551
20	424	441.189189	425	436.33333	460
21	469	488.013514	514	527.70667	521
22	384	399.567568	432	443.52	488
23	450	468.243243	423	434.28	521
24	467	485.932432	478	490.74667	527
25	476	495.297297	495	508.2	522
26	501	521.310811	508	521.54667	539
27	432	449.513514	481	493.82667	529
28	511	531.716216	537	551.32	557
29	419	435.986486	399	409.64	514
30	397	413.094595	403	413.74667	448
31	407	423.5	459	471.24	487
32	354	368.351351	422	433.25333	463
33	479	498.418919	524	537.97333	508
34	483	502.581081	536	550.29333	558

Table A2

ISTEP Math Scores Standardized to 2007 Scores

Student	Raw Scores Math 2005	Standardized Math 2005	Raw Scores Math 2006	Standardized Math 2006	Raw Scores Math 2007
1	461	527.724	518	549.585	621
2	404	462.474	398	422.268	547
3	394	451.026	414	439.244	559
4	407	465.908	449	476.378	586
5	438	501.395	462	490.171	601
6	544	622.737	573	607.939	683
7	391	447.592	420	445.61	538
8	439	502.539	496	526.244	630
9	442	505.974	487	516.695	636
10	465	532.303	501	531.549	595
11	544	622.737	515	546.402	648
12	411	470.487	407	431.817	595
13	452	517.421	473	501.841	611
14	411	470.487	395	419.085	596
15	462	528.868	454	481.683	628
16	499	571.224	529	561.256	617
17	412	471.632	444	471.073	630
18	400	457.895	475	503.963	600
19	383	438.434	397	421.207	573
20	417	477.355	496	526.244	570
21	521	596.408	556	589.902	610
22	391	447.592	403	427.573	556
23	426	487.658	496	526.244	599
24	433	495.671	483	512.451	583
25	423	484.224	435	461.524	610
26	433	495.671	452	479.561	590
27	489	559.776	520	551.707	627
28	535	612.434	579	614.305	562
29	455	520.855	470	498.659	647
30	322	368.605	318	337.39	502
31	498	570.079	549	582.476	649
32	378	432.711	240	254.634	574
33	440	503.684	424	449.854	597
34	557	637.618	585	620.671	638

APPENDIX B: REPORT AND PRESENTATION TO THE SUPERINTENDENT OF SCHOOLS AND SCHOOL BOARD

In the fall of 2005, a review of ISTEP test score data at the middle school indicated the need to consider alternative methods of instruction for students with special needs. Historically, Table B1 shows that students with special needs had consistently scored lower on the ISTEP test than their general education counterparts in the middle school.

Table B1

Student Body Passing Percentages on the ISTEP

	English	Math
2004		
Overall	71.2	73.7
Special ed	29.4	51.5
2005		
Overall	70.0	75.0
Special ed	27.8	58.3
2006		
Overall	68.0	75.5
Special ed	29.4	50.7

Through faculty discussions and collaborative meetings, it was decided that the middle school faculty would undergo the necessary professional development training to become a full inclusion school beginning in the 2006 school year.

The placement of children with special education needs in the general education classroom in public schools as the least restrictive environment is a practice known as inclusion. This practice has come about due to several factors. Research has shown

inclusion could be an effective practice for special needs children. Also, the Individuals with Disabilities in Education Act (IDEA) demands that students with special needs be placed in the 'least restrictive environment' meaning that self-contained classrooms for most students with special needs was no longer an option. Furthermore, the federal No Child Left Law requires student competency on high stakes tests, oftentimes regardless of disability. The prevailing belief is that if children with special needs are required to perform with the same ability as their general education peers, they must be introduced to the same general education curriculum.

In 2006, students with special needs were assigned to general education classrooms. Special education faculty became co-teachers with general education faculty and special education aides were assigned to general education teachers to support the students with special needs in the general education classrooms. Several faculty members in the core academic subjects as well as the special education teachers had undergone extensive inclusion training in the winter, spring, and summer of 2006 in preparation for the move to full inclusion. Parents were notified in their child's annual case review of what inclusion was and the intent to move to a full inclusion program in the fall of 2006. The cooperation of the ROD special education team as well as the support of Mr. Jack Heller and Mr. Tom Book was crucial in supporting the move financially as well as in teacher training.

The ISTEP results from the fall of 2007 were the first following a full year of inclusion instruction. The problem was the comparison and evaluation of the ISTEP test score data from fall 2007 with ISTEP test score data from previous years to determine

effectiveness. Even though the Indiana Department of Education provides extensive data relating to ISTEP, the data regarding year-to-year comparisons is very shallow, especially at the individual student level. Therefore, it was necessary for someone to take individual test data and make mathematical comparisons between years prior to inclusion instruction and a year following full inclusion instruction. This evaluation of the student data became a doctoral study project for me.

I first gathered ISTEP test data for the eighth grade students in 2007 for the 2005, 2006, and 2007 school years. This would allow me to look at two years prior to inclusion as well as one year after inclusion had begun. It would also allow me to look at scores for each individual year as well as make year-to-year comparisons after evaluating the test data.

Since ISTEP has a different total points possible for each test, math and English, each different year, it was first necessary for me to standardize the test score data. This was done by taking each student's test score for each year, dividing by the highest possible score which was in 2007, and then dividing by the highest possible score for the particular year I was considering. For example, if a student scored 497 on the 2005 English ISTEP test, it was necessary for me to multiply 497 by 770 (perfect score in 2007) and then divide by 740 (perfect score in 2005) to standardize that score at 517.15. This had to be done for each student for each test (both math and English) for each year from 2005-2007.

Once the scores were standardized, I carried out a repeated-measures ANOVA on the scores for each year. A repeated-measures ANOVA can give a lot of statistical

information relating to mean scores but, most importantly, it allows the researcher to analyze and compare scores year-to-year and to investigate trends and increases or decreases in overall mean scores. The ANOVA provided the following information for the English portion of the test.

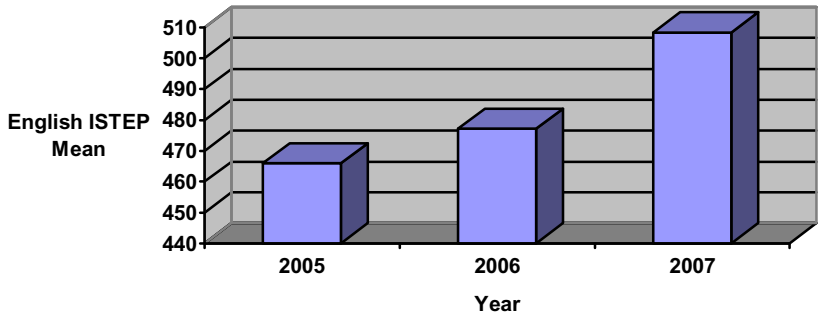

Figure B1. Mean English ISTEP Scores 2005-2007.

Figure B1 shows a considerable increase in the mean English ISTEP scores for students with special needs on the ISTEP test in 2007 when compared with 2005 and 2006. In fact, in an analysis of the overall English test means following standardization, the 2005 mean was 466.04, the 2006 mean was 477.16, and the 2007 mean was 508.29. These show significant improvement in overall test scores, especially on the 2007 mean following the implementation of inclusion in 2006.

In an analysis of the overall math test means following standardization, the 2005 mean was 507.62, the 2006 mean was 493.45, and the 2007 mean was 600.24. The small drop in means between 2005 and 2006 is followed by a significant improvement on the 2007 mean following the implementation of inclusion in 2006 as shown in Figure B2.

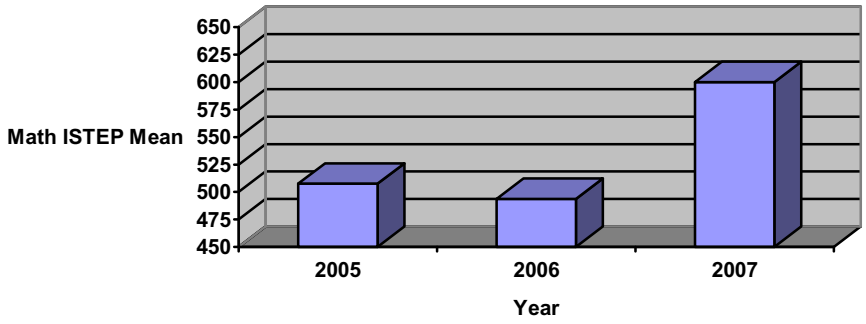

Figure B2. Mean Math ISTEP Scores 2005-2007.

The ANOVA analysis data also gave some very technical results that are difficult to understand outside of the research field but read as follows: In the subject of math, the analysis showed a significant effect of between group differences due to the implementation of the inclusion model on the ISTEP test, $F(2.00, 32.00) = 71.602$, $p = .000$.

In the subject of English, the analysis showed a significant effect of between group differences due to the implementation of the inclusion model on the ISTEP test, $F(2.00, 32.00) = 46.774$, $p = .000$.

The important number in these analyses is the 'p' number. For a positive significance to be placed upon the findings, the $p = <.05$. In both math and English, ANOVA findings, $p = .000$. This means that the data shows a significant positive effect of inclusion on ISTEP test scores by students with special needs following its implementation.

Another evaluation carried out was to look at year-to-year ISTEP data. ANOVA allows us to consider what is called a 'post hoc' analysis. Post hoc gives a lot of

information but, once again, the importance is the *p* number and that it be <.05. The post hoc analysis of math scores between the 2005 and 2006 reference years without inclusion instruction, mean square = 6832.777, $F(1.00, 33.00) = 4.218$, $p = .048$, showed a significant difference in average test scores but an even greater significance when considering the difference between the 2006 and 2007 test scores following a year of inclusion instruction, mean square = 387725.162, $F(1.00, 33.00) = 101.406$, $p = .000$. This tells us that even though a small, positive gain was made from 2005 to 2006 in math scores, a large gain was realized between 2006 and 2007 test scores after implementing inclusion as defined under the *Sig* column in Table B2.

Table B2

Math Post Hoc Analysis

Years	*df*	*MS*	*F*	Sig.
2005 vs. 2006	1	6832.777	4.218	.048
2006 vs. 2007	1	387725.162	101.406	.000

The post hoc analysis of English scores between the 2005 and 2006 reference years without inclusion instruction, mean square = 4203.256, $F(1.00, 33.00) = 3.381$, $p = .075$, showed no significant difference in average test scores from one year to the next but a significant difference was present when comparing scores between 2006 and 2007 following one year of inclusion instruction, mean square = 32960.653, $F(1.00, 33.00) = 22.032$, $p = .000$. Table B3 can help us understand that there was no significant difference realized in English scores between 2005 and 2006 but a large gain was realized between 2006 and 2007 after implementing inclusion.

Table B3

English/Language Arts Post Hoc Analysis

Years	*df*	*MS*	*F*	Sig.
2005 vs. 2006	1	4203.256	3.381	.075
2006 vs. 2007	1	32960.653	22.032	.000

These results confirm that inclusion had a significant positive effect on ISTEP test scores for special needs students. This positive effect has been beneficial to all students and supports the continued professional development of our faculty for a successful inclusion program. The results also provide evidence for continued financial support for the inclusion program as well as the need for support staff, in the form of instructional aides, to continue the program for the benefit of the school, the district, and most importantly, the students.

CURRICULUM VITAE

CLINTON TODD BOWERS

EDUCATION

2009 - Walden University Minneapolis, MN
Doctor of Education/Pending Defense

- Specialization in Teacher Leadership with a focus on inclusion

2001 - Indiana State University Terre Haute, IN
Educational Specialist

- Indiana Superintendent's License

1999 - Indiana State University Terre Haute, IN
Administrative Licensure

- Completion Of Principal Licensure

1998 - Indiana Wesleyan University Marion, IN
Master of Education

- Curriculum and Instruction

1989 - Hanover College Hanover, IN
Bachelor of Arts

- Biology, Chemistry

PROFESSIONAL EXPERIENCE

2003 - Middle School Principal

- Educational leader of 48 faculty and staff, 445 students

1997 - 2003 Middle School Assistant Principal

- In charge of Discipline, Attendance, and many other duties

1989 - 1997 High School Science Teacher

- Certified in Biology, Chemistry, Driver Education

PROFESSIONAL MEMBERSHIPS

- Indiana Association of School Principals
- Association for Supervision and Curriculum Development
- Indiana Association for the Gifted
- National Middle School Association
- Indiana Small & Rural Schools Association

HONORS AND AWARDS

- 1998 - Indiana Wesleyan Outstanding Professional Student
- 2002 - Graduate of Indiana Principal Leadership Academy
- 2003 - Indiana District 10 Assistant Principal of the Year
- 2008 - Lilly Endowment Grant Recipient
- 2009 - School Service Award