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Identifying and Integrating Relevant Educational/Instructional technology (E/IT) for Culturally and Linguistically Diverse (CLD) Students with Disabilities in Urban Environments

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Abstract

The aim of this manuscript is to address the significant void in the literature related to technology integration for culturally and linguistically diverse (CLD) students with disabilities living in urban communities. Given that the vast majority of CLD students attend school within urban districts, the focus of this article is to (a) identify and address the challenges students and educators encounter with technology integration in urban environments, (b) deconstruct the discrepancy between the need and the ability to implement AT and I/ET in urban school settings, and (c) identify and provide relevant resources and recommendations for educators working in urban school districts who have limited access to I/ET.

Identifying and Integrating Relevant Educational/Instructional Technology (E/IT) for Culturally and Linguistically Diverse (CLD) Students with Disabilities in Urban Environments

From a historical perspective, McDonald and Hannafin (2003) argued that recent technological advances have had the most significant impact on society compared to any other era. This is evident as recent technological advancements have improved support systems for individuals with disabilities (Bausch, Ault, Evmenova, & Behrmann, 2008; Brown & Fitzpatrick, 2010; Bryant & Bryant, 1998; Dyal, Carpenter, & Wright, 2009; Fitzpatrick & Brown, 2008; Fitzpatrick, 2005; Fitzpatrick & Knowlton, 2009). Moreover, it is well documented that legal mandates have been established regarding addressing assistive technology (AT), including educational/instructional technology (E/IT) within a student's individualized education program (IEP) (Bausch & Hasselbring, 2004; Dissinger, 2003; Judge, 2006; Parette & Peterson-Karlan, 2007; Parette, Wojcik, & Peterson-Karlan, 2005). For example, in 1988 Congress passed the Technology-Related Assistance for Individuals with Disabilities Act (Tech Act) which established a legal precedent and proclaimed that technology plays a vital role in educating students with disabilities (Alper & Raharinirina, 2006; Smith & Jones, 1999; Turnbull, Turnbull, Shank, & Smith, 2004). Similarly the 1997 amendments to the *Individuals with Disabilities Education Act* (IDEA) and subsequent 2004 reauthorization *Individuals with Disabilities Education Improvement Act* (IDEIA) further emphasized the importance of technology devices and services for students with disabilities (Fitzpatrick & Knowlton, 2009; Van Laarhoven, Munk, Zurita, Lynch, Zurita, Smith, & Chandler, 2008; Zirkel, 2005).

Comparable to private and corporate sectors, special education (SPED) technology is always evolving (Brown & Fitzpatrick, 2010; Edyburn, 2000; Fitzpatrick, 2002; Fitzpatrick, 2005;

Fitzpatrick & Knowlton, 2009; Hauser & Malouf, 1996; Mechling, 2008) and although it should not be viewed as *the great panacea*, evidence suggests that critical features inherent in various forms of SPED technologies are closely associated with characteristics of effective instruction (Cihak & Shrader, 2008; Fitzgerald, 1990; Parette & Peterson-Karlan, 2007; Weber, Forgan, & Schoon, 2002; Xu, Reid, & Steckelberg, 2002). However, despite the increased emphasis of addressing AT and instructional and I/ET within the IEP and the influx of hardware devices and software programs available to K-12 educators, there continues to be a critical disconnect between what is known about educating students with disabilities from CLD backgrounds and how these students access and utilize technology (Brown, 2004; Brown, Higgins, & Hartley, 2001; Fitzpatrick & Brown, 2008) specifically in urban school settings.

Unfortunately, given the copious number of technologies available, many novice and veteran urban educators are unaware of how to appropriately identify or select I/ET software and/or hardware devices for CLD students with disabilities. This lack of awareness can often leave educators frustrated, have a negative impact on CLD students with disabilities, and subsequently leads to an emerging trend in K-12 education known as *digital inequity* (Brown & Fitzpatrick, 2010; Jameson, 1999; Kalyanpur & Kirmani, 2005; Lee, 2006).

Therefore, the purpose of this article is to address the unique I/ET needs of CLD students with disabilities within urban school settings. This article will (a) address the student and teacher challenges associated with urban schools, (b) deconstruct the discrepancy when implementing AT and I/ET in urban school settings, and (c) provide relevant resources and information for educators who have limited access to E/IT. Finally, recommendations will be provided to assist urban educators who continually struggle to integrate technology throughout their curriculum. The following section provides a brief account of the challenges associated with educating and being educated in urban environments.

Urban Challenges

Although it may be viewed as common knowledge, a review of the literature revealed that many urban schools typically lack basic supplies such as (a) up-to-date textbooks, (b) children's literature books, (c) desks, (d) chalkboards (Bowers 2000; Kozol, 2005), and (e) lack of appropriate programs (Scales, 1992). In 2008 an article in *The Economist* reported that the United States ranked 17th among nations reporting graduation rates. More alarming is the graduation rates in urban schools. *Education Week* (2008) reported that the odds of graduating from high school in one of America's 50 largest urban cities were akin to flipping a coin. When deconstructing urban school settings, the ideal is easily lost in the endemic challenges the majority of schools located in urban districts currently face (Crosby, 1999; Lopes, Cruz, & Rutherford, 2002; Manning, Lucking, & MacDonald, 1995). And, if the schools are struggling to adequately meet the needs of the students, imagine the difficulties the students and teachers are having learning and teaching in those environments.

Urban Students

Few would argue that *ALL* students should receive an excellent education (Mathis, 2003) in order to develop into active and productive members of society (Crosby, 1999). However, students in urban school settings are at high risk for failing to: (a) learn to read, (b) develop study

habits that promote inquiry, and (c) enhance their technology skill sets (Laffey, Espinosa, & Moore, 2003). Slaughter (2009) reported that these students are often performing below proficiency level and are some of the most difficult students to manage. Additionally Slaughter (2009) noted that these students are most likely to drop out of school because of outside of school factors (i.e., living in poverty households and lack of one supportive, motivated role model at home). In addition to the challenges faced by urban students in and out of class, urban educators also presented characteristics that are problematic when trying to educate students within urban school settings.

Urban Teachers. Within the last five years estimates suggest that approximately 1.1% of all SPED positions have remained unfilled (Boe, 2006). This has led to urban schools confronting huge teacher shortages (Fitzpatrick & Knowlton, 2007). Additionally, they are often staffed with educators who hold only emergency certification (Berry, 2004) and have reached critical teacher shortages primarily in the area of SPED (Duvall, 2001). And, many of them are unprepared to employ developmentally appropriate instructional strategies (Huffman & Speer, 2000) and implement classroom management systems (Fitzpatrick & Knowlton, 2007) which promote both academic and behavioral outcomes. Sadly, without these basic necessities and highly qualified educators (NCLB, 2002) these schools are unlikely to have access to low and high tech devices (Fitzpatrick & Knowlton, 2007) as mandated by the Tech Act (1988).

Urban Educators and Technology. Of specific concern are untrained educators who may not be aware of the need to address AT and I/ET when developing an IEP. Although multicultural education has become a focal point of virtually every postsecondary educational program (Inglebret, Jones, & Pavel, 2008), *technology integration*, specifically for CLD students with disabilities, is a relatively new frontier (see Brown & Fitzpatrick, 2010; Fitzpatrick & Brown, 2008). This apparent lack of knowledge perpetuates the research-to-practice gap between what is known about employing AT and I/ET and how to identify the appropriate technologies to meet the unique and individual needs of CLD students with disabilities. Moreover, as noted above, without the basic resources to run an effective classroom (e.g., chalk, desks, or books), it is difficult to imagine a school would have access to technology that would adequately meet the requirements of the students.

The challenges of urban education have been widely discussed and suggestions have been made as to how to address some of these challenges. One potential solution is the integration of technological innovations to assist urban educators in delivering instruction in 21st century urban classrooms. Because we live in a world where students are bombarded with electronic devices (i.e., cell phones, iPods, iPads, Internet, etc.), educators have to embrace the fact that they are going to need to enter into a new educational mode in order to stimulate student interest and get them motivated to learn.

Venezsky (2004) suggested that a new level of teaching and learning will have to take place if we want to keep students motivated and attracted to lifelong learning. He suggested that the new level of teaching and learning will need to focus on increased levels of effectiveness and social importance in order to keep students engaged. Perhaps technology is one way to keep 21st century urban students engaged, motivated, and in school. The following section will deconstruct

the impact of the *digital divide* (Mason & Dodd, 2005) by providing a truncated overview of AT and I/ET for CLD students with disabilities served in urban school settings

Deconstructing the Digital Divide in Urban Schools

All technologies should be considered for *ALL* students receiving SPED services (Quinn, Behrmann, Mastropieri, & Chung, 2009) regardless of educational setting (e.g., suburban, rural, or urban). Based on this perspective, contemporary American society is encountering a major challenge of ensuring *ALL* students are prepared for the technological advances of the 21st century (Brown and Fitzpatrick, 2010). Thus, the *digital divide* is exacerbated among CLD students with disabilities (Brown, 2004; Brown et al., 2001; Fairlie, 2005; Fitzpatrick & Brown, 2008; Mossberger & Tolbert, 2003; U.S. Department of Commerce, 2002) who attend urban schools. In addition to issues of federal noncompliance, urban educators are at a substantial disadvantage when attempting to bridge the *digital divide* which has raised issues of *digital inequity* among CLD students with disabilities (Brown & Fitzpatrick, 2010; Lee, 2006; Mason & Dodd, 2005); thus increasing the discrepancy between the legal mandates for AT and I/ET and the actual implementation of these technologies in urban school settings.

Technology Integration in Urban School Settings

Educators have recognized the potential of technology (Fitzpatrick, 2005), and a review of the literature revealed several studies that described the effectiveness of technology for urban students with disabilities (Fitzpatrick & Knowlton, 2009). However, technology integration within urban school settings is often a daunting challenge. Additionally, despite the 20+ year commitment of the Office of Special Education Programs (Hauser & Malouf, 1996), it is important to note that regardless of educational setting (e.g., rural, suburban, or urban), simply having access to AT devices and I/ET technologies does not guarantee successful implementation for students with disabilities (Simpson, McBride, Spencer, Lowdermilk, & Lynch, 2009). This is evident as the literature is replete with barriers (i.e., educator knowledge, educator level of preparedness, educators' level of confidence with technology, lack of funds, time, support and training; and access issues) that hinder effective technology integration. The following is a summary of factors that inhibit educators from employing technology into their curriculum:

- Educators often lack knowledge and expertise while working with AT and I/ET (Van Laarhoven et al., 2008).
- Educators are underprepared to work with the technology (Staples, Pugach, & Himes, 2005).
- Educators experience diminished levels of confidence while working with technology (Al-Bataineh, Anderson, Toledo, & Wellinski, 2008).
- Educators encounter a lack of funds, time, technical support, and training (Clark, 2000; Yu & Smith, 2008).
- Educators have difficulties accessing the Internet (Fitzpatrick, 2005).

Although this is not an exhaustive list, it provides a snapshot into some of the factors that impede educators from infusing AT and I/ET into their curriculum. Despite these barriers, the literature

offered several examples of how educators have integrated technology into their classrooms, including:

- Okolo and Ferretti (1998) conducted a study in several fourth-to-sixth grade urban schools. They researched the effectiveness of a multimedia project in inclusive social studies classrooms. They discovered that students who engaged with the multimedia project learned and developed new ways to argue and settle disagreements and increased cooperative learning skill sets.
- Lackey, Borkin, Torti, Welnetz, & Moberg, (2007) researched a Science Explorations program that was developed by the Milwaukee Public Museum. The intent of the program was to employ technology in science education for female minority middle school students attending school within urban environments. Findings suggested that the program (a) demystified science, (b) promoted family support, (c) encouraged greater confidence in knowledge acquisition, and (d) yielded higher GPAs among participants compared to the control group.
- Englert, Manalo, & Zhao (2004) introduced a web-based program to lower elementary students to improve their personal narratives composition skills. Findings indicated that students wrote more, incorporated genre specific characteristics, and demonstrated conventional writing skills on the supported writing assignment.

Each of the programs outlined above have had a direct impact on CLD students with and without disabilities in urban school settings. As mentioned above, integrating technology (AT or I/ET) in urban classrooms can be difficult. There is existing systemic (i.e., lack of resources, lack of support, poor infrastructure, overly bureaucratic, etc.) and personnel (i.e., educator attitudes toward technology, lack of educator training, knowledge base, etc.) barriers that oftentimes prevent seamless integration. But, there are examples of successful stories of technology integration with urban CLD students--with and without disabilities. Additionally, there are resources available to assist urban educators in their efforts to procure and integrate technology. The next section will offer recommendations for urban educators that wish to implement technology into their classrooms.

Recommendations and Resources for Urban Educators

Within recent years there has been increasing pressure to provide fair and equitable funding across schools within large urban school districts (Baker, 2009). However, as noted above, this trend has been slow to emerge. Therefore, the following recommendations are presented to bring about greater awareness for urban educators who are seeking additional resources and funding for I/ET hardware devices and software programs. The purpose of each recommendation is to provide tangible solutions that educators within urban school settings can implement immediately without additional training.

Recommendation 1: Loan Library System. The Tech Act (1988) was a major amendment to *IDEA* (1990). The Tech Act required IEP teams to consider the AT devices and services for students with disabilities (Alper & Raharinirina, 2006; Dissinger, 2003; Fitzpatrick & Knowlton, 2009). In addition, the Tech Act was intended to enhance the availability of AT devices and services throughout the US (Bodine, 2003; Bryant & O'Connell, 1998) by providing funding to

help states develop cross categorical technology assistance programs for individuals with disabilities, service providers, and families (Bryant & Seay, 1998; Smith, 1998; Turnball et al., 2004).

Each state has an Assistive Technology Program which offers a Loan Library System (Bausch & Hasselbring, 2004). The Loan Library System allows *all* educators, regardless of school district demographic (e.g., urban, rural, or suburban), to access difficult to find or costly AT and I/ET hardware devices, software programs, and services. According to Bausch and Hasselbring (2004), the purpose of the Tech Act was to ensure that individuals with disabilities--in all states--had access to AT services including assessment, funding for devices, training, and technical assistance. Table 1 provides an abbreviated list of loan libraries along with some of the common and unique features they may offer. The authors have chosen to include the loan library information of the states with the 8 largest urban districts in 2005 and 2006 (Education Week, 2008; 2009). This is not an exhaustive listing and so educators are encouraged to identify and review the Loan Library System within their state.

Educators within urban school settings who have limited access to technology are encouraged to seek out the Loan Library System within their state. However, it should be noted that only a limited number of devices may be available for individuals to check out, and typically there is an extensive waiting list for these devices. Therefore, the following suggestion focuses on seeking internal and external funding opportunities.

Table 1
Abbreviated List of Urban Loan Libraries (states with 10 largest school districts in 2005 & 2006)

State	Link	Unique Features	Common Features
1. New York	http://www.cqcapd.state.ny.us	• Advocacy Programs • Surrogate • Consent Training • Empowerment Services • Reading Room • Training Modules • Building Your Organization's Capacity • Home Ownership Options • On Site Workshops	Alarm Clocks Audio Devices Computer Keyboards Computer Monitors Door Sensors Instructional Aids Isolation Boxes Mobility Devices Switches Talking Dictionaries Tech Speak Telephones / TTY Video Devices
2. California	http://www.atnet.org		
3. Illinois	http://www.iltech.org		

Table 1
Abbreviated List of Urban Loan Libraries (states with 10 largest school districts in 2005 & 2006)

State	Link	Unique Features	Common Features
4. Florida	http://faast.org	• Community Outreach to Rural and underserved groups • *Hands on* Demonstrations and Trainings • Housing Resources	
5. Nevada	http://www.resna.org/content/index.php?pid=137	• Continuing Education Resources • Professional Development	
7. Texas	http://techaccess.edb.utexas.edu	• AT Alternative Financing • Disability Studies	
9. Pennsylvania	http://disabilities.temple.edu	• Academy for Adult Learning • Leadership Development	
10. Hawaii	http://www.atrc.org	• Camp Cool • Outreach and Public Awareness	

Note: Florida has the 4th, 6th and 8th largest school districts in the United States.

Recommendation 2: Seek Funding Opportunities. Educators who have limited access to technology are encouraged to seek internal and external funding opportunities. For example, governmental agencies, public and private corporations, and various foundations allocate monies specifically for education. Educators who take initiative can identify funding agencies that provide monies for general and special education. They are encouraged to develop and submit a proposal, and upon funding purchase the technology needed for their classrooms.

Carnow (2008) suggested that grants are often important for successful technology plans and intuitively using the Internet is one of the quickest ways to locate potential grants (Bryson, 2007). Bray (2008) has identified seven funding agencies that have assisted educators who are seeking external funding. They can be found in Table 2. However, it should be noted that locating a grant or funding agency is only the beginning.

According to Brooks (2004), applying for a grant can be extremely daunting because announcements typically are made during the busiest time of the year, timelines are short, and many educators are ill-informed about writing a proposal. Ultimately, these factors can significantly hinder urban educators from seeking and applying for grant monies. Therefore, the following resources are offered to assist those urban educators who may be considering or who are writing a proposal. Specifically, the following links can assist educators with (a) Grants writing tips (http://www.k12grants.org/tips.htm), (b) Writing a grant proposal (http://www.learnassociates.net/proposal/, and (c) taking a proposal writing course (http://foundationcenter.org/getstarted/tutorials/shortcourse/index.html).

Table 2
Selected Funding Agencies for Educators

Funding Source	Link to Site	Information
• Grants Alert	http://www.grantsalert.com/	• This site provides educators with quick access to various grant opportunities and funding agencies.
• Pedera; Government Grants	http://www.ed.gov/fund/landing.jhtml?src=rt	• This site provides educators with all federal agencies which provide grant monies for the field of education.
• Donors Choose	http://www.donorschoose.org/	• This site allows educators to donate school supplies, review projects, and make specific curriculum requests for their classrooms.
• The Foundation Center	http://fdncenter.org/	• This site allows educators the opportunity advance knowledge about U.S. philanthropy.
• Top Teaching Resources	http://www.topteachingresources.com/grants_funding.php	• This site provides a clearing house of various grant and funding agencies.

Identifying and submitting a proposal to the right funding agency is the first step in securing monies. However, the key is for educators to continually seek and apply for grants that will assist them in acquiring AT and I/ET hardware and software devices for urban CLD students with and without disabilities.

Recommendation 3: Hypertext and Hypermedia. There has been increased emphasis on educators to teach CLD students using technology (Harris, Pinnegar, & Teemant, 2005). Hypermedia evolved from hypertext (Higgins, Boone, & Lovitt, 1996) and provides anchored instruction. Both hypertext and hypermedia are forms of technologies that benefit *all* students (Fitzpatrick, 2005; Maccini, Gagnon, & Hughes, 2002), including CLD students with disabilities. According to Higgins et al. (1996), hypermedia and multimedia have become integral within schools because they provide alternative methods to support and enhance text.

Hypermedia assists CLD students with the exploration and learning of new skill sets (Harris et al., 2005). Additionally, hypermedia programs were developed to prompt knowledge acquisition and problem solving abilities (Costabile, De Angeli, Roselli, Lanzilotti, & Plantamura, 2003) and allows linking between other media sources such as sound or movie files (Benjamin, 2003). This allows users to navigate with few restrictions between a vast array of information within the document or a completely different file (Fitzpatrick, 2005). Finally, it should be noted that although hypermedia provides accommodations and promotes learning for all students, research indicated that not every student benefits from learning with hypermedia (Song 2002). For this reason, educators must be ever vigilant in their selection of technologies for the classroom.

Conclusion

Computers have become common tools in today's schools. And, in the 21st century, it is imperative that there be equal opportunities for all students to benefit equally from those technologies available in schools. There is little, if any, argument regarding the benefits (i.e., academic, social, etc.) of technology access and use. But, as technology has permeated every corner of our society, especially our schools, a chasm has been created between those individuals and schools that have access to technology and those that do not. One might assume that our education system has a foundation in place that provides for students to succeed with the use of technologies, but as Hendrix (2005) and Christensen (2008) noted; technology is widening the gap between wealthier (suburban) and poorer (rural and urban) schools. It is commonly referred to as the *digital divide (*Mason & Dodd, 2005).

The digital divide has consequences that extend beyond the school walls. It is not just a matter of having equal access to equipment and/or software. Unfortunately, the educational needs of traditionally marginalized populations (i.e., students with disabilities, students from CLD backgrounds, students attending rural and urban schools, students living in poor households) are far more complex. Educators cannot just replicate what is available in wealthier schools and expect that to solve the problem. The needs of students and teachers in urban schools are different and vast. The barriers that prevent technology integration in urban schools must be addressed first. Once those barriers have been addressed, they can begin to create a cultural climate where educators, other school personnel, students and their families view technology as part of the teaching and learning environment that will ultimately increase their access to resources beyond the classroom.

The resources and recommendations are provided for urban educators. They cannot let the barriers prevent them from being creative in their search for and use of these resources because, ultimately and literally, how persistent they are (or are not) could have a lasting impact on the future of the students they are teaching.

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Implementing and Monitoring the Response to Intervention Process: The Special Educator Perspective

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Abstract

As a result of the varied implementation of Response to Intervention (RTI) and uneven occurrence of professional development, special education teachers struggle to adapt to new roles and responsibilities. The purpose of this mixed methods study was to explore the role of special education teachers in implementing and monitoring RTI, the role change of special education teachers as a result of RTI, and the professional development required to support special education teachers implementing RTI. The results suggest a need for greater collaboration between general and special educators in the areas of implementation, fidelity monitoring, and professional development.

Implementing and Monitoring the Response to Intervention Process: The Special Educator Perspective

The 2004 reauthorization of the Individuals with Disabilities Education Act (IDEA) permits states, districts, and schools to use Response to Intervention (RTI) for determining eligibility for special education. This change in federal legislation spurred a ripple effect impacting the roles of administrative, related service, and instructional personnel (The National Joint Committee on Learning Disabilities [NJCLD], 2005). For example, special education teachers' roles evolved to support general education students and teachers during the RTI process. As a result, special educators struggle to develop strong implementation and monitoring skills to ensure the fidelity of effective programming in the general education setting (Kovaleski, 2007). In addition, professional development is needed to train and support special education teachers in building and maintaining skills needed to implement and monitor RTI with fidelity (Hoover & Patton, 2008). Whereas teachers are the lynchpin of educational change (Fullan, 2001), the purpose of this study is to examine the perceptions of special educators related to role change, job-related responsibilities, and professional development needs in a mid-sized school district in the fifth year of RTI implementation. Specifically, it will explore areas for professional development that can enhance fidelity of implementation at the school and district levels. According to the National Center on Response to Intervention (NCRTI, n.d.), RTI is a school improvement effort

that integrates assessment and intervention in a multi-tiered instructional framework in order to increase student achievement and decrease interfering behaviors. In a RTI approach, schools identify at-risk learners, monitor student progress, provide research-based interventions, and adjust the intensity and nature of those interventions depending on a student's responsiveness. RTI can be used to determine students' eligibility for special education; however, it is not used consistently for this purpose. NCRTI defines fidelity as "the accurate and consistent provision or delivery of instruction in the manner in which it was designed or prescribed according to research findings and/or developers' specifications" (n.d.). Fidelity includes the following five elements: adherence, exposure, program differentiation, student responsiveness, and quality of delivery.

Special Educators and RTI

Collaboration among educators is crucial for meeting the needs of diverse populations of students in an RTI approach (see Cummings, Atkins, Allison, & Cole, 2008). In particular, special education teachers have knowledge of assessment, instruction, and individualized intervention; therefore, they are uniquely positioned to impact and assist schools implementing RTI (Mastropieri & Scruggs, 2005). This is one factor that affects the workload of special education teachers. Although there is evidence of the changing role of special education teachers with the implementation of RTI (Cummings et al., 2008; Hover & Patton, 2008; Mastropieri & Scruggs, 2005), few studies exist (Fuchs, 2003). For example, Hoover and Patton (2008) concluded that additional research is needed to determine the extent to which special educators possess the skills and abilities required to implement RTI with fidelity. Furthermore, special educators' roles need to be investigated to determine the most effective ways to implement RTI given current demands in schools (Batsche, Kavale, & Kovaleski, 2007; Mastropieri & Scruggs, 2005). Without effective broadening and development of skills, fidelity of the RTI implementation process is at risk. Due to the nature of expanding and changing roles, special educators present a prime audience for targeted professional development related to RTI.

The Evolution of the Role of the Special Educator

Traditionally, special educators used a discrepancy approach to examine the identification of students with learning disabilities. In recent years, a major shift has occurred to an ecological approach of RTI that examines the relationship among student, environment, and instruction (Witt, 2006; Murawski & Hughes, 2009). A student's response to evidence-based intervention is now considered an effective method for determining disability status (Stecker, 2007). This is a considerable shift in thinking and one that suggests a need for professional development. For instance, general and special educators are expected to collaborate and co-teach in an effort to decrease the achievement gap (Murawski & Hughes, 2009). In an efficient and effective RTI process, collaboration and co-teaching provide students with a myriad of interventions in small and large group settings. However, as more traditional instructional service delivery models change to align with the RTI process so does the need for professional development to support the changing roles of teachers. An examination of teacher efficacy as related to RTI suggests that training experiences, integrated with school based assignments and on-sight follow-up over one school year, can enhance motivational skills efficacy and intervention skills efficacy of educators (Nunn & Jantz, 2008). The results of this study imply that greater clarity of roles and effective

professional development can increase an educator's perception of their effectiveness in increasing achievement.

In addition to skill sets and confidence levels of special education teachers, intervention fidelity is an essential component of the RTI process. Specifically, educators must effectively and strategically monitor and evaluate data collection in order to determine which interventions are successful for various populations of students.

Fidelity in the RTI Process

Fidelity exists when interventions are carried out with a high and consistent level of planning, data collection, and implementation (Kovaleski, 2007). In order to yield the benefits of RTI documented by researchers (VanDerHeyden, Witt, & Gilbertson, 2007), school-based practitioners must implement and monitor the RTI process with fidelity. However, there is little empirical work understanding RTI as it is implemented by school-based practitioners (Ardoin et al., 2005; VanDerHeyden et al., 2007). Ardoin et al. (2005) suggest that RTI may not be effective when implemented by front line professionals due to poor fidelity, inaccurate duration, and lack of frequency when compared to controlled research studies. Furthermore, researchers (Brown-Chidsey & Steege, 2005; Knotek, 2005; Kovaleski, 2007; & Kratochwill, Volpiansky, Clements, & Ball, 2007) have not yet sorted out how RTI will be best implemented in schools. Professional development is the key to implementation fidelity and actualizing the benefits of RTI cited in the literature (see Ardoin et al., 2005; Carney & Stiefel, 2008; VanDerHeyden & Witt, 2005; VanDerHeyden et al., 2007).

The Role of Professional Development for RTI Providers

Effective professional development is a critical element to implementation fidelity. Currently, professional development for practitioners implementing RTI varies greatly and occurs unevenly across schools, districts, and states (Hoover & Patton, 2008; Knotek, 2005). Kratochwill et al. (2007) suggest best practices for professional development and applied these best practices to RTI implementation and monitoring. Topics such as evidence-based interventions; multi-tiered intervention models; screening, assessment, and progress monitoring; administering interventions with a high degree of fidelity; support and coordinated efforts across all levels of staff and leadership within the school; and sustaining systems of prevention grounded in a RTI framework are recommended for RTI implementation so educators are able to successfully assume key roles at all tiers of RTI (Hoover & Patton, 2008).

Knotek (2005) described and applied four levels of impact (Showers & Joyce, 1996) needed to implement a new innovation to the implementation of RTI. The four levels included the following: awareness, conceptual understanding, skill acquisition, and application of skills. Knotek (2005) explained that practitioners reached awareness when they could cite important features of the model. He noted that conceptual understanding was reached when practitioners articulated the difference between assessment for referral and assessment of interventions. He clarified that the skill acquisition level commenced when practitioners had an opportunity to practice simulations and receive feedback. Finally, he stated that practitioners demonstrated application of skills when they used professional development learning in real situations within

the schools. At this level, practitioners reflected on best practice, mistakes, or unexpected road blocks. Knotek (2005) concluded that professional development at each level is crucial for practitioners implementing RTI with fidelity.

The purpose of the current study is to investigate the role of special education teachers in RTI implementation and monitoring, explore how the role of the special educator changed as a result of RTI, and discover potential improvements to better support special education teachers through professional development. These findings may offer information that can inform educational professionals at the school and district level (see Gates, 2010).

Research Questions

1. What roles do special education teachers play in the fidelity of implementation and monitoring during the RTI process?
2. Has the role of the special education teacher changed as a result of RTI implementation and monitoring?
3. To what extent can professional development support special education teachers as they attempt to implement and monitor RTI with fidelity?

Design

In this study, the researchers used a mixed methods approach. Specifically, a sequential explanatory approach was used in which quantitative and qualitative survey data from phase one was collected and analyzed before qualitative interview and observation data from phase two (see Creswell, 2003). In the analysis, surveys, interviews, and observations received equal priority followed by a series of analyses to identify patterns in the data.

Setting

The study took place in one school district in southeastern North Carolina. North Carolina was one of 15 states implementing RTI in schools. In addition, North Carolina was one of the three states implementing a problem solving model approach to RTI. Although North Carolina was implementing RTI on a small scale, it had existing embedded professional development prior to and during RTI implementation. Finally, North Carolina used both the discrepancy and response to intervention models to identify students with learning disabilities (Berkeley, Bender, Peaster, & Saunders, 2009). One school district in southeastern North Carolina was selected as the study site because of district-wide implementation of RTI in elementary schools and professional contacts within the district that facilitated data collection. According to the North Carolina School Report Cards for the 2008-2009 school year, 99% of all elementary teachers in the district are fully licensed. In addition, 24% of all elementary teachers have completed an advanced degree, Master's or doctoral. In terms of experience, 19% have been teaching between 0 and 3 years; 33% have been teaching between 4 and 10 years; and 48% have been teaching more than 10 years (Education First, n.d.).

Participants

Participants for this study were special education resource teachers in elementary schools implementing RTI in the mid-sized school district in southeastern North Carolina. All

participants completed phase one, while only a small subset of participants completed phase two interviews and observations.

Phase one participants. Participants for phase one consisted of a self-selected sample from the study school district. The Executive Director of the Special Education and Related Services department supplied researchers with a list of all 32 elementary resource teachers in the district. Twenty-nine of the 32 resource teachers (90.63%) responded to the Perception of RTI Skills survey, which is discussed below. The survey participants were predominantly Caucasian females (n = 27), one African American female (n = *1*), and one Caucasian male (n = *1*). Although the participants represented a range of licensure areas, most (72%) teachers were licensed in Specific Learning Disabilities. The second most common licensure area was Intellectual Disabilities (41%). The participants ranged in number of years of teaching experience. Thirty-two percent of the teachers had between 10 and 25 years of experience. About the same number of participants had less than 10 years (23%) and more than 25 years (24%) of experience. Sixteen percent of the participants had less than 5 years of teaching experience. In fact, three participants (10%) did not have experience with the discrepancy model (DM). The DM requires that a severe discrepancy between student ability, or a score on an IQ test, and achievement, or scores on achievement tests, in order for a student qualify for special education as a student with a specific learning disability (SLD). While all of the participants had implemented RTI between 1 and 5 years, the majority (38%) had implemented it for 2 years.

Phase two participants. The researchers purposively selected the sample for phase two from the survey participants who completed phase one. Dane (1990) explained that purposive sampling allows the researcher to hone in on people or events that are crucial to the research. The sample for phase two consisted of six resource teachers who agreed to participate in one interview and three observations. All six teachers were Caucasian females. The researchers selected resource teachers with various years of teaching experience in an effort to create a sample representative of the population. The 6 phase two participants reported the following number of years of teaching experience: 6, 8, 19, 25, 26, and 37. Teachers with less than 5 years of experience in education were excluded from phase two because they did not experience the change in role from DM to RTI.

Instruments

Perception of RTI skills survey. The purpose of the *Perceptions of RTI Skills* survey (see Appendix A) was to identify professional development needs of special education resource teachers. This survey was copyrighted by the Florida Problem-Solving and Response to Intervention Project (2007). This survey was selected because it breaks down the complex processes of implementing and monitoring RTI into discrete, quantifiable, and measureable tasks to which special education teachers can relate. Modifications included the addition of open-ended questions soliciting demographic information, perceptions of role in implementing and monitoring RTI, and perceptions of professional development. In addition, some of the wording of questions was changed to reflect the North Carolina context because the original survey was used in Florida. Lastly, the researchers created an online version of the survey using an online survey tool.

Ten questions were included at the beginning of the survey addressing demographic information including the following topics: gender, race, job title, certification, employment status, teaching experience, and experience with RTI. Ten items in the middle of the survey asked participants to rate their skill levels pertaining to aspects of assessment, instruction, and intervention involved in RTI. Seven questions were included at the end of the survey to provide a reference by which to compare the responses from phase two. These questions addressed participant perception of role implementing and monitoring RTI with fidelity, role change, and professional development.

Validity. Researchers implemented a review of the literature to corroborate the alignment of the survey to the research. Additionally, a panel review was conducted to ensure the instrument measured the intended subject matter (Colton & Covert, 2007). Specifically, a panel of special education liaisons, with teaching and district level experiences using RTI, reviewed the survey for content validity and made minimal modification based on their feedback to insure clarity of the instrument.

Reliability. Reliability, or the consistency of the measure, was established using Cronbach's Alpha (Kinnear & Gray, 2008) to determine internal consistency using a correlation coefficient to determine the relatedness of two mirrored items for each of the target concepts: professional development, fidelity, and role. The acceptable reliability for the survey instrument was 0.70 (Nunnally, 1978). The construct of professional development was supported with 5 comparisons. The comparisons and their Alphas are as follows: make data based decisions (.91), implement evidence based interventions (.70), implement socioemotional behavioral support (.60), differentiate instruction (.52), and collaborate (.19). The construct for fidelity earned an Alpha of .51, and the construct for role earned an Alpha of .38.

Special Education Teacher Roles in Implementing and Monitoring RTI Interviews. The purpose of the interviews was to determine the role of special education teachers in implementing and monitoring RTI. The researchers developed the nine-question interview protocol entitled *Special Education Teacher Roles in Implementing and Monitoring RTI* using results from a review of the literature to align with the research questions (see Appendix B). Through the survey, the principal investigator solicited information regarding special education teachers' perceptions of their role in RTI implementation and monitoring. In addition, questions were asked targeting special education teachers' perceptions of a potential role change from the use of the discrepancy model to use of RTI and professional development as it relates to role change.

Dependability, Credibility, and Transferability. In order to establish dependability, defined as consistency and stability over time (Miles and Huberman, 1994), the researchers designed the methods of this study to be congruent with the clearly written research questions. The principal investigator ensured that credibility was established by checking the accuracy of the transcribed interviews with the participants. In efforts to obtain a triangulation of data, both interviews and surveys were conducted. Finally, the researchers described the characteristics of the population and samples to enhance transferability, or readers' ability to apply elements of the present study to their personal experiences.

RTI: Monitoring for Fidelity Observations. The primary investigator conducted structured observations to gain information regarding how special education teachers monitor RTI with fidelity. The observation checklist entitled *RTI: Monitoring for Fidelity* (see Appendix C) was used as a tool for maintaining objectivity while observing special education teachers in the field. The observation checklist and observations allowed data to be collected through direct observations so information could be recorded immediately. Additionally, the primary investigator was able to explore topics that could have been uncomfortable for the participants to discuss (Creswell, 2003).

The researchers developed the checklist from a list of three areas of fidelity identified by the literature (The Iris Center, n.d.). The observation checklist is organized into the following three areas: the data collection method, the frequency of data collection, and the support systems used to maintain and improve implementation. The literature identified two evidences for each area. Using the observation checklist, the principal investigator indicated whether the evidence was observed, the nature of the evidence, and the context in which it occurred.

Dependability, Credibility, and Transferability. In order to establish dependability, trained reviewers conducted peer debriefing to enhance the accuracy of the accounts (Creswell, 2003). Specifically, they were provided with memos and observation checklists for review. Reviewers were selected based on their positions of leadership at the school and district levels, and each reviewer received 30 minutes of training on the debriefing process. Their insights allowed the primary investigator to see data from multiple perspectives. In efforts to check the strength and credibility of the data (see Creswell, 2003), rich descriptions were used to clarify researcher bias and memos provided a record of any researcher bias that was noted (Garson, 2011). In order to establish transferability for readers connecting the present results to personal contexts, the researchers compared the findings to those of previous research.

Researcher as instrument. Qualitative research is interpretive research that allows researchers to be involved in sustained and intensive experiences with the participants. Therefore, it is important to identify bias, values, and personal interests as researchers (Creswell, 2003). Efforts to monitor bias included measures such as a self-administered survey, an observational checklist, and an interview protocol.

Procedures

Perception of RTI skills survey. The primary investigator distributed a cross-sectional survey to all 32 resource teachers according to recommendations provided by Creswell (2003) to achieve a high response rate in addition to using email. Participants were e-mailed twice with links to an online survey before paper versions of the survey were distributed to each non-responder. Data were entered into the system manually and checked, if a paper version was used.

Special education teacher roles in implementing and monitoring RTI interviews. Once data from the survey was analyzed, the researchers solicited volunteers for phase two. The phase two interview helped to obtain information that was not reported and or could not be observed at a later date. Creswell (2003) noted the usefulness of interviews for providing historical participant information and allowing the researcher control over the line of questioning.

The individual, face-to-face interviews took place during school hours, in public school buildings, and in private rooms for confidentiality purposes. The principal investigator used an interview protocol to increase trustworthiness (see Appendix B). The interviews were audiotaped on a digital voice recorder and transcribed.

RTI: Monitoring for fidelity observations. The primary researcher observed the same six individuals who were interviewed and observations were conducted over the course of one month. Each participant was observed at a different time of the day to gain an understanding of the breadth of their role. An observational checklist (see Appendix C) was used in order to collect both descriptive and reflective notes as well as demographic information. Finally, documents that participants shared during their observations were analyzed.

Data Analysis

Data from the phase one survey was collected and analyzed by the primary investigator, followed by phase two observation and interview data. Finally, the Data were compared and integrated during the interpretation phase. Close-ended survey questions were examined using descriptive statistics and open-ended questions were analyzed for codes and themes. In the present study, themes are described as recurring patterns that pull together separate pieces of coded data. First codes were counted and then categories were determined to highlight any developing themes, using visual analysis.

Results and Discussion

How Do Special Education Teachers Implement and Monitor RTI with Fidelity?

Role size. Twenty-nine (100.00%) of phase one survey respondents indicated that they had at least a minor role in RTI, and 26 (89.66%) described their role as large or primary. Similarly, Cummings et al. (2008) posited that special education teachers possess knowledge of assessment, instruction, and individualized intervention and are instrumental in impacting and assisting schools as they implement RTI. In fact, in the present study, about half (47.62%) of the survey respondents from phase one was the chairperson, coordinator/facilitator, or co-chair of the RTI/Problem Solving Model (PSM) team for their respective schools. Phase two interview participants corroborated this pattern as more than half (62.50%) held similar leadership roles. Lau, Sieler, Muyskens, Canter, VanKeuren, and Marston (2006) noted the benefits of including special education teachers on collaborative decision making teams; however, the authors suggested that a general education teacher be the leader or co-leader of the team responsible for organizing and maintaining the RTI process.

Duties. Phase one survey participants supplied 11 (21.57%) responses that described administering interventions, nine (17.65%) responses that referenced attending meetings, and eight (15.69%) responses that referenced progress monitoring. Hoover and Patton (2008) and VanDerHeyden et al. (2007) confirmed the three aforementioned duties. However, the authors identified the following additional roles for special education teachers that survey participants did not cite: an implementation fidelity monitor, a decision maker, and a screening and assessment organizer. Bartle (2009) found that special education teachers increased their

presence and provided instruction in general education classrooms more often as a result of RTI implementation; however, the data from the present study did not support the author's finding. Phase two interview participants identified working with administration six (25.00%) times. Similarly, Bartle (2009) found that special education teachers worked closely with their administrators to promote professional development, collaboration, trust, and increased accountability.

Responsibility for RTI. Phase two interviewees described responsibility for RTI in one of three ways: a special education effort (9), a collaborative effort (7), or a general education effort (4). For five (83.33%) of the interviewees, RTI was a special education effort. However, for two (33.33%) of the five teachers, over time general education became more involved resulting in a collaborative effort. One of the five teachers experienced RTI as a general education effort. Posney (Spectrum K12, 2008) explained that there is a misperception of RTI as a special education initiative. Rather, the RTI effort should be a unified approach characterized by a collaborative team and shifting from who is responsible to what needs to be done (Spectrum K12, 2008; Ehren, Laster, & Watts-Taffe, 2009). Ehren et al. (2009) defined collaboration as the joining of forces, pooling of resources, and sharing of expertise in order to meet shared goals for instruction and assessment. Special education students are no longer the concern of a narrow group of educators and parents; they are increasingly the responsibility of everyone (Bartle, 2009). The National Center on Student Progress Monitoring [NCSPM] (2008) states that prior to RTI, classroom teachers did not know what was happening with their students in special education. After RTI, general education teachers and special education teachers work collaboratively to create the best learning environments for all students. Brown-Chidsey and Steege (2005) argued that RTI is a general education initiative beginning and ending in general education.

Fidelity. Phase one survey participants identified two methods for indirectly monitoring for fidelity that phase two interview participants corroborated: review data notebooks and consult with school staff. According to Gresham (1989), monitoring tools fall into two major categories: indirect and direct. Indirect assessments included self-report, rating scales, interviews, and permanent products. Of the indirect methods, permanent products were the most reliable and accurate. In the present study, observation participants used permanent products when they reviewed data notebooks. They used interviews when they consulted with school staff.

Direct assessments included observing and recording teacher behaviors (Gresham, 1989). Neither survey nor interview participants directly monitored fidelity. Direct and frequent assessment of an intervention for fidelity is considered to be best practice (Johnson, Mellard, Fuchs, & McKnight, 2006; Berkeley et.al., 2009). Johnson et al. (2006) provided several observation checklists for this purpose. Barringer (n.d.) explained how to conduct direct observations for implementation fidelity. First, observers directly monitoring fidelity must be trained in structured observation, the intervention being monitored, giving feedback, and developing positive, supportive relationships with teachers. Second, although observers do not have to be in a position of power, administrators are ultimately responsible. Third, monitoring should occur frequently at the beginning and include immediate, brief, constructive, and written feedback. Once a protocol is established, monitoring should ensue less frequently; however, it should always happen when interventionists ask for help. Not surprisingly, for five of the six

(83.33%) observation participants, monitoring depended on teachers' requests for help or instruction. Berkeley et al. (2009) noted that lack of direct observations could potentially leave states open to due process challenges over the diagnosis of learning disability identified using RTI procedures.

Phase one survey and phase two observation participants documented attending meetings and phase one survey participants cited progress monitoring as strategies for monitoring for fidelity; however, phase two interview participants did not mention these activities. The researchers discovered that attending meetings was a strategy for monitoring for fidelity that the phase two interview participants used during observations. This was conflicting data from interview and observation participants who made up the same sample. Likewise, phase two interview participants included changing interventions as a strategy for monitoring for fidelity; however, phase one survey participants did not mention the activity. Berkeley et al. (2009) found that most state models do not include clear requirements for monitoring implementation fidelity. Johnson et al. (2006) recognized the importance of providing professional development and support to school staff monitoring for fidelity. They developed an Essential Task List for Fidelity of Implementation. One of the first items on the list was developing a fidelity data collection system that included both direct and indirect measures. Having such a list ensures a common language and shared practices for monitoring fidelity and decreases the likelihood of conflicting accounts.

How Has the Role of the Special Education Teacher Changed as a Result of RTI Implementation and Monitoring?

Degree of role change. In phase one, 25 (86.21%) of 29 survey participants indicated that their role changed (84.00%) or did not change (16.00%) as a result of the implementation of RTI. The data from phase two corroborated phase one data; five (83.33%) of six interviewees stated that they experienced a role change as a result of RTI implementation. Interview participants were asked to describe their degree of role change on a scale from one to ten. Their responses revealed a mean of 4.50 and a standard deviation of 2.51 indicating a moderate change in their roles. Cummings et al. (2008) stated that it is not the specific roles of special education teachers that needed to change, but rather the skill sets within those roles which needed to broaden. In the present study, three of the five teachers who described a role change also stated that their role has not changed. Factors contributing to this ambivalence were the size of the school, administrator influence, and preservice teacher training. Haar, Robicheau, and Palladino (2008) did not find the size of the school to be a factor influencing role change; however, they found that rural schools had difficulty meeting all of the students' needs in a RTI context. The authors reinforced the concept of administrator influence and recommended that administrator preparation programs prepare aspiring school leaders with the knowledge, skills, and dispositions to allocate resources to ensure interventions can and will be implemented as recommended within a RTI model. Furthermore, they underscored the impact of special education teacher preparation programs by recommending that such programs include an understanding of intervention strategies, assessment of instructional strategies, data collection, and problem/solving decision making skills. Bartle (2009) concluded that practitioner roles in a RTI context will continue to shift overtime.

Impact on students. Of the phase one survey participants'16 responses that referenced the impact of RTI on students, nine (56.25%) responses mentioned providing interventions and progress monitoring to students without IEPs. Cummings et al. (2008) and the NJCLD (2005) concurred. The authors compared the role of the special education teacher from a historical context to a RTI context. They found that historically special education teachers provided intensive instruction to a relatively stable group of students within a given school year. Conversely, in a RTI context, special education teachers provided differentiated instruction to a variety of students and grouping was flexible and dynamic. The NJCLD (2005) identified providing more intensive interventions, mastering research based methods and materials, and providing them with fidelity to groups of various sizes in different environments.

In phase two, three (50.00%) interview participants yielded four (30.77%) responses citing not being effective special education teachers to students with IEPs. The NJCLD (2005) acknowledged this challenge. They contended that the new instruction, assessment, documentation, and collaborative activities required by RTI present new challenges for all education professionals including special education teachers. Haar et al. (2008) also found that special education teachers struggled to fulfill their changing roles. In the present study, two (33.33%) interviewees yielded four (30.77%) responses indicating that students with IEPs were getting their needs met regardless of their special education teachers' role change. One teacher used grouping strategies and the other used stronger planning and preparation to meet the challenge of addressing the needs of all students. Harr et al. (2008) also found that special education teachers indicated a need for a non teaching "intervention specialist" role. According to Reschly and Gresham (2006), four factors that impact teachers' abilities to be successful at RTI implementation are intervention complexity, required materials and resources, perceived and actual effectiveness, and interventionists. Implementation fidelity is more likely when interventions are easy to implement; materials and resources are at one's fingertips; teachers' beliefs and teaching styles are compatible with RTI principles; and the number, expertise, and motivation of interventionists are appropriate.

Impact on profession. In the present study, the phase one survey participants identified four factors that changed within their professional environment as a result of RTI implementation: time, paperwork, meetings, and collaboration. Cummings et al. (2008) also found that RTI impacted the professional environment for special educators. In the present study, 11 (37.93%) of the 29 responses from the survey participants supporting the impact on profession sub category regarded time. Haar et al. (2008) found that special education teachers did not have the time to address both special education and general education issues. To address the lack of time required to implement RTI, Lau et al. (2006) suggested that administrators build time for RTI team members to plan, train, meet, and evaluate into the school schedule. In the present study, 11 (24.14%) responses referenced the completion and monitoring of paperwork. Haar et al. (2008) recommended the reduction of paperwork for the successful implementation of RTI. In the present study, five (17.24%) responses concerned meetings. Lau et al. (2006) found that decision making teams benefited from the collaborative efforts of special education teachers; however, meetings necessitated a time commitment. While two (6.90%) responses in the present study cited increased consultation and interaction, one (3.45%) response referenced being less involved. Cummings et al. (2008); the NCSPM (2008); and Hoover and Patton (2008) documented that increased collaboration among special educators and school staff is necessary to

implement RTI. However, the NJCLD (2005) cautioned that school cultures treating general education and special education as separate will face a challenge developing the interdependence essential to RTI implementation.

Phase two interview participants provided 12 (52.17%) positive responses and 11 (47.83%) negative responses regarding the impact that RTI had on special education as a profession. Of the 12 positive responses, three teachers provided six (50.00%) responses that referenced helping oneself, and two teachers provided six (50.00%) responses that referenced helping others. In terms of helping oneself, Lau et al. (2006) found that RTI benefits special educators in the following ways: planning assessments, writing IEPs, and designing the students' instructional program if they are found eligible for special education. For instance, special education teachers looked at previous interventions and results when planning academic assessments. Also, successful interventions were turned into IEP goals rather than repeating less successful strategies.

The NCSPM (2008) outlined benefits for students, parents, and school personnel. In a RTI model, all students were progress monitored at least three times per year instead of annually. Also, parents felt that they were a part of the school instead of disconnected. Lastly, both general education teachers and specialists provide interventions and progress monitoring as opposed to the previous model in which general education teachers did not receive support from specialists.

Of the 11 negative responses provided by the phase two interviewees, three (50.00%) teachers added eight (72.72%) responses that referenced less time, and two (33.33%) teachers added three (27.27%) responses that referenced more duties. In terms of less time, Haar et al. (2008) found that special education teachers expressed concerns about their role in RTI; the teachers stated that they needed more time to work on interventions. In terms of more duties, Hoover and Patton (2008) stated that the skills needed for special education teachers to implement RTI are similar as the ones required for the DM; however, the skills required for RTI are far more extensive than those of the past. Cummings et al. (2008) described the many different hats that special educators wear in a RTI model.

How Can Professional Development Support Special Education Teachers as They Attempt to Implement and Monitor RTI with Fidelity?

Supporting strategies. Phase two interview participants identified the following as important strategies for supporting professional development: initial and ongoing training sessions, learning by doing, and collaboration among schools. First, interview participants overwhelmingly noted that ongoing professional development is crucial. Specifically, they identified initial training for new teachers and refresher courses for veterans. Kratochwill et al. (2007); NJCLD (2005); and The Iris Center, (n.d.) recommended that schools have plans in place to address training protocols for new staff. In addition, the authors recommended that schools provide veteran staff additional booster sessions that help them to stay current and maintain skills. Second, phase one survey participants indicated learning by doing as an important supporting strategy for professional development, and phase two interview participants concurred. Similarly, Knotek (2005); Showers and Joyce (1996); and The Iris Center (n.d.) underscored the importance of including opportunities for practice and application of skills in

their professional development models. The cycle of learning, practicing, and reviewing is central to professional development related to RTI (Brown-Chidsey & Steege, 2005). Furthermore, professional development sessions in which participants sit and listen to experts are ineffective (Bartle, 2009). Likewise, in preservice special education teacher training, Hawkins, Kroeger, MustiRao, Barnett, and Ward (2008) emphasized the importance of field experiences.

Teacher recommendations for improvement. Phase one survey participants most often (26.47%) cited the need for professional development related to specific, research based interventions such as Hill Center methodology, strategies for centers, and differentiated instructional techniques for students with behavioral challenges, and ADHD/ADD. Kratochwill et al. (2007) cited the lack of training in implementation of evidence-based practices as a significant challenge to the implementation of RTI. Haar et al. (2008) found that all stakeholders (general education teachers, special education teachers, and administrators) referenced the need for professional development and training on interventions. In the present study, survey participants specified the need for interventions right at one's fingertips. Reschley and Gresham (2006) concurred. They noted that if interventions are complex or if materials and resources are substantial, then fidelity of implementation is greatly reduced. In the present study, phase one survey participants mentioned the need for collaborative efforts among schools, and phase two interview participants agreed. For example a phase one survey participant suggested a pubshare for successful interventions. A pubshare as used in this context refers to shared, virtual storage space for collaboration among school personnel. Brown-Chidsey and Steege (2005) and Haar et al. (2008) documented the importance of time for co-planning and meaningful collaboration between general and special education personnel across all grade levels within a school. To date, researchers have not documented specific recommendations for collaborative partnerships among schools.

Three areas of professional development. When asked to rate themselves on a scale (no skill, minimal skill, some skill, very skilled, or very highly skilled) in respect to 40 target skills required to implement RTI with fidelity, all 29 phase one survey respondents rated themselves as very skilled or very highly skilled in one area: collaborate with colleagues. Cummings et al. (2008) described the collaborative role that special educators play in a RTI context. The authors explained that special educators are often called on to consult with general educators and specialists.

In the current study, 40 skills were organized into three areas: skills of strength, skills of maintenance, and skills of focus. To be classified as a skill of strength, more than 80% of phase one survey participants identified themselves as very skilled or very highly skilled. To be classified as a skill of maintenance, between 60% and 80% of phase one survey participants identified themselves as very skilled or very highly skilled. To be classified as a skill of focus, less than 60% of the phase one survey participants identified themselves as being very skilled or very highly skilled. The six skills of focus require additional attention and include the following: implement social, emotional, and behavioral support; draw a trendline; graph peer data; graph and display student and school data electronically; collect DIBELS data; and use electronic data collection tools (e.g., PDAs). Knotek (2005) documented that the implementation of RTI requires education professionals to acquire and bolster their skill sets; the skills needed to

successfully implement RTI range from simple to complex. The six skills of focus are discussed below.

Thirteen (44.83%) of the phase one survey participants rated themselves as having no, minimal, or some skill with implementing social, emotional, and behavioral support. One (3.45%) participant identified herself as having minimal skill in this area, and 12 (41.38%) participants had some skill. Hoover and Patton (2008) identified the role of implementing socioemotional and behavior supports as one of five essential roles for special educators within a RTI context. This role involved working with students who display a range of social, emotional, and behavioral challenges. Hawken, Vincent, and Schumann (2008) noted that conducting functional behavior assessments and behavior support plans were recommended components of effective Tier 3 behavior support. However, schools found it difficult to implement this level of support for 5% of their population due to the time and resources required.

Twelve (42.86%) of the phase one survey participants rated themselves as having no, minimal, or some skill with drawing a trendline and graphing peer data. Two (7.14%) participants identified themselves as having minimal skill with drawing a trendline, and three (10.71%) identified themselves as having minimal skill with graphing peer data. Ten (35.71%) participants and nine (32.14%) participants had some skill in those areas respectively. Knotek (2005) cited charting and graphing data as a specific skill needed for the implementation of RTI. Kratochwill et al. (2007) identified the knowledge and skills necessary for weekly progress monitoring of students as an important learning outcome.

Fifteen (51.72%) of the phase one survey participants rated themselves as having no, minimal, or some skill with collecting DIBELS data. Two (6.90%) participants indicated no skill, and six (20.69%) indicated minimal skill. Seven (24.14%) participants described some skill. According to the NCSPM (2008), historically, valid, reliable Data were not collected frequently over time to inform instructional decisions. However, in a RTI context, student data from curriculum based measurement is used to plan instruction and ensure that progress occurs frequently. Knotek (2005) cited conducting a curriculum based measurement in reading as a specific skill needed for the implementation of RTI. Although there are various metrics that assess student knowledge, fluency, and accuracy with academic tasks, DIBELS is a popular system of curriculum based measurement for monitoring student progress (Good, Kaminski, Simmons, & Kame'enui, 2001).

Eighteen (62.07%) of the survey participants rated themselves as having no, minimal, or some skill with using electronic data collection tools (e.g. PDAs). Three (10.34%) participants cited no skill, and five (17.24%) cited minimal skill. Ten (34.48%) participants responded with some skill. Similarly, 22 (75.86%) of the survey participants rated themselves as having no, minimal, or some skill with graphing and displaying student and school data electronically. One (3.45%) participant communicated no skill, and eight (27.59%) communicated minimal skill. Thirteen (44.83%) participants declared some skill. According to the NCSPM (2008), historically, report card grades were ineffective tools to measure student progress. However, in a RTI context, web based assessments such as DIBELS and data management systems such as Aimsweb can now track progress. Lau et al. (2006) recommended the use of technology in the RTI process such as web-based forms, online data collection, and free secure access for teachers after work from home. Burns (n.d.) provided evidence that technology made RTI implementation easier and more

likely to occur for the four essential components of RTI: high quality instruction, tiered instruction/intervention, ongoing student assessment, and family involvement. In fact, technology has the potential to ameliorate the existing time and behavior barriers identified by the participants in the present study. Furthermore, Burns (n.d.) implored schools to commit the resources to train staff because few teachers are well trained in technology applications.

Limitations

Three limitations were noted in regards to this study. First, the small size of the sample for the survey may have impacted results. Charter (2003) noted that small sample sizes can yield unstable alpha coefficients. Second, the self selection for interview and observation participants presented a limitation. Knotek (2005) concurred stating that most research in the area of RTI has been done with self-selected teachers who volunteer for a study that seems interesting to them. Third, this investigation focused on one school district to limit the variability inherent in differing approaches to RTI implementation across states, districts, and schools. Thus, these findings may not generalize to the broader population. However, they provide an interesting examination of current RTI implementation challenges with which special educators struggle.

Implications for Future Research

Rigidity versus flexibility. Balancing rigidity and flexibility in RTI implementation presents another area for future research (NJCLD, 2005). Rigidity increases the likelihood that successful frameworks can be researched and replicated. Flexibility allows school leaders to work with their existing resources and strengths to implement a version of RTI that works best for their students and school staff. The present study depicts the significant yet unique roles that special educators embody within their individual schools. Bartle (2009) posited that there will be confusion in the field until school buildings have a universal understanding as to each person's role. Future research into whether a consistent role can be developed for special educators in a RTI context is needed. Based on that research, educational leaders can determine whether one universal job description for special education teachers can be developed in order to facilitate implementation fidelity of RTI.

Special educators as fidelity monitors. The phase one survey participants did not identify themselves as implementation fidelity monitors, and this pattern was evidenced by phase two interview participants. This finding illustrates the need for districts and schools implementing RTI to provide explicit training to special education teachers in the area of monitoring for fidelity (see Brown-Chidsey & Steege, 2005; Kratochwill et al., 2007) as implementation fidelity is crucial to intervention success (see Ardoin et al., 2005; Kovaleski, 2007; VanDerHeyden et al., 2007). Topics including pertinent definitions, methods, frequency, and support systems are crucial to include in such training. Ehren et al. (2009) argued that a shared language is essential to implementation fidelity. Thus, specific learning outcomes include a common language and shared practices among practitioners. It is possible that there is a lack of a common understanding and language regarding fidelity that, once established, might yield different results. Ehren et al. (2009) suggested awareness, clarification, and common ground as avenues for developing a shared language. Kovaleski (2007) suggested that more research is needed to understand how treatment fidelity can be realistically accomplished.

In addition to monitoring for fidelity, special education teachers must be prepared for their impending, informal leadership roles. For instance, 29 (100.00%) phase one survey respondents indicated that they had at least a minor role in RTI, and 26 (89.66%) described their role as large or primary. Because special educators assumed a large role in the RTI process, it is crucial to develop their leadership skills in this area. Billingsley (2007) recognized the important role that special education teachers have in reforming schools. In the author's single case study, a special education teacher had an impact on the practices across an entire school district. Special education teachers are uniquely prepared to be leaders because their training includes opportunities to study collaborative processes, consider their own communication skills, develop knowledge about how to deal with conflicts, and work effectively with others. Billingsley (2007) calls for special education teachers to have an active role in the design and implementation of mentoring programs; the present study indicates the need for special education teachers to have an active role in the design and implementation of RTI models. Future research is needed to understand how effective district administrators support and develop special education leaders.

Responsibility for RTI. For the majority (83.33%) of the phase two interviewees, RTI was a special education effort. However, two interviewees reported that their schools were moving towards a collaborative effort, and one interviewee described RTI as a general education effort. Haar et al. (2008) found that RTI is viewed by stakeholders as an opportunity for school systems to move from a dual system (general education and special education) into a unified system that can more effectively meet the needs of all students. Federal, state, district, and school leaders should continue to clarify the misperception that RTI is the responsibility of special education and promote a unified approach through strategies such as differentiated instruction and inclusive education.

Preservice special education teacher preparation. The testimony of one teacher implies the efficacy of diagnostic prescriptive teacher training related to the implementation of RTI. Future research into the impact of the different avenues of teacher preparation on the implementation of RTI is needed. Findings could yield information helpful to leaders hiring special education teachers.

In this study, there was a similar pattern evidenced by phase one survey participants and phase two interview participants: about half of the special educators were the chairperson, coordinator/facilitator, or co-chair of the PSM team for their respective schools. Similarly, in a case study of three schools (Bartle, 2009), all three special education teachers stepped forward to take on informal leadership roles. This finding indicates the need for teacher preparation programs to prepare future special education teachers for assuming these leadership roles in a RTI model. By requiring coursework in both leadership and RTI, teacher preparation programs will equip preservice teachers for their impending careers. Hawkins et al. (2008) documented the success of preservice field experiences for special education undergraduates placed in a Kindergarten setting. Future research is needed to determine how school districts can partner with institutions of higher education to provide sites for clinical practice that can serve as both inservice and preservice training opportunities.

In this study, the researchers investigated the role of the special education teacher as it relates to implementation, fidelity, and professional development. The findings revealed that special education teachers have a large role in RTI implementation, they monitor fidelity indirectly, and they are competent in the majority of the skills required for successful RTI implementation. Armed with this research, school leaders will continue to grapple with challenging decisions regarding resource allocation, implementation fidelity, and consensus building as they implement RTI in their schools, district, and states. For instance, whereas the responsibility for RTI tends to be delegated to special or general education, how can educational leaders develop a unified effort? Also, if special educators are not directly monitoring RTI for fidelity, is someone else monitoring it? Or, is it not being monitored? To what extent are special education teacher preparation programs responsible for preparing preservice teachers to implement socioemotional and behavioral support, use curriculum based measurement, chart and graph student data, and use technology to implement RTI? Research on these questions and others that emerge will determine the longevity of RTI as a prevention and identification model for the construct of SLD.

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Appendix A

Survey: Perception of RTI Skills

1. Select one:
   - ☐ Male
   - ☐ Female

2. What is your race? _____

3. What is your current position?
   - ☐ Resource Teacher
   - ☐ Other (please specify):_____

4. Please Share your current areas of NC teacher licensure.
   - ☐ Specific Learning Disabilities
   - ☐ Exceptional Children: General Curriculum
   - ☐ Exceptional Children: Adapted Curriculum
   - ☐ Behaviorally/Emotionally Handicapped
   - ☐ Cross Categorical
   - ☐ Mentally Handicapped
   - ☐ Severely/Profoundly Handicapped
   - ☐ Other (please specify): _____

5. What is your employment status?
   - ☐ Full-time one school
   - ☐ Full-time more than one school
   - ☐ Part-time one school
   - ☐ Part-time more than one school

6. Including this year, how many years of teaching experience do you have? ____

7. Including this year, how many years have you been in your current position? ____

8. Including this year, how many years have you been implementing RTI? ____

9. Do you have experience using the discrepancy model (15 points difference between IQ and achievement) to identify students for special education?
   - ☐ Yes
   - ☐ No

10. Please describe you role in RTI implementation and/or monitoring at your school(s).
    - ☐ No role
    - ☐ Minor role
    - ☐ Some role
    - ☐ Large role
    - ☐ Primary role

Directions: Using the following scale, circle your answer.

1 = No Skill (NS)
2 = Minimal Skill (MS)
3 = Some Skill (SS)
4 = Very Skilled (VS)
5 = Very Highly Skilled (VHS)

11. To what degree do you have the following skills?	NS	MS	SS	HS	VHS
Make data based decisions	1	2	3	4	5
Implement evidence based interventions	1	2	3	4	5
Implement social, emotional, and behavioral support	1	2	3	4	5
Differentiate instruction	1	2	3	4	5
Collaborate with colleagues	1	2	3	4	5

12. To what degree do you have the following skills?	NS	MS	SS	HS	VHS
Use data to make decision about individuals and groups of students	1	2	3	4	5
Monitor RTI to ensure it is implemented as intended	1	2	3	4	5

13. To what degree can you perform each of the following steps when identifying the problem for a student?	NS	MS	SS	HS	VHS
Define the referral concern	1	2	3	4	5
Use data to define the current level of performance of the target student	1	2	3	4	5
Determine the desired level of performance	1	2	3	4	5
Determine the current level of peer performance for the same skill as the target student	1	2	3	4	5
Calculate the gap between student current performance and the benchmark	1	2	3	4	5

Use data to determine whether core instruction should be adjusted or whether supplemental instruction should be directed to the target student	1	2	3	4	5

14. To what degree do you have the following skills?	NS	MS	SS	HS	VHS
Develop potential reasons (hypotheses) that a student or group of students is/are not achieving desired levels of performance (i.e., benchmarks)	1	2	3	4	5
Identify the most appropriate type(s) of data to use for determining reasons (hypotheses) that are likely to be contributing to the problem	1	2	3	4	5
Identify the appropriate supplemental intervention available in my building for a student identified as at-risk	1	2	3	4	5

15. To what degree can you access resources (e.g., Internet sources, professional literature) to develop evidence-based interventions for the following?	NS	MS	SS	HS	VHS
Core curricula	1	2	3	4	5
Supplemental curricula	1	2	3	4	5
Individualized intervention plans	1	2	3	4	5

16. To what degree do you have the following skills?	NS	MS	SS	HS	VHS
Determine appropriate interventions for each member of a group of students: core, supplemental, or intensive	1	2	3	4	5
Ensure that the proposed intervention plan is supported by the data that were collected	1	2	3	4	5

Provide the support necessary to ensure that the intervention is implemented appropriately.	1	2	3	4	5
Determine if an intervention was implemented as it was intended	1	2	3	4	5
Select appropriate data (e.g., Curriculum-Based Measurement, DIBELS, EOG, behavioral observations) to use for progress monitoring of student performance during interventions	1	2	3	4	5

17. To what degree do you have the following skills needed to construct graphs for large group, small group, and individual students?	NS	MS	SS	HS	VHS
Graph target student data	1	2	3	4	5
Graph benchmark data	1	2	3	4	5
Graph peer data	1	2	3	4	5
Draw an aimline	1	2	3	4	5
Draw a trendline	1	2	3	4	5

18. To what degree do you have the following skills?	NS	MS	SS	HS	VHS
Interpret graphed progress monitoring data to make decisions about the degree to which a student is responding to intervention (e.g., positive, questionable, or poor response)	1	2	3	4	5
Make modifications to intervention plans based on student response to intervention	1	2	3	4	5
Use appropriate data to differentiate between students who have not learned skills (e.g., did not have adequate exposure to effective instruction, not ready, got too far behind) from those who have a learning	1	2	3	4	5

disability					
Facilitate a Problem Solving Team	1	2	3	4	5

19. To what degree do you have the skill to collect the following types of data?	NS	MS	SS	HS	VHS
Curriculum-Based Measurement	1	2	3	4	5
DIBELS	1	2	3	4	5
Access data from appropriate district- or school-wide assessments	1	2	3	4	5
Standard behavioral observations	1	2	3	4	5

20. To what degree do you have the skill to use technology in the following ways?	NS	MS	SS	HS	VHS
Access the internet to locate sources of academic and behavioral evidence-based interventions.	1	2	3	4	5
Use electronic data collection tools (e.g., PDAs)	1	2	3	4	5
Graph and display student and school data electronically	1	2	3	4	5

21. What percentage of your time is spent implementing and/or monitoring RTI?
☐ 0% ☐ 25% ☐ 50% ☐ 75% ☐ 100%

22. Please describe your role as it relates to implementing RTI at your school.

_____

_____

23. Please describe your role as it relates to monitoring RTI to ensure it is implemented as intended.

_____

_____

24. Please describe any changes in your role that you have experienced as a result of the shift from the discrepancy model to RTI.

_____

_____

25. What professional development activities have helped you most in implementing and monitoring RTI?

_____

_____

26. What professional development activities would you like to receive to help you implement and monitor RTI in the future?

_____

_____

27. Is there anything else that you would like to add? If so, use the space below to respond.

Thank you for your participation. If you have any questions, contact Leigh Gates at lkh8345@uncw.edu

Appendix B

Interview: Special Education Teacher Roles in Implementing and Monitoring RTI

Introduction:
Thank you for agreeing to participate in this interview. I appreciate your time and expertise.

1. Including this school year, how long have you been implementing RTI?

2. Do you have specific roles and/or responsibilities related to the implementation of RTI?
    a. What are they?

3. Do you have specific roles and/or responsibilities related to monitoring RTI implementation? [What I mean by monitoring is ensuring that it is being implemented with fidelity, or the way that it was intended to be implemented.]
    a. What are they?

4. Has your role as a Resource Teacher changed with the implementation of RTI?
    Yes Response:
        i. On a scale from 1 to 10, to what degree has your role changed?
            1. In what ways has your role changed?
                a. Can you describe specific examples?
            2. What effect has your role change had on students with IEPs?
    No Response:
        i. What are your roles and responsibilities?
        ii. I have a list of stakeholders. After I name each one, can you tell me if their role has changed and how it has changed?
            3. students, parents, general education teachers, general education teacher assistants, special education teacher assistants, school psychologists, speech language pathologists, occupational therapists, physical therapist, social worker, principal, assistant principal
        iii. I have a list of 5 different areas. After I name an area, can you describe your roles and/or responsibilities in that area, if any?
            4. Data Driven Decision Making
            5. Evidence-Based Instruction
            6. Differentiation
            7. Collaboration
            8. Socio-Emotional and Behavioral Supports **(GO TO Q9)**
            9.
5. In your opinion, what are the positive outcomes as a result of your role change?
    a. Can you describe specific examples?

6. In your opinion, what are the drawbacks as a result of your role change?
    a. Can you describe specific examples?

7. Have you received professional development that has assisted you in your role change?
    Yes Response:
        i. Can you provide specific examples of the professional development that addressed role change?
            a. Specifically, how did it help you with your role change?
        ii. Could it have assisted you more?
            a. In what ways could it have assisted you more?
    If not,
        i. Do you think that staff development focused on changing roles as a result of RTI would be beneficial?
        Yes Response:
            2. For what reasons do you think that it would be beneficial?
        No Response:
            3. For what reasons do you think that it would not be beneficial?

8. Is there anything else that you would like to share?

Thank you for taking your time to speak with me about RTI.

Appendix C

Observation Checklist: RTI: Monitoring for Fidelity

METHOD	**FREQUENCY**	**SUPPORT SYSTEMS**
Directly **observe and record** behavior	at a minimum **three times per year** (coinciding with the universal screenings)	Providing **ongoing professional development and support** **Allocating resources** that enable teachers to implement RTI.
Indirect assessment: **1. self-reports,** **2. interviews,** **3. student work samples, and** 4. **an interpretation of existing data**	Depending on factors such as: **1. Teachers' experience levels** **2. Teachers' requests for help or instruction** 3. **Outcomes of previous fidelity checks**	(Proactive) **Assess teachers' needs at the start** of the RTI implementation, and provide training and resources accordingly. (Reactive) Provide **additional professional development, in the form of coaching or mentoring** if the fidelity data indicates that a teacher is not implementing the RTI procedures correctly.

Nature and Causes of Locomotor Disabilities in India

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Abstract

A large proportion of disability around the world is preventable. Levels of disability in many poor countries can be reduced by achieving the international development targets for economic, social and human development. In this paper, the author studied the different contributory and causative factors of locomotor disability, disease states and the significance of poverty in relation to disability in Eastern part of India. Final data were collected from 200 people with locomotor disability by personally visiting each individual and their family at their home or institutes on the basis of personal interviews, discussions with them, their parents and teachers. Data were collected by situational sampling technique and tools used for the study were General information schedule (GIS) and Semi-structured interview schedule. The study revealed that various diseases which resulted in locomotor disability in some way were related to poverty. The nature and causative factors for various diseases which resulted in locomotor disability are malnutrition, unhygienic condition in the pre-natal and postnatal period of the mother as well as carelessness of the medical practitioners. Among the other associated significant indirect causes has been found to be illiteracy, ignorance of the parents, and various socio-cultural issues. However, general improvements in living conditions will not be enough but an integrated and specific steps are required for prevention of disability, ensuring that people with disabilities are able to fully participate in the developmental process and claim their rights as well as obtain a fair share of the benefits as full and equal members of society.

Nature and Causes of Locomotor Disabilities in India

There is no accurate data on the global number of people with disabilities in the world, but it is estimated that over 650 million people are disabled, out of which 520 million live in developing countries, 300 million are women and one person in 20 has a disability (United Nations Development Programme, 2010). The motor disability counts the second highest percentage of disability, it is perhaps the most neglected as it is often felt that this group does not need any special care or attention like the other categories (viz. visual, mental, hearing impaired) and thus characterized as an underrepresented group in the disability movement. In developing countries, 80 to 90 percent of persons with disabilities of working age are unemployed, compared to 50-70 percent in industrialized countries. Disability in the developing countries has a different cause structure from disability in the developed world. Although it is not a rocket science to determine

the contributory and causative factors, it is clear that in developing countries the proportion of disability caused by poverty is much higher than it is in developed countries. India with 17.5% of the world's population is the second most populous country in the world with population over 1.21 billion people (Census of India, 2011). India may have come across tremendous development in every sphere in the last 5-7 years which has attracted a lot of international gaze and envy but unfortunately about 22% of our population still remains below poverty line. In the prime areas there exists drastic disparity in rural and urban India in the family structure across the population on socio cultural parameters, household income and their educational status. It wouldn't be surprising if research on disability in rural and urban India might put forth the same prevalent observation that we often see between a developed and developing nations.

Poverty and Disability

From the socio-economic status it is found that most of the people with disability belong to below poverty line and rural areas. Although most countries acknowledge that disability has been associated with poverty (Yeo and Moore, 2003; Hoogeveen, 2005; Elwan, 1999) but few have the data and a relatively nascent methodology to investigate it. Research in rural India found that a higher proportion of households with self reported disabled members were below the poverty line, had lower total assets, smaller land holdings, and greater debt than households without disabled members (Harriss-White, 1996 and 2003). "The combination of poverty and disability is a fearsome one. Either one may cause the other, or their presence in combination has a tremendous capacity to destroy the lives of people with impairments and to impose on their families burdens that are too crushing to bear" (Acton, 1983). Poverty can cause disability with its associated malnutrition, poor health services and sanitation, unsafe living and working conditions. Conversely, the presence of a disability can trap people in a life of poverty because of the barriers disabled people face to taking part in education, employment, occupational mobility, social activities, and indeed all aspects of life (Mont, 2007). The ability to work is an important aspect of psychosocial functioning, which reflects social status, self-esteem and the opportunity to socialize (Yelin 2004; Panopali 2007). Together, poverty and disability create a vicious circle one leading to another and vice-versa and it seems there is no short pathway to come out of this vicious cycle. Down the years this has been a burning issue for researchers from various discipline be it health science, nutrition experts, educationists, sociologists, economists and many more.

Lwanga-Ntale (2003) reported that the current disabled population is more likely to be poor and their poverty is not only limited to their generation but passed on to their children. The infant mortality rate in India as document is 30.15 deaths/1000 live births (CIA, 2009), which is over six times that in the U.K. 4.85 deaths/1,000 live births. The prominent reasons so far has been found to be diseases of various kinds, malnutrition, unhygienic condition/ environment in the pre-natal and postnatal period of the mother as well as carelessness of the medical practitioners. Among the other associated significant indirect causes has been found to be illiteracy, ignorance of the parents, and various socio-cultural issues.

Women's nutrition aspect and disability

Rural parents are not familiar with the nutrition aspects or maternal care and thus, sick mothers gives birth to sicker child. Micronutrient deficiencies in mothers place their infants at risk, since the fetus receives essential nutrients from the mother raising the infant's risk of low birth weight

(defined as a birth weight of less than 2,500 grams) and early death (Ransom and Elder, 2003). Even mild maternal malnutrition can impair fetal development. Low birth weight is the strongest determinant of a child's survival, which account for the majority of infant deaths in the first week of life. A variety of nutritional deficits, including iron deficiency and insufficient caloric intake, can increase a woman's chances of having a low birth-weight infant (Ransom and Elder, 2003). In developing countries every year a staggering figure of approximately 200 million children under the age of five suffer from stunted growth as a result of chronic maternal and childhood under nutrition (UNICEF Report, 2009). Those infants who survive tend to suffer with a higher burden of disease, which not only damages their ability to work during adulthood but also their cognitive impairment, developmental problems, and a greater susceptibility to illness. Infants born to mothers with anemia are at greater risk of low birth weight, premature birth, and impaired cognitive development (Nokes, et al., 1998; Rush, 2000).

Mothers who do not consume enough iodine are more likely to miscarry or have a stillborn child. The physical growth and mental development of the children who do survive is often severely impaired, and children may suffer irreversible mental retardation (United Nations, 2000). Folate deficiency at the time of conception can cause neural tube defects in infants, and maternal zinc deficiency is associated with preterm delivery, low birth weight, and increased infant mortality. Other B vitamins, including B6 and B12, are important for ensuring children's healthy neurological development (Ransom and Elder, 2003). In Indian context malnutrition is an extremely complex, inter-generational phenomenon with multiple causes, such as micronutrient deficit, infection and disease; early marriage of girls, frequent pregnancies, ignorance regarding proper maternal and child care, inadequate health services for women and children, low access to safe drinking water and hygienic sanitation. All these factors points towards one prominent sole cause of malnutrition, which is poverty.

A large proportion of disability around the world is preventable. Levels of disability in many poor countries can be reduced by achieving the international development targets for economic, social and human development. However, general improvements in living conditions will not be enough. Integrated and specific steps are required for prevention of disability, ensuring that people with disabilities are able to fully participate in the developmental process and claim their rights as well as obtain a fair share of the benefits as full and equal members of society. This paper assesses the different contributory and causative factors of disability, disease states and the significance of poverty in relation to disability.

Objectives of the Study
To study the nature and causes of locomotor disabilities in Eastern part of India

Methodology

Sample
The sample was restricted to locomotor disabilities mainly. Data were collected by situational sampling technique from different sources namely educational institutes, vocational institutes, vocational rehabilitation centers, government and non government NGO's, employment exchanges, hospitals etc. The Eastern part of India (West Bengal) was used for the study due to

its significance as the most crowded state and because it has been reported as having a high number of people with locomotor disabilities (Census of India, 2001). The study is the result of a project involving 200 (100 male and 100 female) with locomotor disabilities. The age range of the subjects was 18 years to 20 years. The nature of disability includes amputee, burn, polio, or bone anomalies, and locomotor disabilities due to various diseases etc with 45% to 90% disability as certified by the government hospitals in India. Figure 1 shows the nature of disability in the study.

The final break of the samples is as follows:

Persons with Locomotor disability	**Sample Size**
Male	100
Female	100
Total	200

Tools

- **General information schedule (GIS):** The *first* section comprised of demographic characteristics of the subjects such as age, gender, habitat etc.
- **Semi-structured interview schedule:** This comprised of information about their nature, cause and severity of disability.

Data Collection and Statistical Treatment

At initial stage tracking these locomotor disabilities was really a cumbersome affair, which was done by taking help from various special institutes and special employment exchanges spread over different parts. After collecting the addresses the survey packets were made containing an informal cover letter and self-addressed, stamped envelope and mailed to 1000 randomly selected potential respondents. Instructions were provided for those needing help and they were directed to consult the author for assistance. Only 250-300 locomotor disabilities responded via phone or letters. Final data were collected from 200 locomotor disabilities by personally visiting each individual and their family at their home or institutes on the basis of personal interviews, discussions with parents, teachers and the disabilities person concerned. Some of the institutes also arranged for some interviews to be taken at the spot. Quantitative and qualitative analyses were done for the study.

Findings and Discussion

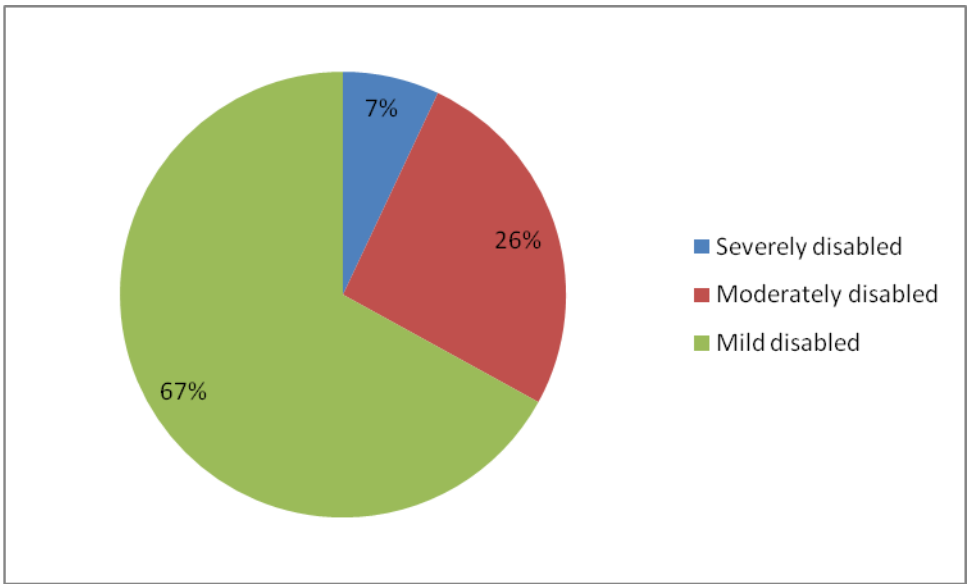
Informants were asked questions on the type of locomotor disability they experienced.

Severety of Disability

The samples in the study comprised of having 45% to 90% disability as certified by the medical practioners. During the interview with the people with physical disability and their parents it was found that percentage of disability as assigned by the medicational practioners, board of doctors in the government and non government hospitals were not without flaws and raised much dissatisfactions and incongrugence in many cases. According to some parents the percentage given to their ward after medical examinations was not a very good way to justify their ward's

disability. They also had to go from time to time for a re-evaluation of the severity of disability as assigned.

Figure 1. Severety of Disability



For data analyses a relative comparision was made by dividing them on three categories on the basis of the percentages assigned by the doctors viz as mild disabled- below 55% disability, moderately disabled- 56% to 69% disability and severely disabled- above 70% disability. In the study 67% of the people with disability belonged to mild disabled category, 26% were moderately disabled and about 7% were found to be severely disabled as depicted in figure 1. In India this certificates indicating their severity is very significant as the facilities and provisions like travel grant, financial assistance for the one accompanying are provided on the basis of the severity of disability or in other words the category or percentage assigned to them so parents and also the person concerned had their own grieverance in regard to this.

Location of Disability

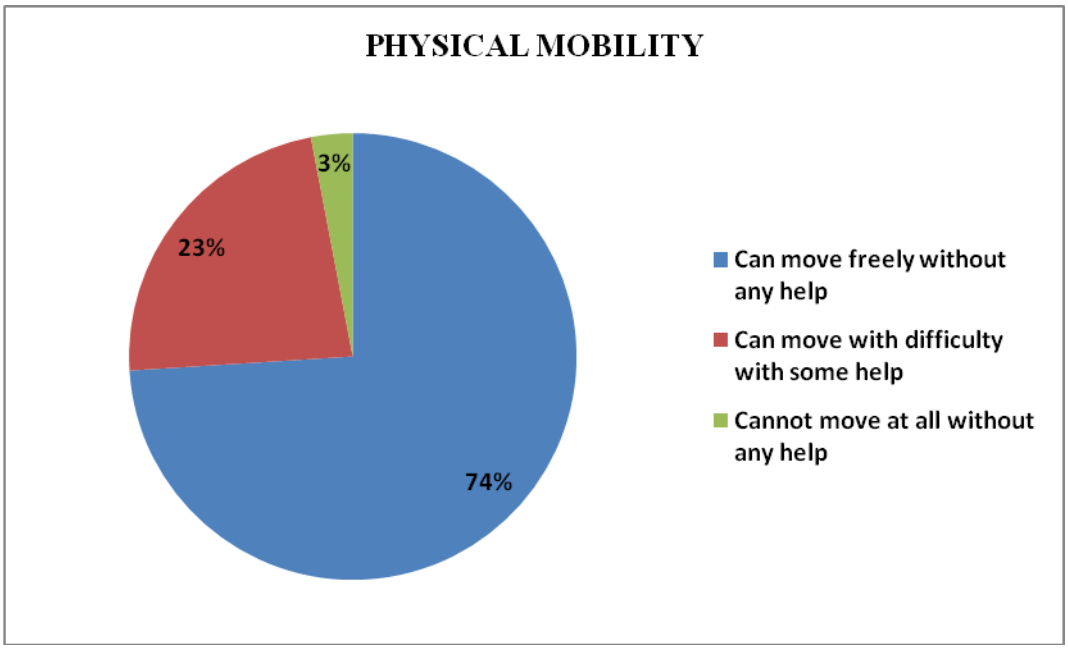
In the study it was found that about 75% of the disabilities were located in the lower limbs (either one or both) and about 17% were affected in both upper and lower limbs. Only about 6% of the cases were found to be related with upper limbs (either one or both) and just 2 % were spinal cord related impairment.

Physical Mobility Status

With the help of assistive devices/aids (like wheel chair, crutches, calipers), about 74% of the people with physical disability (Figure 2) reported that they can move without any physical companion. About 23% of the people with physical disability need both assistive devices/aids and somebody to physically assist for their mobility. There are 3% of the people with locomotor disabilities who cannot move or perform any activity without a constant companion. This means these 3% of the people with physical disability are totally dependent on others for their daily

activities and survival. Inability to perform self-care tasks or activity of daily living (ADL) without help is widely used in social surveys as a measure of physical dependency.

Figure 2. Physical mobility



The analysis of the data for various contributory and causative factors of disability revealed that strikingly 46% (Figure 3) of the people with locomotor disabilities to be polio victim, 10% did not knew much about their own specific nature of disability although they had locomotor problem. Congenital amputee and lack of growth in the limbs (one/ two/ both) after birth accounted for 4% each; where as another 4% cases resulted from incidences of burn during some accident. In spite of so many initiatives taken up by the government polio still remains the single largest cause of locomotor disability. It gives us the indication that we need to look into the other issues which are acting as a stumbling block and preventing the government initiatives to funnel down to the local masses. Although a comparative analysis between 2002 and 2010 gives an indication that the number of people being given the polio vaccination has increased from 32% to 54% which is of course a positive indication (Halder, 2008, 2009).

Socio-economic Characteristics

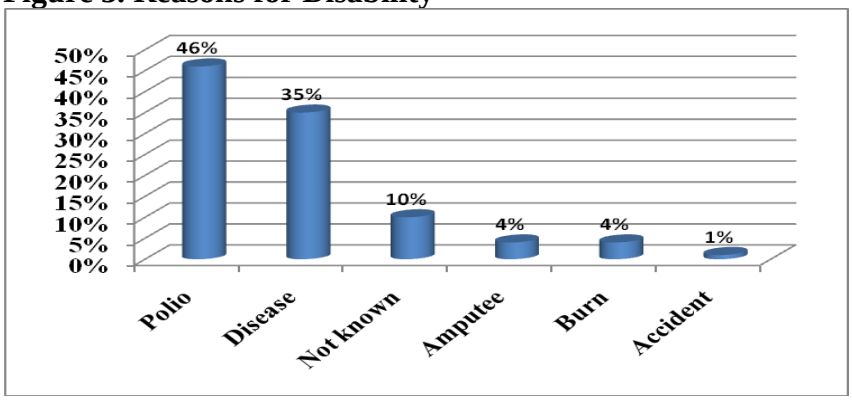
Our data revealed that about 78% of the people with disabilities belong to the moderate-lower income group. Large percentage of population lives in rural or semi urban areas were daily wage earners. About 53% of the challenged people belong to the lower income group. Large percentage of this population lives in rural areas. Poverty is the greatest cause and effect of disability. Malnutrition resulting from poverty is the greatest single cause of disability. Girls in rural areas are married at a very early age and thus they are not in a healthy state for multiple deliveries. Our data indicates that women who have greater control over household resources tend to be healthier and better nourished as do their families because they tend to spend more on the nutrition, health, and well-being of their households. In some areas, especially in South Asia, due to cultural norms pregnant women's are discouraged from eating nutrient-rich foods that are

thought to be harmful or taboo. To avoid the difficult labor women may be encouraged to consume less food during pregnancy so that they will have smaller babies, believing that smaller babies will pass easily through the mother's pelvis (Brems and Berg, 2000).

The analysis of the educational status of the parents of the locomotor disabled person revealed that mostly they belong to low education category with many even illiterate, thus orthodoxy, superstition engulfed their mind which made an impact on every aspect of their life. The lack of medical care in the initial phases of pregnancy was also a reason for this cause. A burning example of the orthodoxy, superstition and unawareness of the parents may be Mira Das, severely challenged with 90**%** disability in both the upper and lower limbs. She hails from very poor socioeconomic condition. She was not given any vaccination. When she was detected with polio the doctors advised for medicine but her mother did not knew anything about polio and its consequences. Being unsatisfied she called local quack of her village who poured hot oil on the young baby in order to cure her. Immediately she developed blisters all over her body which was sufficient enough to take a toll of the child's condition. Her illiterate parents later on realized their fault and provided all sort of support but it was too late. It appears that poverty and low education was the root cause of disability in most cases.

Disability due to Diseases

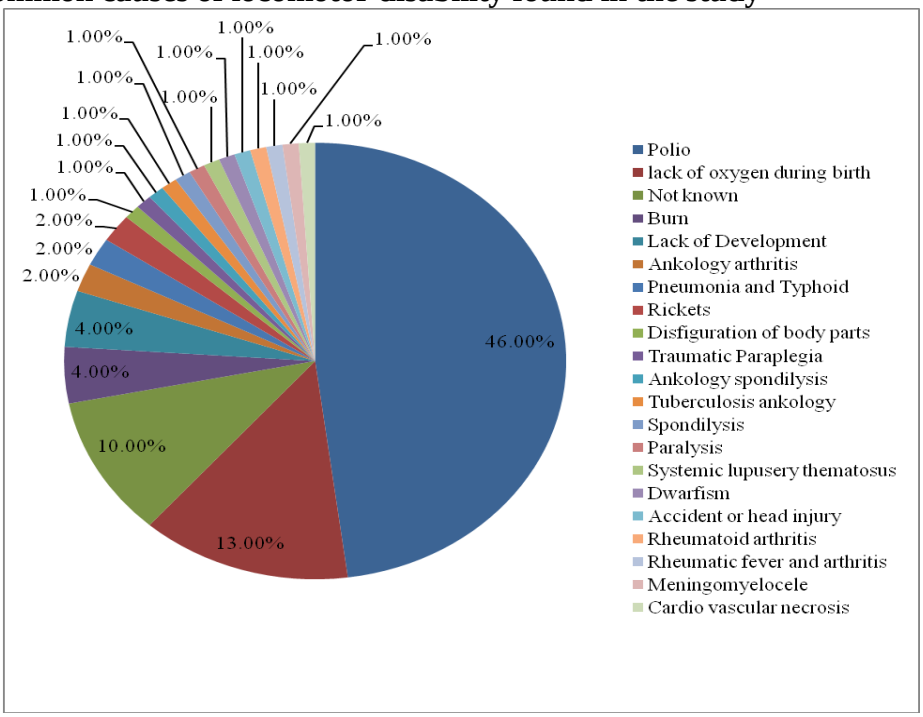
Figure 3. Reasons for Disability



Strikingly 35% of the people with locomotor disabilities was due to congenital and various other diseases (Figure 3). During our study, we dig deeper into the nature and causative factors of these diseases which resulted in locomotor disability and found that in some way these diseases are related to poverty. The likelihood that these disabled people will experience poverty is greater than the able-bodied population. The obvious reasons which can be attributed are exclusion and discrimination; unequal access to food, health care and education; and reduced capabilities for work. It is quite shocking to note that 13% of locomotor disabilities in the study were due to lack of oxygen supply during delivery of the child. Rickets caused 2% of locomotor disability in the initial stages of development and another 2% were due to Ankology arthritis. Among the other reasons were 1% each due to dwarfism, accidents, paralyses, systemic lupusery thematosus, ankology spondilysis, traumatic paraplegia, disfiguration of body parts from birth, cardiovascular necrosis, meningomyelocele, rheumatic fever and arthritis.

The NSSO Survey on Disability (2002) reported about 45% of the locomotor disability were attributed to deformity of limb, more than 20% to dysfunction of joints of limb, another 15% to paralysis, 10% to any other deformity of body and 8% to loss of limbs. Deformity of limb was more prevalent in the rural sector whereas a higher percentage of persons were locomotor disabled due to dysfunction of joints of limb. The present study reveals that there should be more options in order to explore the wide range of type and causes of locomotor disability prevalent in society, the complexity of which seems to be increasing with years.

Figure 4. Common causes of locomotor disability found in the study



The ability to work is an important aspect of psychosocial functioning, which reflects social status, marital status, self-esteem and the opportunity to socialize. The cost of work-related disability is large since it affects their quality of life and ability to work, resulting in substantial direct and indirect costs to the individual and society. Although most of the diseases in our study accounts for only 1-2%, but they are significant if we correlated our sample size 200 with the current 1.21 billion population of India. The diseases that we found in our study (Figure 4) which resulted in locomotor/physical disability have been categorized in the subsequent section for ease of understanding.

Disability due to autoimmune diseases and abnormality in bones and joints

The indirect costs related to disability greatly exceed the direct cost of medical care. Rheumatoid arthritis (RA) is a chronic, systemic, inflammatory, progressive disease occurring in about 0.75% of the adult population in India (Malaviya, 1993). In our study all these factors accounted for 2% in total (Figure 4). Arthritis or rheumatism is a group of conditions involving damage to the bones, joints, muscles, tendons. Arthritis is gender biased; with 60% of the people with arthritis are women. A study designed to assess the health-related quality of life of patients with RA in India affirm the need of awareness among the population regarding improvement in the quality

of life with early intervention needs to be emphasized (Mathew, 2009). According to a study conducted in 2010 (Sokka, 2010) among 32 countries, 16 with high gross domestic product (GDP) (>24K US dollars (USD) per capita) and 16 low-GDP countries (<11K USD), was analyzed for work and disability status at onset and over the course of rheumatoid arthritis (RA) and their clinical status. It was concluded that work disability remains a major problem and high among people with (RA) during this millennium. In low-GDP countries, people remain working with high levels of disability and disease activity with poor clinical status than patients who had stopped working in high-GDP countries. Cultural and economic differences between societies affect work disability as an outcome measure for RA. There are different forms of arthritis such as osteoarthritis/spondilysis, rheumatoid arthritis, fibromyalgia and related autoimmune diseases.

Our study depicted 1% of the people with locomotor disabilities were suffering from Ankylosing spondylitis (AS), which is a long-term disease that causes inflammation of the joints between the spinal bones, and the joints between the spine and pelvis, which may limit work ability or restrict vocational options and affect interpersonal relationships. A research on US population (Ward, 2008) indicates that AS has important influences on family life as well as on work ability. The risk of never marrying was similar among those with longstanding and earlier AS and among men and women, indicating that having the diagnosis alone may be an important mediator of this outcome. Patients with AS often have concerns about having their children who might also be affected by AS. The study found that pregnancy and childcare concerns are likely more important factors influencing the decision to have children than concerns about passing AS to future generations.

Traumatic paraplegia results from fracture dislocation of the spine and has significant worldwide health and social impact. We found 1% of the people with locomotor disabilities were suffering from Traumatic paraplegia. Spinal cord injury has an incidence between 10.4 and 59 individuals per million inhabitants per year (Wyndaele and Wyndaele, 2006). The injury damages the spinal cord, and consequently always affects both sides of the body. While some people can walk to a degree, many are dependent on wheelchairs or other supportive measures. Currently, only limited treatments to enhance spinal cord function are available in the clinical setting (Hawryluk et al., 2008). A hospital-based study from India (Agarwal, 2007) about the overview of the characteristics of patients with spinal injuries in this hospital revealed that the ratio of men to women who sustained spinal injuries was 3.6:1, with maximum number of patients was in the age range of 20-39 years.

In autoimmune diseases such as systemic lupus erythematosus, our own the immune system attacks the body's cells and tissue, resulting in inflammation of joints and tissue damage. The disease occurs nine times more often in women than in men, especially in women in child-bearing years ages 15 to 35 (Wallace, 1997). A study from south India depicted that patients often experience long-term morbidity that can adversely affect quality of life and ability to work, resulting in significant burden on the individuals and their family members (Robert, 2006). According to the American Autoimmune Related Diseases Association, Inc. (AARDA), autoimmune disease is now the third major category of illness in the United States and many industrialized countries, following heart disease and cancer, and it is the fourth leading cause of disability among women in the United States.

Dwarfism itself is not a disease. A dwarf is a person of short stature with arms and legs short in comparison to your head and trunk. According to a recent study by Dr. Rauch (2011) their mental development is usually borderline or within the low normal range but cerebrovascular events that are common in childhood can result in significant cognitive impairment and cerebral palsy. We found 1% of the people with locomotor disabilities were suffering from Dwarfism. Achondroplasia is a genetic condition that causes about 70 percent of all dwarfism.

Diseases that can be related to malnutrition, unhygienic condition/environment or illiteracy
The nature and causative factors of the diseases which resulted in locomotor disability due to malnutrition, unhygienic condition/environment or illiteracy in some way are related to poverty. Polio is a highly infectious disease caused by a virus, which invades the nervous system, and can cause irreversible paralysis (usually in the legs). There is no cure for polio; it can only be prevented by giving Polio vaccine. Since the Global Polio Eradication Initiative was launched, the number of cases has fallen by over 99% from an estimated 350 000 cases in more than 125 endemic countries in 1988 to 1288 reported cases in 2010 (WHO, 2010). The analysis of our data revealed that staggering 46% (Figure 3 and 4) of the people with locomotor disabilities to be polio victim.

We found 1% of the people with locomotor disabilities were suffering from Myelomeningocele, which is a birth defect in which the backbone and spinal canal do not close before birth. Some defects can be repaired surgically, but brain or spinal cord damage is usually permanent. As the life expectancy of these individuals' increases, Dr. Dicianno et al. (2008) reviewed the last 20 yrs of literature pertinent to the rehabilitative care of this, summarizing current evidence-based practice, key areas in which scientific evidence is lacking and future direction of research. Low levels of folic acid in a woman's body before and during early pregnancy are thought to play a part in this type of birth defect. The vitamin folic acid (or folate) is important for brain and spinal cord development.

Rickets is a disorder caused by a lack of vitamin D, calcium, or phosphate. It leads to softening, weakening and deformity of the bones. Vitamin D is absorbed from food or produced by the skin when exposed to sunlight. Not getting enough calcium and phosphorous in your diet or malnutrition can lead to rickets. A study by Balasubramanian et al. (2003) showed that in India, perhaps due to cultural habits limiting exposure to sunshine pubertal girls are most at risk of vitamin D-deficiency rickets. For calcium-deficiency rickets, in India, there is evidence that young children need more calcium and 1000 mg of calcium as a daily treatment was found to be adequate. In our study 3% of the people with locomotor disabilities were due to Rickets and other disfiguration of body part. Rickets is among the most frequent childhood diseases in many developing countries.

Rheumatic fever (RF) is an inflammatory disease that may develop after an infection with *Streptococcus* bacteria. Although it has become much less common in developed country but it is still a large problem in many developing countries. The disease can affect the heart, joints, skin, and brain. The impact of the disease through disability, premature deaths and economical losses is substantial at the national level. There are plethora of literature in Indian medical journals describing an undeniable relationship between the incidence of RF and living standards. The parts of the country with the highest prevalence today are also those regions with the poorest

healthcare infrastructure (Routary, 2003; Stollerman, 2001; Tandon, 2004). Rheumatic fever mainly affects children ages 6-15. Rheumatic fever used to be a leading cause of death and disability in children. Our data revealed that 1% of the locomotor disabilities were due to Rheumatic fever.

Conclusion

The United Nation has established Millennium Development Goals in 2000 to improve women's and adolescent girls' nutrition (Ransom and Elder, 2003). The objective is to challenge nations to create effective interventions not only improves the health of girls and women, but far-reaching intergenerational effects that can help countries develop. Public health systems should encourage households to meet the dietary needs of women and adolescent girls throughout their lives, and ensure their access to high-quality health services, clean water, and adequate sanitation. Adequate nutrition is important for women not only because it helps them be productive members of society but also because of the direct effect maternal nutrition has on the health and development of the next generation. There is also increasing concern about the possibility that maternal malnutrition may contribute to the growing burden of cardiovascular and other non communicable diseases of adults in less developed countries.

Preventing malnutrition requires a political commitment. Policymakers should ensure that girls have access to education. Our education curriculum should focus on increasing women's knowledge about nutrition and their decision making power. Such policy measures can help increase women's age at first pregnancy, an important determinant of maternal health and child survival, and can encourage women to space their births. The government should record the prevalence of birth weight, the number of children who are underweight and how many of them are girls, anemia prevalence among adolescent girls and women of reproductive age from time to time. Nutrition is affected by a complex set of factors, governments and programs are most likely to succeed in addressing malnutrition if they approach the problem from a variety of angles.

Women who have greater control over household resources tend to be healthier as do their families because they tend to spend more on the nutrition, health, and well-being of their households. Microfinance programs provide women with small loans for their businesses, are another way to raise women's status and improve their ability to provide for themselves and for their families. In Ghana, for example, an innovative health program combined health education with access to microfinance. Women received village banking services, including access to loans, as well as education about breastfeeding, child nutrition, diarrhea treatment and prevention, immunization, and family planning practices. An assessment conducted three years after the program began found that participants' 1-year-old children were healthier and better nourished than those of nonparticipants (World Bank, 2002).

Apart from diseases that can be related to malnutrition, unhygienic condition or illiteracy; there are other diseases that can be lead to disability such as autoimmune diseases; and abnormality in bones and joints. These problems may limit work ability or restrict vocational options for the patients. The economic costs associated with work disability in patients can be substantial, and indirect costs due to lost wages are greater than direct medical costs. The ability to work is an important aspect of psychosocial functioning, which reflects social status, marital status, self-

esteem and the opportunity to socialize. The presence of a disability can trap people in a life of poverty because of the barriers disabled people face to taking part in education, employment, occupational mobility, low family income, living in rural unhygienic conditions, social activities, and indeed affect all aspects of life. In India the awareness among the population regarding improvement in the quality of life with early intervention needs to be emphasized. The physical damage caused by the illness can well be followed-up and curtailed. However, the psychological and social morbidities very easily evade the eyes of the clinician. Thus, improved work disability outcomes will require attention to social, economic, and political issues and wider physician and public education in addition to improved medical management of the disease. An integrated approach is required, linking prevention and rehabilitation with empowerment strategies and changes in attitudes.

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The Over Identification of Minority Males in Middle School Special Education Programs: Examining the RTI Model

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Abstract

The purpose of this paper is to provide insight into the referral and identification rates of minority students with regard to special education. Research has shown an evident over identification of minority students in special education programs, particularly those classifications considered more severe. Several researchers identified factors such as teacher perception, teacher practices, and student factors that all contribute to the disproportionality of minority students in special education. Response to Intervention has been identified as a possible solution. Many indicate that specific schools that have implemented RTI have noticed a decrease in the disparity in the referral rate of the racial subgroups. An overview of the RTI model frequently used by these schools was reviewed, and the specific effect on the referral rate of minority students to special education was also discussed. This paper also highlights recommendations and considerations for educational leaders who wish to resolve the issue of minority over identification in special education.

The Over Identification of Minority Males in Middle School Special Education Programs: Examining the RTI Model

"Nationally, African American students show up in certain special education categories in numbers that so exceed their proportion in the general education population. Some experts are calling it a crisis" (Milloy, 2003). Additionally, African American males are referred to special education more frequently than their white counterparts (NEA, 2007). The higher frequency of special education referrals, assessment, and placement has caused concern about the issue of minority male over identification in special education.

On average, minority males, specifically African American males, are three times more likely to be referred to special education than any other sub group in a school setting (National Research Council, 2002). Although many researchers say that minorities are being over identified in special education, there are disproportionately low numbers of minorities being referred to Gifted and Talented programs. Gifted and Talented programs fall under the special education umbrella because it provides a special program to the Gifted and Talented population (Anguiano, 2003). The largely disproportionate numbers of African American males referred to special education has caused people to pay attention and advocate for change (Abidan, 2002).

As recent as 2001, African Americans made up more than 59 percent of students labeled as Mentally Retarded and 44 percent of the students diagnosed as Emotional Behavioral, even though they only made up 23 percent of the student body in an Alabama middle school (Milloy, 2003). Similar patterns of over representation are found across the nation (NEA, 2007).

Racial disparity in special education is an issue because educators need to ensure that educational decisions are made equitably. Students should be placed in the least restrictive environment (Harris-Murri, King, & Rostenberg, 2006). The use of an RTI model is encouraged in order to support this practice. After implementing RTI, several schools have noticed a marked decline in the number of special education referrals, and an increase in the number of students that are successful with general education classroom interventions (Naglieri and Crockett, 2005). This suggests that a comprehensive implementation of the RTI process may provide the solution. This paper will explore this possibility.

Student Assessment and the Referral Process

Student Assessment, which includes the administration of standardized tests, use of anecdotal reports, as well as, a variety of other assessment strategies, can be seen by some as culturally inappropriate (Anguiano, 2003). However, these are the methods used by educators to assess a child for the special education program. The discrepancy analysis has most frequency been used to identify children with Specified Learning Disabilities (Dykeman, 2005).

When considering the use of a tool for assessment purposes, it is important to consider the norm group with which it was originally administered (Clopton et al, 1993). If the assessment is biased against the group that it is being used for then that is discriminatory toward the student that is taking the test. Further, if a teacher offers anecdotal notes as an assessment tool in the special education referral process, then these measures may be biased as well. According to the Metropolitan Center for Urban Education, children of color are often seen as "disrespectful" by teachers when within the parameters of their culture, they are not intentionally being disrespectful at all (MetroPolitan Center for Urban Education, 2008). The perception toward these students becomes skewed depending on the teacher's perceptions of the child and their cultural group, and their judgments about that particular group's ability (Ladson-Billings, 2002). Therefore, anecdotal notes are frequently an unreliable source of data that is frequently used during the special education referral process.

"The *Individuals with Disabilities Education Act* (IDEA) 2004 requests evaluators to consider the contribution of one's culture and primary language upon one's test performance, prior opportunities to acquire skills, motivation to perform, as well as the contribution of any hearing or vision impairment upon such performance" (Dykeman, 2005).

Many of the high-stakes tests that are administered to minority students contain language to which these students have not been exposed. Again, the norm group used to create these assessment tools may have been comprised of children that are very different than the students actually being tested. The use of scores obtained from these assessments may be problematic because they do not accurately reflect the child's ability, but only report the child's performance on the specific test which was taken. This is only a single negative consequence of high-stakes/standardized testing (Christensen et al., 2004). The assessment process is not "fool-proof", and there have been efforts to improve it, but not much progress has been made (Naquin, et al., 2003).

The assessment process is being looked at as a factor in the racial disparity that exists in special education. The aspects of the assessment process that are biased result in a high number of African American males being referred for suspected disabilities, and coincidentally, a large number of minority students being kept out of the Gifted and Talented education programs, which is also a special program for children with exceptionalities (CDE, 2008).

While a variety of assessment strategies are used in the RTI model, the most frequently used are functional assessments, authentic assessments, curriculum-based assessments, and play-based assessments. Utilizing these modes of assessment can serve as a pre-intervention strategy in itself. (Stoiber, 2006). The educator assessing the student, or receiving the assessment information, can then obtain detailed information as to the students' area of weakness. This concentrates the efforts to intervene successfully with a students' deficits.

Special Education Categories

Students who are assessed for special education, and receives an eligibility, can fall into one or more of 11 different categories. According to IDEIA 2004, a student may either be diagnosed as having developmental disabilities, mental retardation, specific learning disabilities, speech or language impairments, emotional disturbances, orthopedic impairments, autism, traumatic brain injury, or other health impairments.

In order to consider a child for special education, the child must display characteristics typical of a child within the specific category, but must also perform significantly lower than his peers on other academic assessments. The child must fit the criteria for the diagnosis and be in need of additional academic support. (IDEIA, 2008).

The Issue of Minority "Over Identification": Contributing Factors

Teacher Perceptions

The researchers in online books and other resources generally believe that teacher perceptions of student demographics play a major role in the decision to refer (McIntyre & Tong, 1998). Teacher perception of minority students is a complex issue to address and explore. This is primarily difficult to explore because the research gathered is vastly subjective. Clopton et al. (1993) states, "the reason for such incompatible findings may be related to the methodology of studies." For example, many times anecdotal and vignettes are frequently used and both can be considered an unreliable source. The number of minority male students referred, then placed into special education programs have been consistently disproportionate. "Researchers have investigated the impact of a student's race on teachers' judgments. The findings regarding the influence of race on the referral process have slightly varied" (Abidan & Robinson, 2002). Within this slight variance there still exists a noticeable problem with regard to the rate at which minority males are labeled as "special needs."

Many investigators have supported the argument that not only are African American students found to be referred to special education more, but are also diagnosed with more severe forms of disabilities (i.e. Educable Mental Retardation, Emotional Behavioral Disorder) more frequently

than white special education students with comparable IQ and achievement scores. (Milloy, 2003).

Other researchers found no significant difference in the number of white or non-white students referred to special education (Kohler et al., 2006). During a recent research endeavor, Nancy Hariss-Murri and colleagues found that teachers not only tend to misinterpret minority students' behaviors, but also administer culturally biased assessments that produce false results (Harris-Murri, King & Rostenberg, 2006). Some teachers also perceive the white student as more capable of grasping the concepts taught than minorities. As a result the white students are offered more encouragement and more opportunities within the school setting. This biased attitude typically leads teachers to be hesitant to refer the white child to special education (Ross & Salvia, 1975).

Racial bias has affected teachers' views of behavior, judgment of performance, and the individualization of instruction. Teachers that belong to the dominant group have frequently referred to minorities as deviant or inferior (Lorde, 1983; Ladson-Billings, 2002; MCUE, 2008).

In *The Skin that We Speak,* by Gloria Ladson-Billings (2002), the concept of "permission to fail" is introduced. As a result of teachers' perception of minority students as incapable or unwilling to perform many of the tasks assigned them, some teachers have inadvertently given their students the option to fail. While doing field research, Ladson-Billings (2002) further explains that she "witnessed several teachers give their minority students 'permission to fail' each day." They seemed to make it easy for the child to refuse to try a task or refuse to make corrections to an assignment. Secondly, Ladson-Billings noted that the white students in the class got more direct instruction and more frequent encouragement (both verbal and non-verbal) to keep trying until they were successful.

Cultural Behavioral Norms

A secondary factor that may impact the over identification of minority males in special education is the cultural behavioral expectations for minorities. What is considered normal to students in this group does not usually meet the norms of the dominant group. Many minority students are frequently judged by teachers based on existing norms for the middle class, white child. Teacher beliefs about themselves and their perceptions of students have been linked to a number of teacher behaviors and judgments about students, including the decision to refer to special education (Abidan & Robinson, 2002).

Researchers have found that teachers have seemed to interpret students' behaviors differently (MCUE, 2008). Their judgment of this behavior and their stress level associated with the judgment will be impacted by their perception of the particular student (Pianta et al., 1995). Generally, these researchers found that the teachers involved in this particular study experienced the most distress with minority students who had behavioral issues because they perceived the behavior as particularly abnormal. The deviance that is normally described by teachers in their special education referrals for emotional and behavioral concerns is a subjective report of what the teacher considers deviant behavior, and their reaction to it.

"Street corner behavior", which may be considered as normal by some minority student (Foster, 1986), may be perceived by many educators as deviant or disruptive. Many general education teachers report that they do not feel adequately trained to work with students from a variety of cultural backgrounds (Thompson, 2004).

Teacher Experience & Training: The factor of individualized instruction

As a result of desegregation, educators have been faced with the challenge of providing instruction that effectively reaches both minority and non-minority students. Frequently, it is found that many instructors are ineffective at instructing minority students, and as a result, these students frequently fail to acquire the basic skills and concepts necessary to be successful. (Kozleski, 2005). When individualized instruction is not provided for students, educators run the risk of having some students remain unsuccessful. Unfortunately, many educators do not see the connection between the academic failure of minority students and their method of instruction. (Thompson, 2004). Some educators do not feel that the students will benefit from a different teaching strategy/approach, or from a few basic interventions. It is frequently the case that educators tend to resolve academic or behavioral concerns with minority students by referring these students to special education for services. (McIntyre & Tong, 1998).

McIntyre and Tong (1998) tout that the most integral factor in the student referral to special education and the disparities that occur within this realm can be most greatly impacted by what occurs between the student and teacher in the classroom. What occurs during this exchange impacts students' achievement; and resultantly a teacher's decision to refer a child to special education. Pianta, Rollins & Steinberg (2005) also agree that an individualized instructional strategy, particularly for minority students who may live in a different social context than which occur in school, is imperative. According to the National Education Association, "teachers must be equipped with strategies to teach diverse students. Teachers must also be made aware of cultural nuances and given tools to intervene early in the life of an at-risk minority child. Then the likelihood is increases that these kids will succeed, without the need for a referral to the special education program." (Milloy, 2003).

Teachers must give more individualized instruction in their daily classroom lesson delivery. They may not use simple interventions such as teacher proximity or problem reduction to reach hard-to-reach students, but must now offer more specific interventions. (Milloy, 2003). Teachers can no longer try basic interventions, and then refer a child to special education, which had been previous practice (Dykeman, 2005). Through the new practice, teachers must now offer more; more intervention and opportunity. This process of providing students with more interventions and allowing time for the student to respond to the intervention is the underlying notion for Response to Interventions (RTI). (Naglieri and Crockett, 2005). While the decision to create such a strategy had been made on a federal level, it was an actual school system that piloted the innovation. Putting this concept into action was first accomplished by the district offices of Lee County in Alabama (National Research Council, 2002). "Many consider this an unlikely leader in the effort to reform the special education referral process. Alabama's effort to make special education referrals racially equitable is surprising to many leaders in education because Alabama has been considered a source of racial strife for years (Milloy, 2003)." Whether it be that the change was initiated by this district because of internal disparities, or if the

efforts were an attempt to remain leaders in innovation for schools, it is still important to note what Alabama has put into effect to diminish problems of racial disparity.

What is Response to Intervention (RTI)

"Advocates and activists have been instrumental in the quest for equity in American schools. Their collective, organized efforts have produced" positive results for students (Kozleski & Smith, 2005). These advocates and activists have used the data found in previous studies to work toward change.

One change that has been implemented by IDEIA 2004 is the Response-to-Intervention (RTI) assessment model. The RTI model was developed to replace the "wait to fail" model currently in practice in schools. The use of the RTI approach suggests that more responsibility should be placed on regular education teachers. The expectation of RTI is that all students will receive quality education, research-based interventions and timely identifications of disabilities (Harris-Murri, King & Rostenberg, 2006).

When utilizing the RTI model, teachers do not wait for the child to fail in order to refer them to special education. Instead, a series of interventions are implemented in the classroom, and if unsuccessful, a referral may occur. (Harris-Murri, King, & Rostenberg, 2006).

Assessment Strategies, Interventions, and Implementation

Additionally, the RTI model discusses the use of alternative assessment strategies when diagnosing a child for special education. (Dykeman, 2005). Traditionally, the discrepancy model is used to determine if a student may need special education services. However, the RTI model encourages the use of multiple assessment strategies, including authentic assessment, play-based assessment, functional assessment, and curriculum-based measurement.

Naglieri and Crockett (2005) summarize that most schools that use the RTI model, use a multi-tiered approach when making the decision to refer a child to special education. While the specific number of tiers used or the order of the activities may vary, most schools have an approach that has a minimum of three tiers. One sample school in Ohio, which will be discussed further in this paper, uses a four-tiered approach to the RTI model. At tier one, teachers and parents work together to mediate an academic or behavioral problem; tier two involves the recommendation of interventions by a building-level assistance team; tier three calls for refining and redesigning the interventions; and tier four is the point at which a special education referral is made. Some RTI models may include the review of standardized assessment data, and some may include a more informal report of baseline data. RTI does not mandate this or any other form of pre-assessment. RTI does, however, request that a series of interventions be implemented before any referral is made. (Harris-Murri, King, & Rostenberg, 2006).

The RTI model should be seen as a pre-referral intervention strategy that will successfully identify strategies that meet the child's specific academic needs. This model should occur in the general education setting and should be put into place prior to any special education decision.

(Naglieri and Crockett, 2005). Through the RTI model educators are also provided with documented data that is useful when a special education decision is to be made.

Findings

Since the introduction of RTI, teachers have begun to receive training that will allow them to offer a more varied approach to their instructional delivery. (Harris-Murri, King, & Rostenberg, 2006). Additionally, teachers are provided a support network to consult with regarding challenging students, research-based interventions, and cultural sensitivity training. Schools that have implemented the RTI model successfully, hold teachers accountable for the referrals that they make to special education. (Dykeman, 2005). Schools have reported a noticeable decline in the number of referrals to special education, which they attribute to the implementation of RTI (Cawelti, 2004).

According to RTI researchers O'Shaughnessy, Lane, Gresham & Beebe-Frankenberger (2003), Response to Intervention may be considered one of the most effective methods of remedying the minority over identification issue. This success has occurred partly because teachers largely have a positive perception toward the additional training and support. Specifically, teachers tend to view the additional training and support as resources, rather than intrusive. Teachers have responded positively to the changes by committing to the extra planning, training, following through with implementing the new practices, and initiating their own practices to support RTI (O'Shaughnessy, et al., 2003). In addition to their positive response, teachers implement the interventions in the classroom because they realize that they are being held accountable (Milloy, 2003).

In a study conducted by Milloy in 2003, there was evidence that an Alabama school was effective in implementing the RTI model. There was evidence that the number of minority students referred to and placed in special education programs was greatly declined post RTI implementation. Milloy found that by training teachers to provide interventions, and by requiring teachers to document student progress, there was a significant decline in minority referrals/placement in special education. In this school, the students identified as mentally retarded declined from 59 percent to 40 percent after the use of the RTI model. Those considered EBD were reduced to 30 percent, a decline from the 44 percent previously reported.

Other researchers indicate that the effectiveness of RTI cannot be truly determined, but seem favorable. Naglieri and Crockett (2005) support the use of RTI and argue that it "makes good sense at the pre-referral phase". Conversely, another researcher indicates that he has not found any significant evidence that suggest RTI is an effective means of assessment and encumber teachers within the building with providing additional and unnecessary documentation and interventions to students who need specialized support (Fuchs, 2003). In support of Fuchs argument, Naglieri and Crockett agree that RTI has worked for some schools, but should not be used as the sole means of determining a child's eligibility.

Conclusion

The paper examines the effectiveness of the RTI model in reducing the number of minority males referred to special education. Some of the key factors that influence a teacher to refer a minority male were reviewed. RTI key terms and special education categories were also reviewed. Some researchers argued that the RTI method was the most effective intervention strategy and served to greatly reduce the number of minority males who were over identified (Milloy, 2003; Naglieri and Crockett, 2005). On the other hand, some researchers disagreed; arguing that the RTI method has many challenges (Fuchs, 2003; Harris-Murri, King & Rostenberg, 2006).

Educational leaders must note that several schools have adopted the model and revised the model to fit their school's needs. This individualization of the RTI model has led to the use of different formats between schools. Resultantly, this creates an issue when comparing schools for effectiveness of this model, since each may be developed and implemented differently. Future research is needed to truly determine RTI's effectiveness. A comparison of two or more schools with similar RTI models would need to be reviewed to gain a more accurate depiction of this model's effectiveness in reducing disparity among the racial demographic groups comprising special education referrals.

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Literacy Based Behavioral Interventions and Video Self-Modeling with students with Autism Spectrum Disorder (ASD)

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Abstract

Educators are continually seeking effective, research-based strategies to address the unique needs of their students with autism spectrum disorders (ASD). It is well documented that students with ASD benefit from direct instruction and visual supports when learning new skills. This article provides step-by-step procedures for using a tiered intervention package consisting of literacy-based behavioral interventions and video-self modeling to teach new skills to students with ASD to promote mastery and independence. Authors share an action research process that was used to identify a need for students with ASD in a middle school classroom, select and implement research-supported interventions to address the need, and to monitor progress throughout the phases of intervention to make instructional decisions.

Literacy Based Behavioral Interventions and Video Self-Modeling with students with Autism Spectrum Disorder (ASD)

> *Mrs. Miller teaches students with moderate to severe autism in a middle school self-contained classroom. The students have individual IEP goals that are based on academic skills, social communication skills, and life skills. After the first several months of school, Mrs. Miller wanted to address one main problem: her students often required extensive verbal and physical teacher prompts when engaging in activities and learning new skills. She wanted to implement interventions that would decrease this prompt dependency and increase independence for each of her students. Mrs. Miller researched numerous evidence-based practices that could be used to teach new skills to students with autism spectrum disorders (ASD) to promote independent functioning. It was evident through her research that students with ASD often benefit from visual supports and explicit instruction. Thus, Mrs. Miller decided to implement interventions for her students using a combination of literacy-based behavior interventions and video self-modeling to provide the explicit instruction and visual supports her students need to learn new skills and achieve independence.*

Autism spectrum disorders (ASD) are neurological disorders that adversely affect social and communication abilities (Bellini, Akullian, & Hopf, 2007). There are three autism spectrum disorders: Autism, Asperger Syndrome, and Pervasive Developmental Disorder-Not Otherwise

Specified (PDD-NOS). Individuals with ASD require more support in the areas of academics, behavior, communication, and social skills and benefit from explicit instruction in these areas (Bellini, 2006). They often have difficulty functioning independently (Hume, Loftin, Lantz, 2009). There are a variety of research-supported interventions that can be used to teach students with ASD to perform new skills and reach independence. It is well documented that students with ASD benefit from the use of visual supports (Ganz, Earles-Vollrath, & Cook, 2011). Visual aids can help students with ASD learn abstract concepts, follow unfamiliar or complex directions, and become more independent. This article discusses how to use literacy-based behavior intervention (LBBI) and video self-modeling (VSM) to provide visual supports when teaching new skills to students with ASD to promote mastery and independence.

Literature Review

LBBI and ASD

The term LBBI includes a variety of interventions that provide instruction through print or pictures using full or partial sentences, written reminders, stories, photographs, drawings, comic-strip illustrations, or other media (Bucholz & Brady, 2008). A commonly used LBBI is a Social Story™ (Gray, 2000), which is a personalized short story that describes a situation, skill, or concept from the perspective of the individual to help improve understanding. Research shows positive outcomes when using Social Stories™ with students with ASD (Chan, et al., 2011; Crozier & Tincani, 2007; Delano & Snell, 2006; Ozdemir, 2008; Scattone, Tingstrom, & Wilczynski, 2006) While Gray sets forth specific guidelines for using certain sentence types and story formulas, many educators do not strictly follow these guidelines (Hagiwara & Myles, 1999; Swaggart et al., 1995) because other types of sentences and story formats can have a more powerful impact in particular situations (Bucholz, Brady, Duffy, Scott, & Kontosh, 2008). LBBIs that allow more flexibility when constructing sentences and creative freedom to supplement words with pictures for students with significant disabilities allow practitioners to tailor interventions to the individual needs of students.

VSM and ASD

Video self-modeling (VSM) can be defined as a video of a student performing a target behavior (Graetz, Mastropieri, & Scruggs, 2006). The purpose of VSM is to provide opportunities for students to view themselves demonstrating the targeted skills so they can imitate what they observed when the video is over. Of course, behind the scenes prompting and careful editing must be used to be able to develop videos of students demonstrating skills that either are not yet in their repertoire or are not displayed on a frequent enough basis. There are several studies that demonstrate the effectiveness of using VSM with students with ASD (Apple, Billingsley, & Schwartz; 2005; Bellini & Akullian, 2007; Bellini et al., 2007; Buggey, 2005). While more empirical research on using VSM with students with ASD is still needed, the studies that have been conducted indicate that VSM positively impacts the academic, behavioral, and social skills of students with ASD (Bellini et al., 2007; Hitchcock, Dowrick, & Prater, 2003).

LBBI and VSM for Students with ASD

This article provides eight steps for using a tiered intervention that incorporates both LBBI and VSM to teach new skills to students with ASD to promote skill mastery and independence. This approach brings the LBBI and VSM research into practice in a manner that is simple for

educators to use to teach a variety of skills and enhance the independence of their students. With the tiered approach, teachers first introduce an LBBI. If the student does not reach independence with the sole use of the LBBI, the VSM intervention is then introduced until the student reaches independence. Since creating videos for the VSM intervention is more time consuming than creating LBBIs, and since both interventions are research supported, it is beneficial to first implement the LBBI and dedicate the time to create the video for the VSM intervention only when necessary. There are eight simple steps educators can follow when implementing a LBBI and VSM tiered intervention for students with ASD. Each step is described below and then highlighted with two case examples from Mrs. Miller's class.

Step 1: Select a target skill

There are many skills that can be targeted using LBBI and VSM such as communication skills, social interaction skills, daily living skills, organizational skills, employment-related skills, and academic skills. It is important to choose a skill that is meaningful for the student and will make a significant positive impact on the student's life when mastered. The skill selected should be observable, measurable, developmentally appropriate, positively stated, and indicate a criterion for mastery.

Step 2: Collect baseline data

Before developing and implementing an intervention, be sure to collect baseline data on the targeted skill. Collecting baseline data prior to the onset of intervention allows educators to determine the effect of the intervention. Using a task analysis is an easy and meaningful way to collect data. This entails writing down each of the steps required for the student to perform the skill in order. For each step, indicate if the student performed it independently or with prompting. Then, divide the number of independent steps by the total number of steps to get a percentage of steps performed independently.

Step 3: Develop an Individualized LBBI

When developing an individualized LBBI, a Social Story© can be used, a modified Social Story© can be used, or an individualized sentence structure can be used. The complexity of the language should be tailored to the comprehension abilities of the student. Using PowerPoint© to develop the LBBI is recommended because it is easy to include pictures, symbols, large text, and audio of the teacher, a peer, or the student reading the text of the LBBI. It also allows students to view the LBBI independently on a computer, IPAD, IPOD, or Smart Board without the need for 1:1 instruction each time the LBBI is reviewed.

Step 4: Begin the LBBI Intervention

The LBBI intervention should be shown immediately before the student is expected to perform the target skill each time. The LBBI intervention should be more than just showing the PowerPoint© to the student. There should be comprehension checks during and after the viewing of the PowerPoint© using verbal or nonverbal responses to make sure the student understands the content of the LBBI. These comprehension checks can be in the form of retells, sequencing activities, responding to questions, or role-play activities.

Step 5: Monitor Progress
It is important to monitor the student's progress on a daily basis once the LBBI intervention is implemented. This should be done using the same data collection procedures used when collecting baseline data to allow a comparison of pre-intervention and intervention performance.

Step 6: Initiate a VSM Intervention if Necessary
If the student achieves mastery during the LBBI phase, skip to step 8. If the student does not achieve mastery during the LBBI, add a VSM component to the intervention. Once the video is created, it can be embedded at the end of the LBBI PowerPoint© to provide additional instruction to the student beyond the pictures, text, and audio. The reason why it is recommended to first try the LBBI without the VSM is because it can be quite time-consuming to capture the video footage needed for the VSM intervention. If the student can learn the skill with the LBBI alone, it will save a great deal of time. However, if the student is unable to achieve mastery with the LBBI, the time it takes to develop a VSM intervention can be well worth it.

Step 7: Monitor Progress
Continue to monitor the student's progress on daily basis once the VSM is added to the LBBI intervention using the same data collection procedures. Indicate when the VSM was added to the intervention to be able to determine if the addition of the VSM results in a significant difference in the student's performance.

Step 8: Fade Out the Interventions
Once the student is consistently able to demonstrate the targeted skill independently, the LBBI and VSM intervention can be faded out. The fading out should be done gradually by moving from daily implementation to every other day to once a week to not using it at all. If, at any time during the fading process, the student ceases to demonstrate the targeted skill independently, increase the use of the LBBI and VSM intervention until consistent performance is demonstrated once again. Then gradually fade out the interventions once again.

Case 1
Mark was a 12-year-old male with autism in Mrs. Miller's class who was nonverbal. During an informal career assessment conducted by Mrs. Miller, Mark indicated that he was interested in learning more about working in a greenhouse. Watering plants would be a key component of this job. Mark became responsible for watering the plants at the entrance of the school building on a daily basis with the assistance of a paraprofessional. Mrs. Miller's observations indicated that Mark depended on hand-over-hand assistance from the paraprofessional for almost all of the key tasks. Therefore, Mrs. Miller wanted to use an LBBI and VSM intervention to teach Mark how to independently water the plants at school (Step 1).

Before implementing the LBBI, Mrs. Miller and her paraprofessional, Mrs. Towns, took turns observing Mark as he watered the plants over the course of one school week. During their observations, Mrs. Miller and Mrs. Towns recorded baseline data to pinpoint the steps Mark was struggling with the most (Step 2). They also used this time to take pictures and video clips of Mark watering the plants, which would later be used for the LBBI and VSM. Once the baseline data were collected, Mrs. Miller developed a short LBBI that incorporated simple sentences

describing the expectations for watering the plants and pictures of Mark watering the plants around the school (Step 3). See Figure 1 for the text from Mark's LBBI.

Figure 1
Mark's LBBI

Mark Waters the Plants

My name is Mark. It is my job to water the plants every day at school.
First I put the pitcher in the sink under the faucet.
Then, I turn the water on.
I fill the pitcher with water.
When the pitcher is full of water, I turn the faucet off.
I carry the pitcher outside with both hands to the plants.
I bend down and water the plants.

For two weeks, Mark participated in the LBBI phase of the intervention (Step 4). During this phase, Mrs. Miller showed Mark his LBBI every day before he left the classroom to water the plants. The LBBI was shown on the interactive Promethean board in a PowerPoint©. While viewing the PowerPoint©, Mrs. Miller asked Mark to follow along as she read the LBBI. She would also stop reading and have Mark point to items in the pictures, such as the sink. In addition, Mrs. Miller had Mark demonstrate his comprehension of the text by asking him to model the steps, such as bending over to water the plants.

Mrs. Miller and Mrs. Towns monitored Mark's progress during the two-week LBBI Phase (Step 5). See Figure 2 for the data sheet used to monitor Mark's progress. The data showed that the LBBI did improve Mark's abilities to independently water the plants. He was able to complete an average of 70% of the steps independently. The goal, however, was for Mark to complete *all* of the required steps with independence. Therefore, Mrs. Miller decided that it was necessary to implement the VSM phase of the intervention (Step 6).

Figure 2
Mark's Data Sheet

Date: _____
Observer:_____

Task	**Competed Independently (yes or no)**	**Comments**
Place pitcher under faucet		
Turn on water		
Turn off water when		

pitcher is full		
Carry pitcher outside		
Bend down towards plant		
Water plant		

Percentage Completed Independently: _____

During the VSM phase, Mrs. Miller added a video of Mark independently performing all of the steps required for watering the plants to the end of the LBBI PowerPoint©. Mark continued to participate in the intervention just before leaving the classroom to water the plants. Mrs. Miller used the same comprehension checks that were embedded during the LBBI Phase. Mark participated in the VSM phase of the intervention for one week. Throughout the week, Mrs. Miller and Mrs. Towns monitored Mark's progress (Step 7). The data indicated that the VSM was beneficial for Mark when paired with the LBBI. He went from completing an average of 70% of the steps independently with just the LBBI to completing 93% independently with both the LBBI and VSM interventions the first week of the combined intervention. Mrs. Miller faded out the LBBI and VSM intervention once Mark reached 100% independence (Step 8).

Case 2

David was a 13-year-old male with autism in Mrs. Miller's class who had some functional speech. He was able to greet others by saying "Hi," "Hey," or "Hello." Mrs. Miller's observations indicated that David frequently greeted typically developing peers and adults in the hallways at school without prompting, but was unable to independently respond to complex greetings from others such as, "David, how are you?" Thus, this was his goal for the LBBI and VSM tiered intervention (Step 1).

Mrs. Miller and Mrs. Towns observed David's interactions with others for one school week to record baseline data (Step 2). They monitored David's ability to make eye contact, verbally greet others, wait for a reply, and give an appropriate verbal response. This baseline data showed that David was able to complete an average of 40% of these skills over a five-day period. During this baseline phase, Mrs. Miller and Mrs. Towns took a variety of pictures and video clips of David's social interactions. Mrs. Miller then compiled the pictures to create an LBBI in the form of a PowerPoint© that showed David independently engaging in appropriate social interactions with supporting text describing the expectations for greetings (Step 3). See Figure 3 for the text from David's LBBI.

Figure 3

David's LBBI

<u>David Talks to Others</u>

My name is David. I like to talk to other people.
When I see a person I know, I should tell them, "Hi."

I need to look them in the eyes when I talk to them.
I need to wait for the other person to talk back to me.
When the person asks me how I am, I need to respond by saying, "Good."
Following these steps makes talking with others more fun.

For two school weeks, David viewed his LBBI PowerPoint© on the interactive Promethean board every day before leaving the classroom for lunch (Step 4). Similar to Mark's intervention, Mrs. Miller checked for comprehension as she read the LBBI to David by asking him to model the skills shown in the pictures. Mrs. Miller and Mrs. Towns monitored David's progress during the transitions in the hallways as he saw familiar peers and adults (Step 5). See Figure 4 for the data sheet used to monitor David's progress. After just a few days of participating in the LBBI (Step 6), David was able to independently perform all four targeted social skills. Therefore, Mrs. Miller did not see the need to implement the VSM intervention (skipped Step 7). Mrs. Miller faded out the use of the LBBI after two weeks of independent performance (Step 8).

Figure 4
David's Data Sheet

Date: _____
Observer: _____
Social Partner: _____

Task	**Completed Independently (yes or no)**	**Comments**
Made eye contact		
Gave a verbal greeting		
Waited for reply		
Made appropriate verbal response to reply		

Percentage Completed Independently: _____

Conclusion

Mrs. Miller's work using LBBI and VSM with her students with ASD is an excellent example of how teachers can address student needs by implementing action research. She identified a problem, reviewed the literature to determine which interventions were likely to address the problem, and planned and implemented an intervention while monitoring progress to determine its effectiveness. Although Mrs. Miller's students required extensive prompting to engage in the targeted skills prior to the intervention, they were able to reach mastery and independence as a result of the LBBI and VSM intervention.

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Students with Speech Impairments Participating in Recess

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Abstract

The participation of students with speech impairments in recess can often be both challenging and rewarding for the students and teachers. This paper will address common characteristics of students with speech impairments and present basic solutions to improve the experience of these students in the recess setting. Initially the definition, symptoms, and prevalence of speech impairments will be presented. The paper will then address the special education classification of children with speech impairments, benefits of recess for children with speech impairments, and recommendations for these children in recess.

Students with Speech Impairments Participating in Recess

The participation of students with speech impairments in recess can often be both challenging and rewarding for the students and teachers. This paper will address common characteristics of students with speech impairments and present basic solutions to improve the experience of these students in the recess setting. Initially the definition, symptoms, and prevalence of speech impairments will be presented. The paper will then address the special education classification of children with speech impairments, benefits of recess for children with speech impairments, and recommendations for these children in recess.

Definition, Symptoms, and Prevalence of Speech Impairments

Speech impairments are disorders including stuttering, impaired articulation, or voice impairments, which adversely affect spoken language. Speech impairments can affect speech language which includes articulation, voice, and fluency. Language impairments differ as they affect the understanding of language (receptive language disorder), the formation of an utterance (expressive language disorder - saying what one intends to say), or both. This paper will focus on speech impairments (American Speech Language Hearing Association, 2012).

The lifetime prevalence of speech impairments is around one in 100, occurring in males and females equally. There are approximately between 6 and 8 million Americans living with some form of speech impairment **(**National Institute of Health, 2010**).** It is easy to say that children with speech impairments may lack communication competence, are assumed to have a lack of social empathy, and are often rejected and at risk for bullying (Savage, 2005).

Classification of Children with Speech Impairments

The Individuals with Disabilities Education Act (IDEA) states that children who are determined to have disabilities under one of twelve categories, receive special education services if the condition negatively affects the educational performance of the child. One such category is Speech or Language Impairments. Speech or Language Impairments is defined in IDEA as follows:

Speech or language impairment means a communication disorder, such as stuttering, impaired articulation, a language impairment, or voice impairment that adversely affects a child's educational performance. (34 CFR §300.8(c)(11) (IDEA, 2004)

As noted, this paper will address one aspect of this special education classification – speech impairments.

Benefits of the Recess Setting for Children with Speech Impairments

Simply stated, the benefits of the recess setting are high for all children. These include a variety of physical and social benefits. In terms of physical benefits, studies have shown that recess leads to the following:

- Improvement of out-of-school activity levels – children usually are involved more in physical activities on days in which they participate in in-school physical activities (Dale, Corbin, & Dale, 2000).
- Improvement of general fitness
- Improvement of endurance levels (Kidshealth.org, 2009)

In terms of social benefits, and often extremely important to children with speech impairments, recess has been shown to lead to the following social skills:

- Cooperation
- Sharing
- Taking turns
- Problem solving in situations that are real
- Comfort in out-of-school play situations

All of these benefits are very important for students with speech impairments, but especially the social benefits, because of the possibility of a lack of social development, often characteristic of these children. Also, especially important in terms of speech impairments, is the fact that a large amount of exercise has been determined to be a natural and effective anti-anxiety treatment. This can help students to communicate with their peers inside and outside of the school environment in addition to the benefits of increasing fitness levels. It also helps to reduce mild to moderate feelings of depression and regulate emotions. Simply stated, exercise can decrease many stresses in which the student may be struggling (Scholesser, 2010).

Establishing the habit of exercising is important for all students, including students with speech impairments. Students with speech impairments will also benefit from exercise found at recess

because it gives an opportunity for the students to clear their minds and increase alertness, which leads them to focus in their classroom, and when working with a speech language pathologist. Exercise has been shown to have a variety of benefits such as relieving tension and stress, boosting physical and mental energy, and enhancing well-being through the release of endorphins, the brain's feel-good chemicals (Helpguide.org, 2012).

It should be assumed that positive reaction from peers and teachers will enable the student to develop a better self esteem. This is crucial for students with speech impairment because some may fear their disability will lead others to assume they have a low cognitive level. These positive interactions with teachers and peers can blossom during recess and contribute to these students' feelings of competence in their schoolwork and social communications.

Recommendations for Children with SL in Recess

To achieve the aforementioned goal of participation in exercise through recess, the following items should be remembered for the student with speech impairments in recess. Some are more specific to recess, but most should be remembered during the entire school setting:

- Provide time for delayed responses, verbal rehearsals (Seaman, Depauw, Morton, Omoto, 2007)
- Encourage and allow to point, gesture, or use explanations and similar words to increase the listener's understanding of expressive language (Seaman, Depauw, Morton, Omoto, 2007)
- Use small, stable groups (Winnick, 1995)
- Teach familiar games to promote social interaction (Winnick, 1995)
- Encourage non-competitive games that promote social interaction
- Exhibit a positive attitude (Winnick, 1995)
- Promote activities that encourage taking turns, guided problem solving, and partner activities (Winnick, 1995)
- Use familiar words and supplement with verbal cues (use a variety of words to describe the same movements if needed) (Seaman, Depauw, Morton, Omoto, 2007)
- Hold the same behavioral expectations for all students (Winnick, 1995)
- Provide directions that are simple and concrete (Seaman, Depauw, Morton, Omoto, 2007)
- Provide a comfortable environment

Conclusion

The participation of students with speech impairments in recess can often be both challenging and rewarding for both the student and teacher. The rewards can manifest themselves in the student's communication with others, relieving tension and stress, and boosting physical and mental energy levels. This paper has hopefully addressed some basic concerns and solutions to improve the recess setting of students with SI.

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Writing IEPs for the Audience of Teachers, Parents, and Students: The Case for the Communicative Individual Education Program

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Abstract

Our current paradigm of Individualized Education Program (IEP) construction, the creation of a legal document or contract between parents and schools, needs rethinking. This paradigm's unintended consequences have resulted in vast inefficiencies in special education and have detracted from the core purpose of the IEP document, the communication of the individualized educational plan. An alternative approach, the communicative IEP, will be presented. In this framework the written IEP is primarily conceived as a communication tool rather than a legal document. It will be argued that this approach will result in a shorter and more understandable IEP document, as well as a substantial savings in limited educator resources, which could then be better prioritized towards service delivery.

The Case for a Communicative Individual Education Program

Our current special education processes are inefficient and have conceptually drifted from their intended purpose. This problem has been repeatedly recognized over the past decade. For example, the President's Commission Report (2002) concluded that special education processes are being hindered by excessive litigiousness. They write:

the current system often places process above results, and bureaucratic compliance above student achievement, excellence and outcomes. The system is driven by complex regulations, excessive paperwork and ever-increasing administrative demands at all levels (p. 7)

Recognizing this problem, Congress attempted to address these concerns in the introduction to the Individuals with Disabilities Education Act (IDEA) 2004. They write:

Almost 30 years of research and experience has demonstrated the education of children with disabilities can be made more effective by focusing resources on teaching and learning while reducing paperwork and requirements that do not assist in improving educational results (20 U. S. C. § 1400 (c) (5)(G)).

Consider further in the Senate Report on the Individuals with Disabilities Education Act (2003); they write:

The committee is greatly concerned about the paperwork burdens experienced by teachers and other education personnel in connection with writing IEPs. Lengthy and complex IEPs are not

necessarily beneficial to students if they create confusion and take teachers away from instructional time with children (p. 30).

Although Congress has recognized this problem, over focus on the documentation of compliance and litigious paperwork continues to be detrimental to effective service delivery. Consider the conclusions from the Texas Study of Personnel Needs in Special Education (2006):

Both special education teachers and other special education professionals devoted many hours per month to non-teaching tasks or tasks other than providing direct services to students. For other special education professionals, it appears that more work hours are spent on paperwork such as developing IEPs (Individualized Education Programs), ARD (Admission, Review, and Dismissal) committee work, and other administrative tasks than on providing direct services to students. This directly impacts the service level for special education students (p. 23)

At the center of all special education paperwork and process is the Individualized Education Program (IEP), a yearly document created for each student to guide their services within special education. Some attempts at reforming IEP paperwork have been made in recent years. For example, at the federal level, the Office of Special Education Programs (OSEP, 2006) has produced a federal model IEP form that is four pages in length. Several states have followed suit, such as Texas who has reduced their model IEP forms to four pages (Texas Education Agency, 2011) and Alabama whose new model IEP form is slightly longer at six pages (Alabama Department of Education, 2012). These steps are encouraging. However, it should be noted that this trend toward simplified forms is not universal. For example, Ohio's model form is currently nine pages in length (Ohio Department of Education, 2010) and Michigan's is twelve pages (Michigan Department of Education, 2010). Note also that these page counts are for blank model forms; when they are filled in with actual content they will grow appreciably in length.

The progress by OSEP and some states in making changes to their model IEP forms is a positive step. However, the core issue of a misplaced focus on compliance and legality remains unaddressed by these reforms, which have been narrowly focused on the issue of paperwork reduction. The field remains in need of a qualitative change, a reconceptualization of the IEP document that addresses the inefficiencies stemming from the litigious nature of the process. Consider the following from the President's Commission Report (2002), which appears to get to the heart of the problem:

A particularly revealing issue to the Commission was the strikingly high number of parents, teachers and administrators who described how IEPs are not actually designed or used for individualized education; instead they are focused on legal protection and compliance with regulatory processes…The original concept of IEPs as an instructional framework for a defined period of a child's education has been lost to the greater need to document legal and procedural compliance (p. 16)

The above defines the counterproductive conceptualization that exists regarding the purpose of the IEP document. That is, IEPs are constructed as if they were legal documents, or contracts, formal binding agreements between parents and schools regarding service delivery and access to programs. Equal to this purpose in the current paradigm is the IEP's role in documenting

compliance with IDEA. This legal focus detracts from what ought to be the core purpose of the IEP document, efficiently communicating the details of the education plan to school staff, parents, and students so that it could be effectively implemented. For the rest of this paper, IEPs written with the primary aim of being contracts and documentation of compliance will be termed "legal IEPs." In contrast, IEPs whose construction places the document's communicative value above its purpose as a contract and proof of compliance will be termed "communicative IEPs." It will be argued that a change in process from legal to communicative IEPs would lead to higher levels of effectiveness within special education.

Legal IEPs are not Communicative Documents

Legal IEPs are not designed as communicative tools that describe a student's educational program to those entrusted with its implementation. Instead they are technical documents designed as legal safeguards for schools and parents. Their content and layout appear to be more a function of district's piecemeal responses to state compliance probes than a result of a serious consideration on how to produce a document that has practical value to those working with students. Addressing the reasons why Texas IEPs were often more than 20 pages long, Borreca (2011) reports the following regarding how defensive legality enters the process:

One explanation is an unwarranted and unjustified fear of litigation. Over the years, there has been litigation and it has been emphasized to "document, document, and document." Pages of paperwork have been added to cover issues at the local or state level. Local districts have been reported to have added elements because the state has come in for review, and said, "I don't see documentation for this." (p. 4)

The above highlights a central issue in legal IEP construction. Because of pressure on districts to create more perfect legal documents, IEPs are often designed more for the audience of state compliance monitors than they are for parents and general education teachers. A document whose primary purpose is to demonstrate that a district is in compliance and legally protected will not be designed in such a way as to maximize its effectiveness as a communicative reference for those involved with the student. These end points have little overlap. The consequence of this "legal first" paradigm appears to be the decreasing communicative value of our IEP documents in inverse proportion to their legal sophistication.

Three central areas of content in legal IEPs appear to decrease their communicative value. These are an over documentation of the considerations required in IDEA 2004, inserted sections of special education law and administrative statements, as well as protective statements documenting that the district followed procedure. Because these content areas add length and dilute vital content, they limit the effectiveness of the IEP document as a communicative tool.

Legal IEPs are characterized by an over documentation of federal compliance. IDEA 2004 explicitly stipulates that the IEP take into consideration multiple issues. Among these are, the concerns of the parents, the academic, developmental, and functional needs of the student, the strengths of the student, the results of past evaluations of the student, the impact of the student's behavior on their learning, their communication needs, the needs of English language learners, the needs of students with visual impairments, and the student's assistive technology needs. It is

common in the design of legal IEP documents to set aside a text box for most or all of these considerations. See the state of Delaware's (Delaware Department of Education, 2007) or the state of Illinois (Illinois State Board of Education, 2010) model IEP forms for examples. The IEP team is then obligated to write stylized statements and perhaps supply data for each consideration as documented proof that the considerations were in fact considered. Although it is common practice to produce statements for each of the considerations in the IEP, it is not required by federal law. IDEA 2004 clearly stipulates what statements are necessary in the IEP in section 1414(d)(1)(A). In section 614(d)(1)(A)(ii) the rule of construction states that nothing else beyond what is explicitly required by this law is required. Therefore, statements in the IEP that document each consideration are not required. It should be noted that a proper IEP does consider all of the preceding issues. However, to consider means to think and discuss. It does not mean to document. This excessive documentation, apart from being a drain on educator resources, unnecessarily adds to the length of the document and thereby reduces its communicative facility.

Legal IEP's are characterized by inserted sections of law and administrative statements. Similar to the excessive documentation of the considerations, these additions add length and lessen the communicative facility of the document. Inserted sections of law continue to be found on IEPs that have been "simplified". For example, the OSEP model IEP (2006) has a copied section of law above each textbox. The following section of law is inserted above the text box for special education and related services:

A statement of the special education and related services and supplementary aids and services, based on peer-reviewed research to the extent practicable, to be provided to the child, or on behalf of the child, and a statement of the program modifications or supports for school personnel that will be provided to enable the child: To advance appropriately toward attaining the annual goals. [34 CFR §300.320(a)(4)(i)] To be involved in and make progress in the general education curriculum and to participate in extracurricular and other nonacademic activities. [34 CFR §300.320(a)(4)(ii)] To be educated and participate with other children with disabilities and nondisabled children in extracurricular and other nonacademic activities. [34 CFR §300.320(a)(4)(iii)]

In addition to copied sections of law, legal IEPs often contain what can be referred to as administrative statements regarding the position of the educational agency on issues such as inclusion. For example see the following from Michigan's model IEP (2010):

The district ensures that, to the maximum extent appropriate, the student will be educated with students who are nondisabled; and special classes, separate schools, or other removal of the student from the general education environment occurs only when the student's needs cannot be met satisfactorily in the general education setting with supplemental aids and services. (p. 31)

The addition of copied sections of law and administrative statements in numerous areas throughout the IEP document appear to be for legal rather than communicative purposes. These non individualized statements do no improve the document's ability to efficiently communicate the details the education plan to those entrusted with its implementation. In contrast, they detract from it. Writing communicative IEPs requires us to take seriously who were are writing for.

Adding legal or administrative text above every section in the IEP can easily double or triple the number of pages. This makes the IEP less accessible to teachers, parents, and students, the opposite of what ought to be the goal.

Legal IEPs are characterized by numerous protective statements. Rather than contribute to the communication of the plan, these statements are focused on documenting that the district followed procedure. For example, the Illinois model IEP form contains a section on parental rights and involvement (Illinois State Board of Education, 2010). When the parent is not in attendance the district must fill in a text box detailing the attempts to contact the parent prior to the IEP meeting. There is another line which documents the date and manner in which the parents were informed about their procedural safeguards. Finally there is a section which documents if the parents were given a copy of the following: Evaluation report and eligibility determination, District's behavioral intervention policies, IEP, District's behavioral intervention procedures.

While it is important for the district to perform the actions required to be documented in this section, the inclusion of this type of content in the IEP document itself is not aligned to what should be its purpose, the communication of the plan. Protective statements are an aspect of contracts, not communicative tools. They do not help teachers to know how to accommodate, or counselors to know how to schedule. They do not help parents understand their child's progress or the strategies the school is using to address their disability. Protective statements appear to be included for the benefit of the district, not teachers, parents, and students. Their effect when placed throughout legal IEPs is to lower the overall communicative value of the document.

Legal IEPs Drain Limited Educator Resources

The time it takes to create, proof, and correct the exacting contracts that legal IEPs have become drains educator resources away from their students. Special education teachers spend an inordinate amount of time on paperwork unrelated to instruction. For example, the Texas Study of Personnel Needs in Special Education (2006) found that special education teachers spent an average of 16.9 hours a month completing paperwork for their disabled students. A more recent study found that the time special education teachers spend on paperwork related to special education equals 60 percent of their time spent on academic instruction (Vannest et al, 2011). These studies highlight the current inefficiencies in the system and the lack of appropriate prioritization of resources. It therefore appears that not much has changed since the Presidents Commission Report (2002) found that, "special educators spend more time on paperwork than grading papers, communicating with parents, sharing expertise with colleagues, supervising paraprofessionals and attending IEP meetings combined" (p. 17). For teachers, this time spent on paperwork directly detracts focus from a variety of important activities such as instructional planning, case management, and working with parents, activities that we know can lead to improved student achievement. It should come as no surprise that 88 percent of special education teachers report that the requirements of IDEA interfere with their teaching duties (SPeNSE, 2001). Succinctly stated, overly litigious IEP's have a cost that can be measured in lack of student achievement. This cost needs to be taken seriously.

While there is a lot we do know about the cost of legality in our IEPS, there is much that has gone unmeasured. When we consider the teacher time lost to the construction of legal IEPs we also need to consider professional development. How much time is spent in professional development talking about compliance issues rather than learning skills applicable to teaching? What percentage of time in district and county special education staff meetings is taken up with issues regarding the documentation of compliance that could be put to practical use developing school wide systems to enhance teaching and learning? Doing the research and finding the answers to these questions may provide an even more serious picture of the cost of the litigiousness of our current practices.

Legality in IEPs is Unnecessary

It has so far been argued that legal IEPs are not highly communicative documents and that their construction drains educator resources to the detriment of the students needing their support. However, before proposing a change, it needs to be determined that it is advisable to remove the legality from the IEP document. To do this, assumptions need to be reexamined. The field needs to question why legality in IEP documents is thought to be necessary to protect the rights of students with disabilities.

In general, legal protection against discrimination comes from the law, not from a personal document or contract between parties. Consider the rest of society; it is against the law for a person with a disability to be denied service in a business establishment because of their disability. To do so would be illegal. If and when it happens individuals may find recourse and protection under the law. This protection, however, stems from the law itself. It is not the result of a personal document stating the needs and rights of the individual with a disability. This protection is also not the result of a contract between that individual and the business establishment (if there was one) where the establishment agreed in writing to provide access to that individual. Such a contract or a personal document as a means of legal protection would be absurd. Likewise, considering the legal content in the actual IEP document as being essential to the protection of rights in education is equally absurd.

Is conceptualizing the IEP as a 'legal contract' between the parents and schools necessary to provide services or to modify a student's educational programming? We can look to general education for an answer. There are many instances in general education where student's programs and services are adjusted based on their individualized needs. For example, consider grade retention. The decision to have a student repeat a grade is made by the school and the parents based on the student's individual needs. In this scenario, extra services are being provided (a whole year of education) without the aid of a legal contract. Secondly, class scheduling for secondary students is completed based on student interest and needs (e.g., electives, remedial classes, credit recovery). Again, educational programming is modified without the use of a contract. Thirdly, many general education students with health problems require accommodations and interventions, such as the restriction of certain physical activities or the administration of medicine at school. Often these accommodations are recorded in a type of medical care plan; however, such a plan would certainly not be considered a legal contract. Finally, in the Response to Intervention framework assessments and interventions are designed and implemented to meet the individual learning needs of general education students. While

parents are informed and often participate in this process, no formal contract is required. In all, these examples demonstrate that without contacts, schools, working in conjunction with parents, have been providing intervention services, making significant changes to educational programming, as well as taking specific actions to protect the health and welfare of students based on their individual needs. Therefore, there is no reason to assume that a contract is necessary to provide an education for special education students when it is not necessary for general education students. Neither is this requirement in the law. IDEA 2004 states, "the term `individualized education program' or `IEP' means a written statement for each child with a disability" [34 CFR §300.320(a)]. The word "statement" does not directly imply "contract". While IDEA 2004 requires schools to meet and individualize an educational plan for students with disabilities, it does not require schools to "contractualize" education.

Finally, it could be argued by a proponent of the current legal IEP paradigm that we have so far ignored history. Four decades ago few children with disabilities were appropriately educated; many schools refused to educate them entirely, let alone provide acceptable access to general education (IDEA, 2004). It could be argued that only because of federal disability law and the IEP being conceived as a legal contract did all of the gains in terms of access occur. These points have some validity and will not be disputed here. However, a question will be asked. If a way of doing things 40 years ago resulted in positive outcomes 40 years ago, does that mean that this way of doing things needs to continue in the present and persist indefinitely in the future? If it is possible that systematic discrimination against persons with disabilities is not as prevalent today as it was 40 years ago, might it also be prudent to temper our response to it.

There was a period in American history, relatively close in time to the origin of special education law, when a collection of soldiers from the National Guard were needed to enforce the racial integration of public schools. Today we do not have the National Guard outside schools to protect against segregation. To do so would be an absurd waste of resources. Although they were necessary at one time, in today's world these measures are no longer required. Similarly, the conceptualization of an IEP as a legal safeguard created to protect individual rights in education may no longer be necessary.

In what follows, the framework for the communicative IEP will be presented. However, if one continues to view the purpose of the written IEP as a legal document created to protect rights in education, then what follows will seem woefully inadequate. Moving past the idea that legally constructed IEP documents are necessary will require a broad conceptual shift. This will be difficult. Change is hard. However, such a change in the field is necessary to move towards greater levels of efficiency and effectiveness.

Description of the Communicative IEP

A communicative IEP will place the communicative facility of the IEP document and educator resources above legalities. It will read as a treatment plan rather than a legal contract. Its primary purpose is to be a simple record of the educational planning that occurred at the IEP meeting, written in such a way as to maximize its communicative facility to school staff, parents, and, when appropriate, students. Brevity will be prized. For most students, the goal is for the IEP document to be no longer than a single page. More than a page takes away from its

communicative facility, and in this system, communication takes priority (however, it is recognized that proper individualization of the process will require some student's to have IEPs that are longer than a single page).

Referring back to the law, we find that IDEA 2004 defines an IEP as a series of statements regarding an individual's educational programming. The following seven statements (plus one for transition if the student has reached 16 years of age) are to be included in each IEP. By limiting focus to these seven statements, a team could produce a short IDEA compliant IEP. It should be noted that this document structure is similar to the current OSEP model IEP form, which basically consists of a series of text boxes to address each of the following statements. The list of required statements below are taken from IDEA 2004 (20 U.S.C. § 1414(d)(1)(A)).

> (I) a statement of the child's present levels of academic achievement and functional performance
>
> (II) a statement of measurable annual goals
>
> (III) a description of how the child's progress toward meeting the annual goals described in subclause (II) will be measured
>
> (IV) a statement of the special education and related services and supplementary aids and services
>
> (V) an explanation of the extent, if any, to which the child will not participate with nondisabled children in the regular class and in the activities described in subclause
>
> (VI) a statement of any individual appropriate accommodations that are necessary to measure the academic achievement and functional performance of the child on State and district wide assessments
>
> (VII) the projected date for the beginning of the services and modifications described in subclause (IV), and the anticipated frequency, location, and duration of those services and modifications

The communicative IEP takes as its starting point the idea that only two types of content ought to be included in the IEP document. The first is the above statements that are explicitly required by federal law, and the second is what the team determines to be of practical value to school staff, parents, and students. Nothing that is not mandated by federal law or determined to be of practical value to these parties will be recorded in a communicative IEP. In addition, care will be taken to ensure that these two areas of content will be presented in a communicative fashion directed primarily at those entrusted with its implementation. Please see the following three fictitious examples of communicative IEPs below.

(Communicative IEP Example #1)

Name: Christine **IEP Date:**10/20/12 **Provider:** Ms. Mitchell
Date of Birth: 4/19/02 **Grade:** 4th **School:** Elmwood Elementary

PERFORMANCE LEVEL/PROGRESS IN GENERAL EDUCATION/GOALS:
Christine is eligible for special services as having a Specific Learning Disability in the area of Math Calculation. Her cognitive ability is average, expect for a significant deficit in Working Memory, which limits the amount of information she can effectively process at once. She has no other academic weakness (see psychological from 2010 for more details). Christine has made significant progress in developing her computation skills since she started receiving services in the 1st grade. Her goal from last year was to have a test average in her general education math class of 60%. She has achieved that goal as her test average is currently 68%. Christine has been receiving less service in the resource room each year as she has been increasing her skills. Her goal for the upcoming IEP year is to a hold a math test average of 75 %. If she reaches this goal, the team feels that her resource time could be further reduced, or she could possibly be decertified. Christine's math test average can be viewed by her parents or other team members at any time via the district's web based grade book.

PROGRAMS & SERVICES:
Christine will attend the resource room at Elmwood for approximately 35 minutes three days a week for supplemental instruction in math. This will be in addition to her math lessons in the general education classroom, which she will attend in their entirety. Christine will go to the resource room while the rest of her class is doing silent reading and social studies (She will be excused from any gen ed work she misses) The focus will be primarily on getting assistance with the math work that she is doing in general education.

During this year, if Christine's test average remains at or above 75%, then her resource sessions will be decreased to twice per week (resource teacher will call parents to discuss first). If she can continue to hold that average, her resource time may be reduced to once per week.

ACCOMODATIONS/SUPPLIMENTARY AIDS:
She will receive extra time as needed to complete any work requiring calculations.

ASSESSMENTS:
Christine will take the standard state assessments.
She will be allowed to take math assessments in a small group setting.
She will be allowed extra time x1.5 for assessments involving math.

PARTICIPANTS: **IEP START DATE:** 3/3/12

_____ _____ _____ _____

_____ _____ _____ _____

(Communicative IEP Example #2)

Name: John **IEP Date:**3/3/12 **Provider:** Ms. Mitchell
Date of Birth: 08/9/03 **Grade:** 2nd **School:** Elmwood Elementary

PERFORMANCE LEVEL/PROGRESS IN GENERAL EDUCATION/GOALS

John is eligible as having a Learning Disability. He has average cognitive ability and average math and communication skills. He has strength in athletics. John has deficits in the areas of basic reading skills (currently at a level 12/first grade first month/ on the districts reading assessment: 02/26/12), and anger management (7 discipline referrals last year) that impedes his performance in general education. His goal from the last IEP was to be able to read level 10 books at 90% accuracy, so the goal has been met. His goals for this time next school year are to be able to read level 18/end of first grade/ books with 90% accuracy and have no more than two discipline referrals. A progress report on John's reading level will be sent home each quarter.

PROGRAMS & SERVICES

John will receive special services in the Elmwood resource room for approximately 60 min each day. The focus of this intervention is to improve his reading skills with small group reading practice and explicit phonics instruction. John will participate in general education for the rest of the day. (John will also receive support in general ed from the district's Title One reading support services approximately 2 to 3 times each week).
John will participate in social work groups 2 to 4 times a month. The focus will be anger management and building of self concept.

ACCOMODATIONS/SUPPLIMENTARY AIDS

John will have tests read aloud in general education
John will have a "break pass" to social worker to use when needed

Teachers should be advised that John's aggressive behaviors often stem from academic frustration (especially in not understanding written seat work). In the past these behaviors have been circumvented by teachers making sure that John knows how to complete the work. When John does become angry, teachers should prompt him to use his "feelings strategies". If this does not work teachers could ask if he needs to use his "break pass". Please call (x547) to notify Mrs. McEvoy (the social worker) if help is ever needed.

ASSESSMENTS

For all state assessments John is to have the questions read aloud.
John will take assessments in a small group setting.

PARTICIPANTS: **IEP START DATE: 3/3/12**

_____ _____ _____ _____

_____ _____ _____ _____

(Communicative IEP Example # 3)

Name: Jacob **IEP Date:** 3/3/12 **Provider:** Ms. Dickerhoff
Date of Birth: 09/09/96 **Grade:** 10th **School:** Elmwood High School

PERFORMANCE LEVEL/PROGRESS IN GENERAL EDUCATION/GOALS:

Jacob is eligible as having a Learning Disability in reading. Although Jacob has *Very High cognitive abilities* (psychological from 2007) his basic reading skills are at an early first grade level. To illustrate, he has trouble recognizing words such as "that" "two" "from" and "because". This severe deficit in his functional reading skills affects his performance in all areas of the curriculum. His math skills are adequate as long as the reading has been removed from the calculation tasks. Jacob has been through a multitude of reading programs since he started receiving intervention while in the first grade. These interventions aimed at improving his reading skills have been unsuccessful. Therefore the focus of Jacob's special education services have shifted from being intervention focused to accommodation focused. His goal from last year was to be able to pass a full schedule of general education classes, which he did. This goal will continue on into this next IEP year, and will be measured by his quarterly report cards.

PROGRAMS & SERVICES

Jacob will be enrolled in general education for the entire school day. He will meet with the teacher consultant as needed, but not less than once per month for assistance and support in managing his accommodations. The teacher consultant, Ms. Dickerhoff, will work with the teachers in the implementation of these accommodations. Please call her with any questions (x343).

ACCOMODATIONS/SUPPLIMENTARY AIDS

Jacob has a tablet computer that he will be allowed to take with him to all classes

Jacob will have a peer note taker in each of his classes. The student who takes these notes will be given the use of a Jacob's tablet to take notes for both of them. Jacob's tablet has a text reader, so with earphones he can listen to the notes as a means to study at home.

Jacob will have all test and quizzes either read to him or given to him in a digital format so that he could read and respond to them himself with the help of his text reader.

Most of the school's text books have an e-text component. Jacob will be able to use his tablet ear phones to have the digital text read to him in class.

If material is required to be read that does not have a digital text option, Jacob will either be given an alternative assignment with digital text, have the text read to him, or be excused from responsibility from that assignment or material.

For writing assignments, Jacob will be allowed to use his speech to text program on his tablet. He will be allowed to turn in work by email.

ASSESSMENTS

Jacob will take the regular assessments but will require the audio version or have the test read to him. He will be able to use his speech to text program for any writing assessments and will be able to take assessments in an alternate setting.

PARTICIPANTS: **IEP START DATE:** 3/3/12

_____ _____ _____ _____

_____ _____ _____ _____

Each of the communicative IEPs presented above contain the necessary statements required by IDEA 2004, as well as some additional information that the team may find useful in implementing the program. However, in contrast to the legal IEPs described earlier, these communicative IEPs are free of copied sections of law, administrative statements, protective statements, and over documentation of considerations. There are no boilerplate trappings of legality. This difference markedly reduces the length and increases the readability of the documents. In addition to these differences, the reader will find other aspects of the above examples that may differ from many legal IEPs. For example, time in special education is not reported as a weekly total. Presenting a student's time in special education as 275 minutes per week is not as clear as stating 55 minutes a day, or in the case of a secondary student, one period a day. Also, names of involved staff members and their phone extensions are listed in the documents, so they could be more easily contacted by those who may have questions about the IEP's implementation. To save space, the demographics section is limited only to basic indentifying information. The IEPs contain if/then statements regarding the relationship between student progress and anticipated changes in services to be adapted during the school year. Finally, the document appears as a narrative, it is not broken down into a series of boxes to check and blanks to fill in. This non compartmentalized structure is designed to support the notion that the IEP is a plan to be created, as opposed to a form to be completed.

Potential Advantages of Communicative IEPs

A communicative IEP is constructed from two types of content, what is explicitly required in the federal law and what the team determines to be of practical value to record. This content is presented in the document in a manner thought to have the most communicative value to its primary audience of school staff, parents, and students. The use of this communicative, rather than legal, IEP process should result in more useful IEP documents, which could increase their utility in the classroom as well as result in a significant savings of staff time, which could then be put to better use on tasks related to service delivery.

Turning IEPs into communicative documents could increase their usefulness in the classroom, which could result in them being followed more closely. Consider the following thoughts from Borreca (2011) regarding the relationship between an IEP document's readability and likelihood of implementation:

The end result has been a document incomprehensible to many parents and regular education teachers called upon to implement its terms in the classroom. Lack of clarity and conciseness breeds mistrust and lessens the likelihood of implementation (p. 4)

Therefore, an increase in the communicative value of IEPs could result in teachers reading and referring to them more often throughout the year. This increase in the use of the document would allow for the IEP to better function as a plan should, as instructions to be followed. It is reasonable to assume that a higher frequency of consultation with the IEP document may result in a potential increase in the fidelity of its implementation.

Communicative IEPs may also result in an increase in meeting quality. Limiting the distraction of litigious paperwork would allow the team to remain focused on the creation of the plan rather

than the documentation of compliance. This may result in IEPs that are more effective and individualized, as well as increased levels of parent and student satisfaction with the IEP process.

Lastly, as described earlier, the process of constructing legal IEPs comes at a significant cost of educator's time and resources. It would be a statement of fact that the move to a (possibly one page) communicative IEP would result in an increase in educator's focus towards their primary role of providing direct services to students. This time could then be used for lesson planning, caseload management (actually checking up on the fidelity of IEP implementation and consulting with general education teachers on the progress of the interventions and accommodations), as well as increased parent communication. This has the potential to translate into better teaching, higher fidelity of IEP implementation, and increased parental involvement.

Research Measuring Communicative Value

Investigations of the effects different IEP designs have on their communicative facility is practically nonexistent. This is problematic. Research into this area should be a priority for the future if the field is to develop more useful IEP documents. As of this moment, we lack empirical evidence that the current OSEP model form would result in a more useful document than the Illinois state model form, or how the communicative IEP presented here would fare against either. Without studying the differences between them on outcome measures that directly or indirectly pertain to communicative value we can only hypothesize what the effects would be.

There are numerous dependent measures that could be employed to test the communicative values of different IEP designs against each other. For example, investigators could simply ask secondary students what their IEPs goal are and report on their accuracy. If students cannot recite their goals when asked, it may be that they were not communicated well in the IEP. Researchers could ask general education teachers what are the accommodations of the special education students in their classes. Do they know off hand? If they don't, how could their accommodations be consistently implemented? Researchers could investigate where general education high school teachers keep their IEPs. This may tell much about the communicative value they hold for general education teachers. Are they useful enough to have a copy kept "on hand" in their classroom? How often are they referred to? This may get at the center of whether or a not an IEP design produces documents that function as valuable communicative tools. User rating measures could also be employed. Teachers, parents, and students could simply rate their IEPs for clarity and usefulness. Regardless of the measurement methodology, until a research base regarding the communicative value of IEPs is established, the topic of IEP reform remains a discussion about paperwork reduction, rather than a discussion about increasing the value of IEPs for the benefit of students.

Summary

The current paradigm of legal IEP construction needs rethinking. It was presented that reconceptualizing the IEP as a communicative tool, as opposed to a legal document, would result in more useful written IEPs for teachers, parents, and students. This paradigm shift would also likely create a substantial savings in limited educator resources, which could be more

productively utilized on service delivery. Research into the communicative IEP process presented here is needed in order to better understand the potential advantages and pitfalls of the proposed reconceptualization.

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Comparison of Gifted and Advanced Students on Motivation Toward Science Learning and Attitude Toward Science

Mustafa Serdar Köksal
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Abstract

In this study, comparison of academically advanced science students and gifted students in terms of attitude toward science and motivation toward science learning is aimed. The survey method was used for the data collection by the help of two different instruments: "Attitude Toward Science" scale and "motivation toward science learning". Examination of reliability and validity of the scores on the instruments was conducted by using the "principle component analysis" with "varimax rotation" due to existence of a new group for validation of the instruments. The study involved 93 advanced science students and 12 gifted students who had higher IQ scores than 130 on WISC-R. The results of the study showed that the adapted instrument was valid and reliable to use for the measurements of motivation toward science learning in the context of advanced science classrooms. The comparisons of the groups in terms of the variables of the study showed that there is no statistically significant difference between the groups whereas there is significant difference between the groups in terms of the scores on the national examination.

Comparison of Gifted and Advanced Students on Motivation Toward Science Learning and Attitude Toward Science

Learning about science and its products is a major requirement of our current age to make informed decisions, to overcome individual problems and to be competent in our job. In addition to learning science for daily life purposes, it is important to go further in developing scientific innovations to find new and more effective solutions of problems which are seen commonly in societies. Going further in science and scientific development is related to number of individuals who are more competent in understanding science and making science more effectively than ordinary individuals. One of the purposes of science education is to educate students who have higher ability in understanding science, knowing about scientific concepts and scientific products, and using science processes effectively. These students need special support and opportunities in learning science (Colangelo and Davis, 1997; Karnes and Bean, 2001). Formally, the opportunities on learning about science by high ability students begin formally at elementary grades and continue for a life-long time. High school years are very important period for learning about science content and science due to the fact that high school science courses are, unlike to the elementary level science courses, organized as separate scientific titles of disciplines such as biology, physics and chemistry. Separate titles are important for high ability (advanced) and gifted students since they need to think deeper on the science subject. At the same time, high school science courses taken by high ability students provide opportunities to see social aspects of science subjects as a challenging situation just before entering into the social life as a citizen.

Learning about science subjects and science in high schools by advanced and gifted students includes affective and cognitive factors which are determinants of learning quality and process. The cognitive factors involve the variables including information processing, reasoning ability and academic achievement (Köksal & Yel, 2007; Lawson, 2006; Lawson, Banks &Longvin, 2007; Schunk, 2000; Yumuşak, Sungur & Çakıroğlu, 2007) while the affective factors are composed of the variables such as attitude, self-efficacy, anxiety and motivation (Baldwin, Ebert-May & Burns, 1999; Ekici, 2005; Glynn & Koballa, 2006; Mallow, 2006; Osborne et al., 2003; Savran & Çakıroğlu, 2001; Uzuntiryaki & Çapa Aydın, 2008; Yumuşak et al., 2007). Among the affective factors, motivation toward learning science and attitude towards science have a separate place due to fact that both attitude and motivation are related to wide range of the variables that are important in science education (Wolters & Rosenthal, 2000; Tuan et al. 2005; Salta &Tzougraki, 2004; Wilson, 1983). Attitude toward science is the preparedness to think, feel, or react positively or negatively toward any object regarding to science (Petty, 1995). In a meta-analysis study focusing on attitudes toward science, it was shown that higher achieving girls, "doing well" or "achieving" in science were individuals "liking" more science than ordinary counterparts (Weinburgh, 1995). Salta and Tzougraki (2004) also stated that a positive attitude regarding to science course is more necessary for higher achieving students in maintaining their performance. For motivation factor, giving more importance to it in science learning over the other affective factors regarding to science learning is also suggested by science education researchers (Osborne et al., 2003). Motivation is defined as the process which instigates and sustains a goal directed activity (Pintrich & Schunk, 2002). There are many studies in which relationship of motivation with educationally important outcomes are presented. Motivation is correlated to the scores on science attitude and achievement (Tuan et al. 2005). Again, existence of more effort and perseverance of students with higher motivation are also correlated with motivation (Wolters & Rosenthal, 2000). In another research, Palmer (2005) stated that motivation plays an important role in construction of knowledge and conceptual change. Moreover, Pintrich & DeGroot (1990) focused on higher-order cognitive variables and they showed that there was a significant relationship between motivational factors and cognitive constructs such as strategy use and meta-cognition. In Turkish context, Köksal & Tasdelen (2007) also showed relationship of motivational factors including self-efficacy and task value with use of rehearsal and organization in learning science. In addition to the correlation studies, Glyn & Koballa (2006) presented that science motivation predicts interest in science, number of courses taken and science grades. Correlations of motivational factors regarding to science learning and attitude toward science with both other affective factors and cognitive variables provide a significant place to study motivational and attitudinal situations of advanced and gifted students toward science learning.

The advanced and gifted students are different from their ordinary counterparts in terms of motivational characteristics. Gottfried and Gottfried (1996) pointed out, by studying on the students at the age range from 9 to 13, that advanced students had significantly higher academic intrinsic motivation across all subject areas including science and school in general. Again, Vallerand, Gagne, Senecal and Pelletier (1994) focused on lower grades involving 4. 5. and 6. grade students and they found that advanced students felt themselves as more competent and intrinsically motivated toward activities in school than traditional students. The attitude toward science is another characteristic by which gifted students differentiate from ordinary students.

The gifted students present more positive attitudes toward science than their ordinary counterparts (Caleon and Subramaniam, 2008). In another study (Harty and Beall, 1984), it was shown that gifted students hold more positive attitudes towards science than nongifted students. Talib, Luan, Azhar and Abdullah (2009) also showed that advanced science students, similar to gifted students had also high positive attitudes toward science. In the literature presented above, the studies on the motivational and attitudinal characteristics of gifted and advanced students with regard to science did not try to compare advanced and gifted students in terms of motivation toward learning science and attitude toward science while they compared gifted or advanced students with ordinary students. But these groups of the students; gifted and advanced students, are also different from each other in terms of diagnostic ways. Gifted students are determined by applying IQ tests, other standardized ability or special field tests whereas advanced students, not taking any IQ test, have higher motivational (high motivation toward learning science), cognitive (high achievement in science) and affective (high positive attitude toward science) characteristics regarding to a special field such as science than their ordinary counterparts (Brown, Renzulli, Gubbins, Siegle, Zhang and Chen, 2005; Koksal & Sormunen, 2011). Both of these groups of students need special attention in designing a science course due to their difference from ordinary students. Because gifted students carry the characteristics of "asking challenging questions", "being impatient with the pace of other students", "having perfectionist traits", "disliking routine and busy work", "being critical of others" and "being aware of being different" into science classrooms (Park and Oliver, 2009) while advanced science students have high motivation toward learning science, positive attitude toward science and higher scores on science content tests (Koksal & Sormunen, 2009).

Therefore, it was thought that comparison of advanced science students and gifted students in terms of attitude towards science and motivation toward learning science might provide an important point for making motivationally and affectively effective instructional science course designing the programs including gifted and advanced students.

Method

For the purpose of this study, cross-sectional survey method was utilized by using two instruments: "motivation toward science learning" questionnaire and "attitude toward science" scale. The instruments were applied by classroom teachers. The participants were selected purposively for considering advanced science students' enrollment in science high schools, motivation and attitude scores and by reaching gifted students in science and art center of a middle scale city in Turkey.

Participants

The number of all participants is 105 9^{th} grade students at the age f 15. Ninety three of them (47 female, 46 male) are advanced science students while 12 gifted students (7 female, 5 male) are included in the sample. The advanced science students are enrolled in science high schools where they are taking more courses on science and denser science content than ordinary high schools and they are also selected to this school by taking highest scores in a nation-wide content test. The advanced students are in top % 5 of the all test takers (over 800.000). the gifted students are enrolled in Science and Art Center of a middle scale city of Turkey. The gifted students are selected to the center based on their IQ test scores on WISC-R. The students involved in this

study have IQ scores over 130. In the center they are taught the science subjects by making mentorship and they are included in small groups during the teaching. They have also opportunity of making lab applications with their teachers and of making independent research. All of the activities of the center are made as out-of-school applications.

Instruments

The 'Motivation toward Learning Science' questionnaire (MLSQ) developed by Tuan, Chin and Sheh (2005), the 'National Examination' results and 'Attitude toward Science' scale (ATSS) developed by Geban, Ertepınar, Yılmaz, Atlan and Şahpaz (1994) were used as data collection tools in this study. The questionnaire and scale were applied to all of 105 participants, to gather reliability and validity evidence on the sample of 9th grade advanced and gifted students. The items of MLSQ were translated into Turkish by Yılmaz and Cavas (2007) and the researchers adapted the instrument for ordinary elementary students. The ATSS was also developed for ordinary students by Geban, Ertepınar, Yılmaz, Atlan and Şahpaz (1994). Due to the difference of the participants in this study from elementary ordinary students, reliability and validity studies were done by using principle component analysis and calculation of Cronbach alpha coefficient.

Reliability and Validity of Scores on the ATSS

Before the running principle component analysis, KMO (Kaiser-Meyer-Olkin) value and Barlett's Sphericity Test results were investigated to test whether the Data werefactorable or not (Büyüköztürk, 2002). The results showed that KMO value and the Barlett's test results are appropriate to go on making further analysis with the data (KMO=.90, Barlett's Test Chi-Square=551.34, df=78, p<.05). The results of principle component analysis with varimax rotation presented that 14. and 7. items of the original instrument were not appropriate due to their loadings on two different factors with high factor loadings. The remained items (n=13) loaded on two factors and explained 55% of the total variance in attitude toward science. One example of the items is "I experience pleasure when I come to science course". In table 1, Cronbach Alpha values and descriptives for the scale are presented.

Table 1. Cronbach Alpha values and descriptives for the scale (n=105)

Instrument	**Number of Items**	**Number of Factors**	**Names of Factors**	**Cronbach Alpha**	**Explained Variance**
ATSS	13	2	Attitudes regarding to general and personal contributions of science and importance of science in daily life	.90	%44
			Attitudes toward format of the science content and negative attitudes toward science course	.89	%11
					55 %

Table 2. Factor Loadings of The Factors of the ATSS

Factor Loadings of The Factors of the ATSS		
Items	**Factors**	
	1	**2**
Item 6		**,792**
Item 12		**,763**
Item 4		**,738**
Item 13		**,731**
Item 1		**,596**
Item 9		**,588**
Item 10	**,729**	
Item 11	**,657**	
Item 3	**,655**	
Item 15	**,630**	
Item 2	**,616**	
Item 5	**,615**	
Item 8	**,553**	

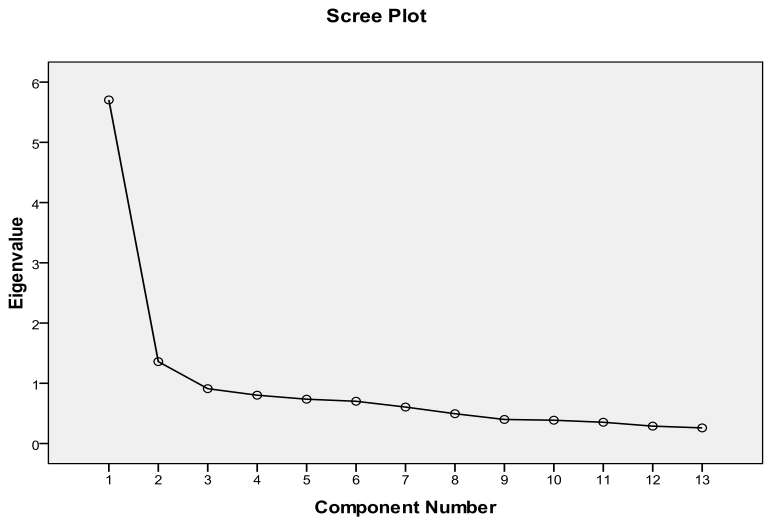

Figure 1. Screen Plot Graphic of the scores on the ATSS

As seen in the figure 1, the scores of the participants on the ATSS were loaded on two different factors. Screen plot graphic becomes smooth after the third point, there are two points showing the number of the factors above this level.

Reliability and Validity of Scores on the MLSQ

Similar process with ATSS scores was also applied to the scores of MLSQ. Before the principle component analysis, KMO (Kaiser-Meyer-Olkin) value and Barlett's Sphericity Test results were checked to see whether the Data were factorable or not (Büyüköztürk, 2002). The results showed that KMO value and the Barlett's test results are appropriate to go on making further analysis with the data (KMO=.93, Barlett's Test Chi-Square=3706,65, df=465, p<.05). The results of principle component analysis with varimax rotation presented that 23. and 32. items of the original instrument were not appropriate since they load on two different factors with high factor loadings. The remained items (n=31) loaded on four factors and explained %76 of the total variance in attitude toward science. One example of the items is "I am sure I will be successful in science exams". In table 3, Cronbach Alpha values and descriptives for the questionnaire are presented.

Table 3. Cronbach Alpha values and descriptives for the questionnaire (n=105)

Instrument	Number of ɛms	Number of ɹctors	Names of Factors	Cronbach Alpha		Explained Variance	
MLSQ	**31**	**4**	Motivation toward the ways used in science learning	**.98**	**.98**	**%61**	**%76**
			Motivation regarding to personal tasks in science learning	**.87**		**%6**	
			Teacher-related motivation	**.75**		**%6**	
			Extrinsic Motivation	**.76**		**%3**	

Table 4. Factor Loadings of The Factors of the MLSQ

Factor Loadings of The Factors of the MLSQ				
Items	**Factors**			
	1	**2**	**3**	**4**
Item 24	**,884**			
Item 25	**,866**			
Item 26	**,859**			
Item 8	**,847**			
Item 27	**,819**			
Item 11	**,814**			
Item 13	**,805**			
Item 14	**,771**			
Item 10	**,763**			
Item 7	**,760**			
Item 19	**,746**			
Item 4	**,739**			
Item 12	**,717**			
Item 17	**,710**			
Item 9	**,709**			
Item 16	**,690**			
Item 15	**,661**			
Item 18	**,639**			
Item 6	**,596**			
Item 28	**,567**			
Item 33	**,565**			
Item 2		**,841**		
Item 1		**,792**		
Item 3		**,668**		
Item 5		**,619**		
Item 31			**,837**	
Item 30			**,821**	
Item 29			**,515**	
Item 20				**,804**
Item 22				**,769**
Item 21				**,617**

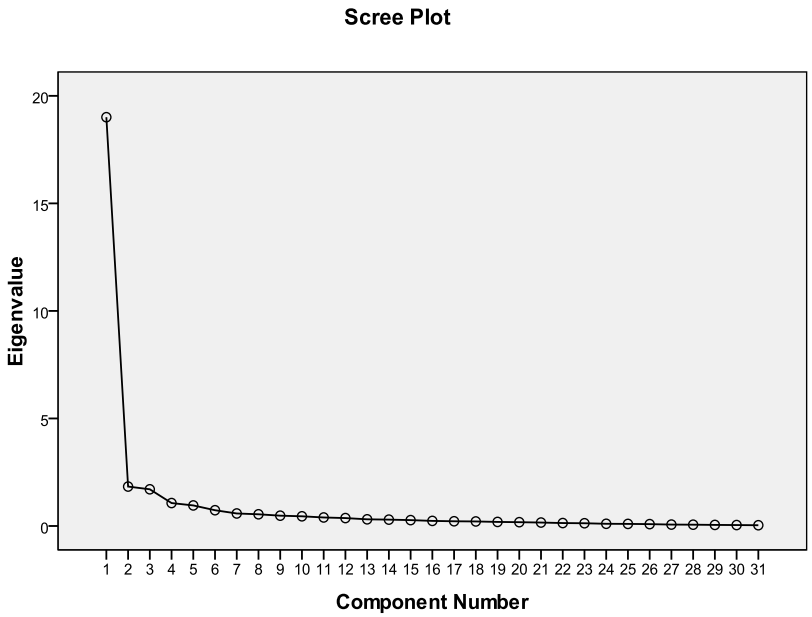

Figure 2. Screen Plot Graphic of the scores on MLSQ

As seen in the figure 2, the scores of the participants on the MLSQ were loaded on four different factors. Screen plot graphic becomes smooth after the fifth point, there are four points showing the number of the factors above this level.

Analysis of the Data

The analysis of the Data was conducted by Mann-Whitney U tests for the purpose of comparing two groups in terms of motivation toward science learning" and "attitude toward science". The reasons of choosing Mann-Whitney U Test are non-normal data distribution and unequal numbers of the participants in the groups (Green, Salkind & Akey, 2000). The normality test was performed by calculating Skewness and Kurtosis values and it was found that the data is not normal. For comparing the groups, two different applications of Mann-Whitney U test were done, so Benforroni adjustment was made to hold type I error rate (.05) constant. The calculated alpha value was set as .025 for each test. Table 5 represents descriptive values of the scores on the instruments.

Table 5. *Descriptive Statistics for the variables of the study*

Variables (n=105)	**Mean**	**SD**	**Skewness**	**Kurtosis**
Total				
Attitude Toward Science	4,04	,63	1,01	1,81
Motivation Toward Science Learning	3,54	1,09	1,20	3,55
National Examination Scores	469,49	11,88	,45	,82
Descriptives of Gifted Sample Scores (n=12)				
Attitude Toward Science	3.96	.76	1.01	.07

Motivation Toward Science Learning	3.7	.68	1.9	4.2
National Examination Scores	489.36	4	.01	.65
Descriptives of Advanced Sample Scores (n=93)				
Attitude Toward Science	4.04	.61	.99	2.14
Motivation Toward Science Learning	3.54	1.14	1.9	3.20
National Examination Scores	467.14	10.18	.52	.47

Results

The groups in this study were compared to validate difference between them in terms of cognitive variables. The first evidence of the difference comes from the IQ scores of the participants. The students in the sample are coming from the same population, but their IQ scores differentiate them as the scorers below 130 and scorers above 130. For gathering the second evidence for the difference, their OKS scores were compared. The results of the comparison can be seen in table 6.

After the validation of the difference between the groups of this study, comparisons of the groups in terms of dependent variables were done. The data analysis regarding to the descriptive statistics showed both of the groups had higher mean attitude (over 3.9/5) and motivation scores (over 3.5/5) with related to science and science learning. After investigation of the descriptives, the data gathered from the participants were compared across the groups by the inferential statistics. The analysis results on the comparisons can be seen in table 6.

Table 6. Analyses Results on The Comparison of the Groups in terms of the Dependent variables

Variables (n=105)	**Group**	**Mean Rank**	**U**	***p***
National Examination Scores	Gifted	96,45	28,00	,00*
	Advanced	47,30		
Motivation Toward Science Learning	Gifted	53.04	557,50	,99
	Advanced	52,99		
Attitude Toward Science	Gifted	52,25	549,00	,93
	Advanced	53,10		

Note: *p<.025

The scores on the national examination differed significantly (p<.025) across the groups in favor of the gifted students. Gifted students had significantly higher scores than their advanced counterparts. However, the results of the study showed that the scores of the groups were not statistically different from each other in terms of "attitude toward science" and "motivation toward science learning".

Discussion and Suggestions

The results of this study provide significant understandings for the difference between 15 aged gifted and advanced science students in terms of motivation towards science learning and attitude toward science. Before discussion of the motivation and attitude, it is important to say that the gifted group and advanced group are significantly different from each other in their scores on national examination and IQ. The gifted group has significantly higher scores than their advanced counterparts. The national examination scores are based on science content knowledge and effective mental ability use on purposes of the examination in which making comparisons, analyzing tables, making mathematical calculations, drawing conclusions and findings patterns. The higher scores of the gifted students on the national examination are related to their better performance and higher ability on mental tasks than advanced science students (Arffa, Lovell, Podell, Goldberg, 1998; Seidenberg, Giordani, Berent & Boll, 1983). And another reason for the difference in the national examination scores is about their selection of the programs based on their IQ scores focusing on mental functions or cognitive side of the learning. Therefore, the differences between the groups in terms of IQ and national examination scores can be used for validation of the group difference in terms of cognitive or mental abilities.

After the investigation of the cognitive difference between the groups, the main variables of this study were investigated. The results showed that the gifted and advanced science students have high scores on the attitude and motivation. As a supporting study, Tang and Neber (2008) also found that gifted students had high motivation scores over 4.5/5 with regard to chemistry learning. In another supporting study, Caleon and Subramaniam (2008) showed that advanced and gifted students had highly positive attitude scores over 22/30 with regard to science. The results showed no difference between the groups in terms of the dependent variables of the study. It indicates that although the gifted and advanced science students are different in terms of cognitive abilities, they are similar to each other in terms of motivation toward science learning and attitude toward science. The findings of this study supported the previous studies. Caleon and Subramaniam (2008) found that there was no difference between advanced and gifted students in terms of attitude toward science. This similarity might be related to experiencing the similar science education activities, to meeting similar science teachers and to be evaluated on science learning in similar ways. The gifted and advanced science students are enrolled in the same schools (Science High Schools). Only one difference lies in taking courses from “Science and Art Centers” where only gifted students take courses after their formal school time. Similarity in the experiences of the gifted and advanced science students makes contribution to the similarity or nondifference between them in terms of the attitude toward science and motivation toward science learning.

This result is important due to the fact that the gifted teaching programs should consider school factors including non-gifted students who are partners and friends of gifted students in Science High Schools. If the students having similar affective readiness to begin a cognitive task are involved in a gifted education program, it might be more effective to provide opportunity of improving mental abilities of advanced science students by modeling their gifted counterparts while the gifted students have opportunity of making social relationships with the friends who are not different as far as ordinary students. The results of this study drive us to consider positive dual effects of the similarity between gifted and advanced science students in terms of

motivation toward science learning and attitude toward science in gifted education programs regarding to science.

Based on the findings of this study, it can be suggested that the similarity between the gifted and advanced students in terms of affective and motivational factors regarding to science and science learning respectively should be taken into account in assessment and selection activities for a gifted science education program. In spite of the evidence of the difference between the groups in terms of national examination scores and IQ, there is a need to compare the groups who have more number of members, to increase validity of the difference in mental abilities. At the same time, more number of the participants should also be reached to increase power of the statistical technique (using parametric statistics). This study is limited to ninth grade students and it includes only results on the scores of all the participants, but gender difference and difference between various IQ groups should be investigated with more participants.

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Exploring the Experiences of Special Educators Following the Joplin Tornado

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Abstract

On May 22, 2011, an EF5 tornado ripped through Joplin, MO, leaving many residents without homes and destroying or damaging several school buildings. The purpose of this qualitative study was to explore how special education teachers responded to the needs of their students with disabilities following the Joplin tornado. Purposeful sampling was used to select three participants who were special education teachers working in schools that were damaged or destroyed by the tornado. The researcher used semi-structured interviews to collect data that was then coded to identify categorical themes. The results showed the types of challenges experienced by special educators and their students, following the tornado, and the supports that were provided to help mitigate those needs.

Exploring the Experiences of Special Educators Following the Joplin Tornado

On May 22, 2011, the city of Joplin, Missouri experienced the destructive effects of a natural disaster when an EF5 tornado ripped through the town. The tornado is considered one of the costliest and deadliest tornados in U.S. history (National Weather Service Weather Forecast Office, 2011). The tornado injured thousands, killed 162 people, and "destroyed or damaged 10 Joplin School District buildings, displacing thousands of students" (Kennedy, 2011; Ryan, 2011). The purpose of this qualitative study was to explore how special educators responded to the needs of students with disabilities following this devastating natural disaster. By investigating the experiences of special educators in Joplin following the tornado, the hope was to gain a better understanding of the challenges teachers face when their students are experiencing loss and trauma. A primary goal was to learn more about the kinds of supports special educators provided students with disabilities who were coping with the stresses caused by a traumatic event. As a result, the study sought to discover some basic principles of how to best support teachers and students affected by traumatic events.

The following primary research questions were explored:

- What were the experiences of special educators working in schools affected by the Joplin tornado?
- According to special education teachers, what were the challenges that students with disabilities faced after the Joplin tornado?
- What kinds of supports did special educators provide students with disabilities after the Joplin tornado?

Conceptual Framework

The conceptual framework (see Figure 1) identifies the assumptions and beliefs about the topic being study. It represents key variables that were identified through experiential knowledge and existing theory and research.

Maxwell (2005) establishes the importance of identifying the role of the researcher's experiences on the proposed study. The researcher is a former member of the Joplin community and an alumnus of Joplin High School. Based on the researcher's personal reaction following the tornado and informal conversations with many community members affected by the tornado, the researcher proceeded with the assumption that many teachers, students, and family members of students will have experienced emotional, physical, or psychological needs associated with the disaster. As a former special educator, the researcher expected some students with disabilities to have unique needs associated with their disability, such as difficulty transitioning to new settings and experiences. Because of these unique needs, she hypothesizes special education teachers play an instrumental role in meeting the needs of students with disabilities and their families following traumatic events, even while potentially dealing with their own personal loss and recovery efforts.

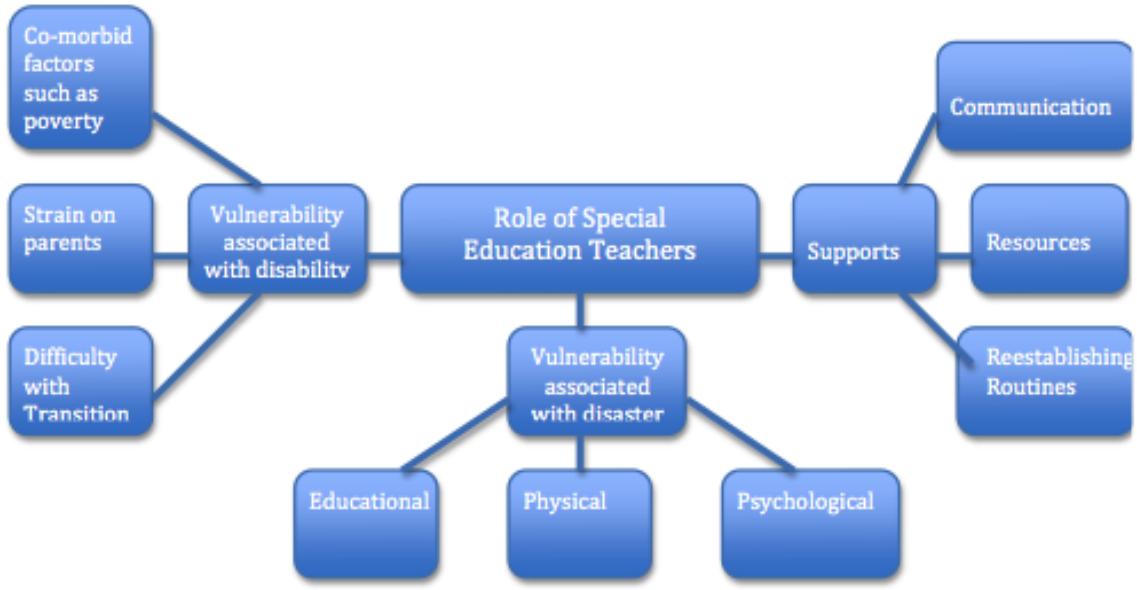

Figure 1. Conceptual Framework

Students with disabilities have unique needs separate from their peers without disabilities. People who experience the destructive effects of natural disasters also have unique needs. But, what happens when disability and disaster are experienced simultaneously? What are the unique needs of students with disabilities in the context of disaster, and what role do special education teachers play in supporting these students? Durant (2011) used an integrated vulnerability theory and social capital theory to explore the impact of Hurricane Katrina on the elderly population in New Orleans. Similarly, the current study used a theoretical framework that combines vulnerability theory and social capital theory to explore the effects of the Joplin tornado on students with disabilities. Furthermore, the study sought to identify whether special educators,

as a form of social capital in a community, play a role in mitigating the effects of disability and disaster for their students.

Vulnerability theory takes into account physical, environmental, and social vulnerabilities when considering the effects of disaster on outcomes. Durant (2011) argues, "an important point that disaster researchers should be aware of is that when a natural disaster occurs, the social conditions that determine vulnerability and its effects are already in place that will determine the possible outcomes or impacts" (p. 1290). Students with disabilities are a particularly vulnerable population, because of the vulnerability associated with both disability and age. Therefore, it is important to examine the types of social capital that are available to students with disabilities before and after disaster strikes.

Social capital theory considers how relationships and networks meet the needs of community members and individuals following a disaster (Durant, 2011). According to Durant (2011), "A major theoretical proposition of social capital in explaining responses to a disaster is that social networks (relationships, mutual ties, etc.) may provide varying levels and types of support to persons during a disaster" (p. 1293). Special education teachers are a form of social capital for students with disabilities; therefore, this study seeks to examine the types of support special educators provide to meet the needs of their students after a natural disaster.

Using an integrated theoretical framework, of vulnerability theory and social capital theory, the researcher examined the literature on the following examples of vulnerability (vulnerability and needs associated with disability and disaster) and social capital (supports provided by special educators).

Vulnerability associated with disaster

Natural disasters, such as tornados, clearly influence all of the people that experience the major devastation that is left behind in the path of destruction. Children are especially vulnerable to the catastrophic effects of disaster (Hutton, 2010). The psychological, physical, and educational challenges that emerge for children following a natural disaster are well-established (Hutton, 2010; Peek & Richardson, 2010). Natural disasters can cause stress (Kamo, Henderson, & Roberto, 2011; Peek, Morrissey, & Marlatt, 2011) and mental health challenges (Lowe, Chan, & Rhodes, 2011) for those that experience them. As a result of a disaster, children are susceptible to psychological problems such as, post-traumatic stress disorder, depression, anxiety, or behavioral problems and physical problems such as illness, disease or death (Peek & Richardson, 2010). After a natural disaster, children are also at a high risk of experiencing educational problems such as missed school, academic difficulties, and delayed development (Peek & Richardson, 2010).

Vulnerability associated with disability

Students with disabilities are particularly vulnerable in the context of a natural disaster, because they experience vulnerability as a result of both their age and disability. Children with disabilities often experience co-morbid factors that contribute to their vulnerability such as, "higher poverty rates, elevated risk exposure, greater vulnerability to traumatic loss or separation from caregivers, more strain on parents, and poor post disaster outcomes" (Peek & Stough, 2010, p. 1260). One particularly stressful event that often occurs after a natural disaster is relocation

(Kamo et al., 2011). Relocation can be especially difficult for students with disabilities that may have difficulty with transitions. For example, students with autism spectrum disorder often have difficulty transitioning between settings (Dettmer, Simpson, & Myles, 2000). In Joplin, where the tornado flattened or damaged 30 percent of the structures (Taylor, 2011), many people were left without homes and students in 6 school buildings were required to move to different schools, which may have resulted in difficulty related to transitions for many students with disabilities.

Supports that special educators provide

Although the effects of natural disaster can leave students with disabilities vulnerable to significant psychological, physical, and educational problems, social supports can help mediate those effects (Durant, 2011; Kamo et al., 2011). Teachers are one example of social supports. Ducy and Stough (2011) examined the role that special educators played in supporting students with significant disabilities after Hurricane Ike. They found that teachers, students, and families all experienced loss as a result of the hurricane. Losses included material objects, services, such as transportation or medical services, and academic, social, and behavioral skills. Teachers also reported losing material possessions and professional functioning. Ducy and Stough (2011) found that teachers offered valuable support for students and their families following the hurricane. Teachers offered support in the form of "resources, communication, and reestablishing routines" (Ducy & Stough, 2011, p. 13). According to Ducy and Stough (2011) the support that special education teachers provide to students with disabilities and their families can be especially important because emergency management systems provided limited individualized support for people with disabilities in disaster.

Description of Methods

Research Participants

Purposeful sampling was used to select participants. Maxwell (2005) identifies four reasons for using purposeful sampling: achieving representativeness of the setting, adequately capture the heterogeneity of the population, examine cases that are critical to the concept being studied, or to establish particular comparisons to identify differences. For the purposes of this study, purposeful sampling was used to examine cases that are critical to the theory being studied and to identify representatives of the setting being studied. Representative participants were special education teachers who are currently working in schools that were damaged or destroyed by the Joplin tornado. According to the assistant director of special services in Joplin, there are 51 special education teachers that were directly impacted by the tornado: 37 special education teachers lost their schools, and 14 were relocated to other buildings (M. Barlass, personal communication, November 21, 2011).

The current sample consisted of 3 special education teachers that worked in buildings impacted by the tornado. Research participants were identified through personal contacts within the district. As a former member of the Joplin community and alumnus of the Joplin district, the researcher knew personally, or through acquaintances, several teachers and administrators currently and formerly employed by the district. The personal association with members of the community and school district were used to help identify and recruit participants. Personal contacts provided the researcher with the names and contact information of potential participants, who were then contacted by e-mail and informed of the purpose of the study.

The special education teachers that agreed to participate worked in different settings and had different levels of teaching experience. Two teachers worked in self-contained classroom settings, and one teacher taught in a resource setting and co-taught in a general education setting. All of the participants had at least five years of teaching experience. The teachers taught different grade levels, with one teacher each being at the elementary, middle school, and high school level. Each teacher interviewed worked in a school that was either damaged or destroyed by the Joplin tornado. All of the teachers interviewed were working in the school district both during and after the tornado.

The following profiles describe the teachers that were interviewed and their personal experiences following the tornado (See Table 1).

Teacher	**Number of Students on caseload**	**Student Grade Levels**	**Students' Disabilities**	**Postdisaster Status**	**Teachers' Personal Experience**
Angela	13	K-5th	Predominantly Autism	Taught summer school less than one month after the tornado in a different school building. Returned in the fall to the school building she had previously taught at, which had undergone significant renovations after being damaged by the tornado.	Angela was out of town when the tornado hit. The house she had recently moved away from was severely damaged by the tornado.
Denise	Not reported	9th and 10th	Predominantly Learning Disabilities	The high school Denise taught at was destroyd. The high school was split between two new locations, with 9th and 10th graders going to an old high school building and 11th and 12th graders going to a makeshift school out of the local mall. Denise's classroom was relocated to the old high school building.	Denise reported suffering significant personal loss when her home was hit by the tornado, while she was in it. She expressed concern about the emotional and physical toll it has taken on her ever since.
Steve	13	6th-8th	Predominantly Emotional Disturbance	The middle school Steve taught at was destroyed. Steve is teaching in a converted warehouse on the outskirts of town.	Steve saw went outside to check on the weather and saw the tornado headed toward him. He ran to a

					crawl space in his home for safety. Steve's home was spared with minor damage, but some of the homes in his neighborhood suffered significant damage.

Table 1. Participant Profile (Adapted from Ducy & Stough, 2011)

Angela. Angela teaches in an elementary school that was significantly damaged by the Joplin tornado, but is still functioning as a school. She teaches in a self-contained classroom that serves predominantly students with autism in Kindergarten through fifth grade. She has taught for five years in the Joplin school district, but has prior experience teaching preschool in another school district. Although Angela was not in Joplin when the tornado hit, she had family members who lost their home. Angela was traveling back to Joplin when she and her family began receiving text messages about the tornado. She reported feeling anxiety as she returned home and passed house after house that that had been hit, either partially or totally. Luckily, the house she currently lives in was spared. However, she had also just recently moved from a home that was completely demolished by the tornado, and she expressed a feeling of dread that if the tornado had struck one month earlier she and her children would have been in that home.

Denise. Denise teaches high school students with learning disabilities. She primarily co-teaches in the general education setting. She also works in a program called FLEX, which educates high-risk students, such as those in drug and alcohol recovery programs. Denise has twenty-eight years of teaching experiencing. She is in her twenty-first year in the Joplin school district. The high school Denise taught at was completely destroyed by the tornado; therefore, she is now teaching in an old school building, which now houses the ninth and tenth grade students. Denise experienced significant personal loss as a result of the Joplin tornado. She was at home, seeking refuge in a storm shelter, when the tornado struck. It destroyed her entire home, including the basement, and Denise was trapped in the storm shelter until neighbors were able to remove debris from the basement that had fallen on the storm shelter door. She reports that she has "been on recovery since."

Steve. Steve teaches students from sixth to eighth grade in a self-contained classroom setting. Most of the students he teaches are diagnosed with emotional disturbance. This is his seventh year of teaching and his third year teaching in Joplin. The middle school Steve taught at was hit by the tornado and is now unusable. He is currently teaching out of a warehouse that was converted into a space that is being used as a temporary middle school. When the tornado hit, Steve was at home, taking shelter in a crawl space. Although other houses in his neighborhood were significantly damaged by the tornado, Steve's house only suffered minor damage. However, experiencing the lasting fear of huddling in a crawl space while hearing what sounds like your house being sucked away has left him with an understanding of the affect that a tornado can have on those who encounter it.

Data Collection

Data were collected through semi-structured interviews. The interview protocol (See Figure 2) was used to guide the semi-structured interview. The interview questions were developed based on information gathered through existing literature and experiential knowledge. The questions sought to gather information about the teachers' experiences following the tornado and to learn more about how the teachers responded to their students' unique needs. The face-to-face interviews occurred approximately six months after the Joplin tornado. Two interviews were conducted in the participants' homes and one interview was conducted at the participant's school. The interviews lasted approximately one hour and fifteen minutes each. The interviews were audio recorded and transcribed. The transcripts were used to code the data, so that the data could be organized into overarching themes.

Semi-structured Interview Protocol

Section	Questions
Experiences	1. Tell me about your own personal experiences following the tornado. What influence, if any, did that have on your role as a special educator? 2. Tell me about your experiences returning back to school after the tornado. How did this school year compare to your "back to school" experiences prior to the tornado?
Impact of Tornado on Students/ Challenges	3. Tell me about your classroom and the students on your caseload. Number of students? Types of disabilities? What impact, if any, did the tornado have on your students? 4. Describe a student who was affected personally by the tornado. Tell me about the challenges that student experienced. How does that student's experience compare to the experiences of the other students in your class, was it typical or exceptional? 5. How would you compare the impact of the tornado on students with disabilities to students without disabilities? 6. When you think about your students and their particular needs, describe any challenges (emotional, physical, educational) your students experienced as a result of the tornado.
Transition	7. Often students with disabilities experience difficulty associated with changes in routines, schedules, and structure. Research also indicates the transition to different school environments is especially challenging for students with disabilities. What transition supports do your students need, if any, and was that level of need influenced by the tornado? 8. How would you describe the changes that your students experienced as a result of the tornado? 9. In what ways, if any, did the tornado pose any particular challenges for your students in regards to transitioning between new experiences and environments? (For example, new school, new home, new teacher, new students) 10. Describe the role you play as a special educator in helping students

	with disabilities adjust to changes. Describe the impact of the tornado on your role as a special educator in regards to helping students transition under changing conditions.
Supports	11. As a special educator, how did you help your students respond to stress or challenges experienced as a result of the tornado? 12. Have you experienced any challenges educating students as a result of the tornado? If so, what supports did you receive or would you have liked to receive to address those challenges?
Future Implications	13. Based on your experiences, what suggestions would you give other special educators on how to best support students with disabilities following a natural disaster? 14. Are there any other things you would like to add before we end the interview?

Figure 2. Semi-structured Interview Protocol

Data Analysis

To analyze the data, the researcher began by reading through all of the data sources and recording general thoughts and initial impressions. She then coded the data collected through the semi-structured interviews. First, the researcher coded the initial interview to identify broad themes that emerged. Next, she employed the constant comparative method and continually compared the first interview codes with subsequent interviews that were coded until categorical themes emerged across interviews (Merriam, 2002).

Cresswell (2009) suggests implementing reliability procedures to ensure data is accurate. For this study, the researcher used the following reliability procedures: check transcripts and compare the meaning of codes. Transcripts were compared to audio recordings to ensure no mistakes were made during transcription. Data were also frequently compared with the codes to ensure a drift in the code definition did not occur.

The following validity strategies ruled out threats to interpretations of the data: explain researcher biases, collect "rich data", and compare results to existing literature (Creswell, 2009; Maxwell, 2005). To contribute to the validity of the results, the researcher was forthright about personal biases and how her experiences shaped the interpretation of the data. Another, validity strategy the researcher employed was collecting "rich data". By conducting, recording, and transcribing intensive semi-structured interviews that were approximately one hour and 15 minutes in duration, she was able to collect detailed and extensive data to support the conclusions. Finally, the current findings were compared to those of Ducy and Stough (2011), who explored special education teacher support following Hurricane Ike. Comparing literature on similar settings and individuals can help identify the significance of the findings (Maxwell, 2005).

Discussion of Results

The information that was gathered from this study was clustered under two broad themes: challenges and supports. Under each of these broad themes, more specific organizational categories emerged. Challenges included 1) challenges experienced by students and 2)

challenges experienced by teachers. Supports included 1) supports provided by volunteers to students and families 2) Supports provided by teachers to students and families, and 3) technological supports. Substantive categories were then determined from examples within each organizational category that emerged across interviews. Table 2 outlines the broad themes, organizational categories, and substantive categories that surfaced from the interviews.

Broad Themes	Organizational Categories	Substantive Categories
Challenges	Challenges Experienced by Students	• Personal Loss of Belongings • Transition (Change in routine and Physical Location) • Emotional Trauma • Influence of Disability
	Challenges Experienced by Teachers	• Personal Loss of Belongings • Loss of Classroom Resources • Transition (Change in Routine and Physical Location) • Emotional Trauma • Limited Time to Prepare for School • Guilt
Supports	Support Provided by Volunteers to Teachers and Students and Families	• Time/Labor • Resources • Emotional
	Support Provided By Teachers to Students and Families	• Time/Labor • Transition Support • Emotional Support • Resources
	Technology	• For Communication among Families, Students, and Teachers • As a Resource for Students with Disabilities • As a Resource for Teachers

Table 2. Coding of Data from Semi-Structured Interviews.

Challenges

Challenges experienced by students

The teachers that were interviewed all talked about how the tornado affected their students. All of the participants agreed that the tornado certainly had an effect on some level on all of the students and all of the teachers in Joplin. As Angela said, "….we were all going through it, and when people say were you affected? We all were affected. And, I get that question. I understand it, but we *all* were."

***Personal loss of belongings*.** The participants talked about how several of their students lost their homes and all of their personal belongings. Angela reported that several of her students lost their homes, and one of her students continues to talk about it every day. Another student was celebrating a family member's graduation from high school with a party at their home, when the tornado ripped through the home. At the time, the whole graduation party was huddled in the bathroom. At the last minute Angela's student wanted her teddy bear, so her family had to force her into the bathroom, unwillingly, without it. When the family finally emerged from the bathroom, they discovered it was the only room in the house that was left. Amazingly, when they came out, Angela reports, "the teddy bear was right there. Everything else was pretty much gone."

Emotional Trauma. Along with losing personal belongings, many students in Joplin experienced a certain level of emotional trauma. To convey the magnitude of the emotional trauma her students are dealing with, Denise described her students' experiences as "war stories". The mother of one of Angela's students even decided to move out of the area because her son with autism was so deeply affected by the experience. The mother told Angela that even driving around the town and seeing the damage left behind by the tornado was too difficult for her son and, therefore, he refused to open his eyes. Angela and Steve both talked about how the tornado left students with a sense of fear about impending storms. Angela gave an example of how noise from construction workers traumatized her students with memories of the storm that had changed their lives.

> *One day in particular, someone dropped something on the roof. They were carrying something heavy…and dropped it. I had two students at the table with me and they both got under the table and covered their heads…….They get scared when it rains. They get scared when the wind blows real hard.*

Transition. Students also had to deal with challenges related to change. Students with disabilities are often particularly vulnerable to difficulties related to transition and change; for example, students with autism spectrum disorder may have difficulty transitioning between settings (Dettmer et al., 2000). The interviewed teachers talked about some of the difficulties related to transitioning between different schools as a result of the tornado. Angela said in regards to her students with autism, "…transition and change is one of the most horrendous things in their life. They don't like change. They don't like transition." This was especially difficult during summer school, when all of Angela's students were attending a different school for the first time in their lives. According to Angela, many of them didn't even "understand that

there are other schools." Steve's students also had to adjust to change. They were getting bussed from all over the district to a makeshift school in a warehouse, when the fall school year began. He described how challenging it was for students to get bussed such long distances. Also, Denise and Steve both talked about how difficult it would be for their students to go to a different high school than what they had always known and expected. Without a doubt, the tornado altered their students' sense of normality.

Challenges experienced by teachers

As their students are struggling with personal loss, emotional trauma, and difficulty transitioning to new situations and environments, their teachers are there to support them and to help them adjust to the changes and feelings they are experiencing. In the mean time, teachers are often dealing with their own challenges as a result of the tornado. The interviewed teachers shared some of the struggles they dealt with while trying to balance their responsibilities as a teacher with their own loss and trauma. Denise summed it up, when she asked, *"How do I teach these children and do life too. I struggle with it every day. How do I do this?"*

Personal loss of belongings and classroom resources. Denise described the experience of being down in a storm shelter while the tornado raged above her. She said she knew it was bad, because she could hear the sounds, but she had no idea "it destroyed everything and even took [her] basement. It literally just gutted and destroyed everything." Denise talked about how difficult it was to return back to school and work, when she was dealing with the exhaustion of trying to rebuild her life that was turned upside down after she lost all of her worldly possessions. On the other hand, she also felt like she needed the normality that returning to school represented for her. Angela did not lose her home, but some of her instructional assistants lost their homes and nearly lost their lives. Angela told stories of how emotional it was for them to return to work after experiencing such devastating loss. Although Angela and Steve did not lose their homes, they both mentioned the challenge of losing classroom resources as a result of the tornado.

Emotional Trauma. Denise is clearly still suffering from the emotional trauma of surviving the tornado as it ripped through her home. She got visibly emotional several times during the interview as she attempted to recall her experience. Denise even shared that she regularly visits a trauma counselor to help control her own emotions and to subdue the nightmares that she has about the tornado. She says, "*I am a fifty year old mother and wife and teacher that has gone through it, and I'm not powerful enough to say, well, I just need to pull up my bootstraps and take it. I am, but I can't do it alone. So, I go to the trauma counselor once a week*." On the positive side, she reports that she feels better able to relate to her students because, having gone through it, she understands the weight and power of their emotions. She also recognizes the importance of helping her students confront their own feelings.

Transition. Students are not the only ones struggling to adjust to change. All of the teachers interviewed also talked about the challenges associated with the changes caused by the tornado. Steve discussed the difficulty of moving to a new building with limited space. He described it as *"….really tight. I mean, space wise. We're on top of each other. The kids don't have anywhere to go. It's a square*." Angela talked about adjusting to working in a building without air

conditioning, while crews worked to repair the air conditioning in her school. Denise, on the other hand, had difficulty adjusting to the new technological expectations that were being placed on her. She described how the tornado expedited the district's efforts to change to a twenty first century school. In other words, instead of replacing all of the damaged textbooks, the district chose to equip all of the high school students with their own laptops, and to utilize a project based system where students use computers to discover content rather than read it from a textbook. This led to unexpected challenges for a teacher who was used to teaching in a more conventional format.

> *Teaching a new dog, I mean an old dog new tricks, in the midst of everything else is like, 'are you kidding me?!' I went to training for five days prior to school beginning. I don't remember a thing. I remember nothing from that training.*

Limited Time to Prepare. All of the teachers interviewed talked about how the tornado left them feeling as though there was not enough time to prepare for the impending school year. Denise said about returning to school, "*I wasn't ready to go back…..but the hand was forced to it, and I understand why…..I don't know that I needed more time, but I just was exhausted, because we had not stopped*." Similarly, Steve talked about the challenge of returning to school when summer vacation was filled with making repairs and recovering from the storm. He said, "*It's just been a hard year all around, and I think [because of] the tornado…..I don't think you have a summer break*." Angela taught summer school during the summer following the tornado, and she talked about how difficult it was to prepare for summer school while dealing with the remains left behind by the tornado. She said that she only had a four hour time period to get to the school and get together any materials that she would need to hold summer school in a different building. Although she found the experience challenging, she also felt like it was important for her to be there for her students during summer school.

Guilt. Another common theme that emerged across the interviews was a recurring feeling of guilt that the teachers expressed. Both Denise and Angela reported feelings of guilt as a challenge they experienced. Angela talked about how difficult it was for her to accept help and donations from volunteers. She said, "*It was very hard for me. It humbled me*." Denise talked about trying to cope with the guilt that she felt when she learned of the extent of the destruction caused by the tornado. Limited communication methods left her unaware of the magnitude of the devastation, but she still felt guilty that she was unable to help others more. Denise said,

> *Because we were one of the first hit, so as soon as we got out, it was still going through the town. We did not have any idea that was happening. You know, and we have somewhat of that remorse that, why didn't we go? Why didn't we go help? We didn't know. And, I've had to forgive ourselves for that, but we didn't know. We are on the edge of town. And nobody knew.*

Supports

Support provided by volunteers to teachers, students, and families. Another theme that was consistent across all of the interviews was how much the support provided by volunteers meant to teachers, students, and their families. All of the participants that were interviewed talked

about the support provided by volunteers, including donations of time and labor, donations of monetary resources and supplies, and donations of emotional support. From this tragedy, clearly there emerged a since of community, resiliency, and a helpful spirit among strangers and friends. As Steve said,

> *Overall, I think in Joplin, I think you saw the very best of human kind, and you know people that are resilient and want to get back to where they were at and aren't going to let anything get in their way of doing that. And, not just people in Joplin, but around this nation and around the world. Everybody, I think, pitched in……The magnitude of it just swept the nation. [There has] just been a lot of outpouring of support and help*.

Time/Labor. Denise gave numerous examples of how volunteers from all over the world helped her after she lost her home. Friends volunteered their home and car to her, strangers volunteered their labor, and organizations donated much needed supplies such as blankets and pillows. She said at times she would walk around and see up to fifty people on her property helping go through debris. One couple even traveled from Colorado to help work on her property and they donated a laptop computer to Denise, even though they were complete strangers. Angela reported how volunteers from across the country helped her in her classroom. They helped her move materials from her damaged classroom to the new summer school location. They also helped her prepare her recently renovated classroom for the new school year.

Resources. Not only did volunteers donate their time and labor, they also donated much needed supplies and monetary resources. Steve, Denise, and Angela all talked about the overwhelming gratitude they felt for the much-needed supplies that were donated to their classrooms. For example, Angela and Steve talked about the Adopt-a-Classroom Program, which raised funds to restock the classrooms of damaged schools. They shared how valuable that program was to their recovery efforts. Angela was able to get technology and furniture for her classroom as a result of the program. The summer school classroom of a different school in Missouri adopted Steve's classroom. The class completed a service project to raise money for the adopt-a-classroom program and donated $1,200 to Steve's class. Steve was able to replace supplies, furniture, and educational games with the donated money.

Emotional Support. After the tornado, volunteers were also on hand to provide emotional support to teachers, students, and their families. Steve and Denise both commented on the beneficial services provided by the Ozark Center, which provides behavioral health services to children, adults, and families. After the tornado, staff from the Ozark Center volunteered to help students cope with the emotional trauma they were experiencing. Therapists from the Ozark Center continue to be available for both students and teachers. Denise talked about the "amazing" job the Ozark Center has done for their school and even for her as she struggles to deal with her own emotions. Steve talked about how the emotional support provided by the Ozark Center has not only been helpful for victims of the tornado, but also how the on-site therapists from the Ozark Center have been a valuable asset for one of his students who is dealing with the loss of his mother. Furthermore, Denise talked about how the Ozark Center is helping teachers identify signs of substance abuse, which is a fear for students who do not know how to cope with the difficult emotions they are experiencing. Denise said,

The trauma counselors come from Ozark Center. And Ozark Center is trying to be there to listen to the needs of the students and of the staff, and then try to fill those needs. It's a big job. A great big job. And, then we also have real concerns for substance abuse, an increase in substance abuse due to [the tornado]. And so there's a process with Ozark Center and Missouri Southern's Yes Program, which is the mental health program they have there, to work with some of us that work with the higher at risk kids to early detections of substance abuse or signs of it--- getting them into counseling quickly and consistently and overseeing these kids and their parents for support……There's an amazing community that wants the best for this community. They know that we were already in that kind of sad hole of substance abuse. There's quite a bit of it in this area. Not that it isn't everywhere, but now we've got a real risk because people are sad, and they don't know what to do with the sadness.

Support provided by teachers to students and families. Another theme that emerged across interviews was how teachers supported students and their families. Each of the special education teachers talked about how they had helped their students cope with the stress and challenges of returning to school following the tornado.

Transition Support. The participants talked about how they addressed the transitional challenges that their students experienced. For example, Steve talked about how his school helped make the transition to a new school building go more smoothly by hosting a back to school night for students and their families. Denise talked about how it was difficult for her students to have to start high school in an old run down building instead of the high school they were anticipating going to before the tornado. To help make that transition easier for her students, she had the students paint and decorate the classroom to make it feel more like their space. Angela reported that her students with autism had a particularly difficult time adjusting to the change caused by the tornado. In order to help support her students, Angela used picture schedules and kept them in a routine. She wanted to help predict the change for her students, and by doing so she reported that the transition back to school after the tornado was a lot smoother for her students than she expected.

Emotional Support. All of the participants played an integral role in helping their students who were dealing with emotional trauma as a result of the tornado. Steve talked about how he helps support his students emotionally by building a positive relationship with them. Angela and Steve both talked about how they reassure their students that everything is fine when they are scared, specifically when they are frightened of impending storms. For example, Steve reported getting out the iPad and talking to his students about weather forecasts and tornado warnings to help reassure them when the weather looked bad and they seemed scared. Denise did class projects with her high school students to help them cope with their feelings of loss and sadness. For example, she and her co-teacher had their students write about their experiences the day of the tornado. Denise talked about how powerful this activity was for both the teachers and students to write and share their stories. She said about the assignment,

At that time, it changed the total environment. That I've never seen before. Ya know, we were no longer a classroom, but we were family. We've all been

through it. And, there was a lot of crying and a lot of holding and a lot of 'it will be alright…we're gonna be ok'.

Technology. Another theme that emerged across all of the interviews was how integral technology has been as a resource for both teachers and students. Denise and Angela talked about how technology was a valuable tool for finding out information about the safety of their students and families following the tornado. All of the participants talked about how technology, such as iPads, iPod touches, or laptops, has been donated to the schools or classrooms. The participants commented about what a difference the technology has made for the teachers and their students with disabilities.

Communication. The interviews revealed the power of technology for connecting students, families, and teachers after tragedy strikes. Angela told the story of how the family of one of her students was trapped under debris, and the mother was able to use a cell phone to text message for help. Angela reported the horror when the first text message that she got from her student's family was "*Call 911. I'm trapped*." When Angela responded to the text, she was relieved to find the family was being dug out of the debris. Similarly, Denise reported how social media was a valuable tool for her to learn about the safety of her students immediately following the tornado. She said Facebook was "the only means of communication", because phone service was interrupted for weeks after the tornado.

Resource for students with disabilities and teachers. The participants also revealed how beneficial donated technology has been for their students with disabilities. Steve is able to use technology like the iPad as a reinforcer for his students' positive behaviors. Angela is able to use the iPad to help her students with autism communicate through picture applications. Angela said, "*It's like magic*. They see a picture, they understand. That's why we have picture schedules. That's why we have a lot of things labeled with pictures, but the iPad is an interactive picture." At the high school, all of the students were given laptops in place of traditional textbooks. Denise expressed how powerful that technology is for masking her students' learning disabilities. She talked about how the technology helps even the playing field for students with disabilities by providing them with access to tools that can help them without singling them out in front of their peers. She said, "*All of those compensatory skills that you try to get them to use when they didn't have the computers----They were embarrassed to pull out an extra gadget or an extra tool to get them. Now, it's all there for them and nobody knows, because every kid has their laptop out*." For example, she shares how the technology can be used with students with learning disabilities:

We find students with a reading disability, teaching them to highlight their information and have it read to them. And the computer does that for them. You stick your earplugs in, highlight, listen to it read to you. Oh yeah. It's awesome. Nobody knows whether or not they're listening to music or listening to someone read to them. It doesn't matter anymore. They are becoming an even…it's even.

Implications

This study sought to examine the types of supports special education teachers provided to students with disabilities following the Joplin tornado. Applying the integrated

vulnerability and social capital theory explored by Durant (2011) with the elderly following Hurricane Katrina, the current study identified how special educators in Joplin, as a form of social capital in the community, supported students with disabilities who were left vulnerable by the tornado. It also demonstrates the types of supports provided by volunteers to teachers, students, and their families. The present study has several implications for preparing districts and communities to respond to the needs of special educators and their students following a natural disaster. It also provides important insight for special educators who may be helping students with disabilities respond to traumatic events.

Existing literature supports the findings of the current study. The qualitative study by Ducy and Stough (2011) following Hurricane Ike helps validate the findings that teachers, students, and families experience loss following natural disasters and that special education teachers play a necessary support role in helping students and families recover from the tragedy. The current study extends those findings by establishing specific challenges experienced by students related to emotional trauma and difficulty with transition. It also identifies specific challenges that teachers may experience following a natural disaster and how that influences their ability to respond to their students needs.

Furthermore, the current study provides district leaders and community members with examples of programs and resources that teachers and students found useful following the tornado. Communities that experience similar loss may benefit from learning how Joplin organized volunteers and donation programs that were essential for helping restock the school district's damaged and destroyed schools. Volunteers from throughout the community and the world clearly played a significant part in helping heal the emotional, physical, and financial struggles of the devastated area.

The study also provides a guide for special education teachers following catastrophic events. Each of the teachers interviewed provide examples of how educators can help support their students who are dealing with loss and trauma. The participants shared practical suggestions for others on how to help students deal with change and respond to their emotions.

Hopefully, the current study can be used to help guide the training of special educators on how to respond to the needs of students with disabilities following a natural disaster. It can also increase awareness of the specific challenges that students with disabilities and their teachers experience following a destructive tornado. Because special educators play a vital role in helping support students with disabilities who are coping with trauma, future research should continue to identify the types of challenges and supports that teachers and students face in the midst of natural disaster, so that we can learn how to best support special educators and their students.

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Addressing the Shortage of Speech-Language Pathologists in School Settings

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Abstract

There is a shortage of speech-language pathologists (SLPs) in this country. This shortage is due, in part, to the limited number of openings in graduate programs and the increased need for SLPs as their scope of practice widens, the autism rate grows, and the population ages. Schools are feeling this shortage the most. There are several reasons school districts have a hard time attracting and retaining SLPs. This paper will offer possible solutions to attract more candidates to the field including expanding graduate school options. It will also address options to fill positions such as using teletherapy services or speech-language assistants. School speech-language pathologists (SLPs) are typically licensed by a health board in the state in which they are employed, are sometimes also licensed by their state's Department of Education, are usually certified by the American Speech-Language Hearing Association, and hold Master's degrees in communicative disorders. While there are 257 academic institutions that grant Master's degrees, there is a still a nationwide shortage of qualified SLPs, with New York, California, Illinois, Florida and Texas having the greatest unmet need (Wolfgang, 2011). In 10 years time, there is predicted to be a 27% increase in job openings and employment for SLPs is expected to grow faster than the average for all other occupations (Edgar & Rosa-Lugo, 2007). This scarcity of SLPs in a nationwide concern because most SLPs are employed in school settings, and when schools cannot employ enough qualified individuals the students' needs either go unmet, or students are served by untrained persons.

Addressing the Shortage of Speech-Language Pathologists in School Settings

Although there is a documented need for SLPs, there is little literature available to address this shortage. What literature is available consists of a potpourri of opinions, ideas, and survey results offering solutions to the problem. Edgar & Rosa-Lugo (2007) conducted a survey analysis to obtain the perspectives of SLPs currently working in school districts regarding factors that either contribute to or hinder retention and issues that contribute to recruitment. They found that SLPs are satisfied with the population they work with, the school schedule, and being employed in an educational setting. They are dissatisfied with the workload (all of the indirect services an SLP performs in addition to providing therapy), role ambiguity, salary, and caseload size (the number of students an SLP serves).

The Problem

Children are feeling the greatest impact of the national shortage of school SLPs because speech-language services are sometimes performed by uncertified personnel or not at all (Edgar & Rosa-Lugo, 2007). And the problem is expected to grow worse. It was estimated that 26,000 additional SLPs would be needed between the years of 2002 and 2012 just to meet current demand (Edgar & Rosa-Lugo, 2007). There are several reasons that schools have such a difficult time recruiting and retaining qualified SLPs.

Salary is one factor that plays into recruitment. Speech-language pathologists in the schools are sometimes on a teacher pay scale and represented by the teachers' union. This hinders school districts from offering competitive wages when hiring SLPs. On the other hand, skilled nursing facilities, private clinics, hospitals, universities, and staffing agencies have more flexibility in negotiating salary when recruiting the limited number of SLPs on the job market. Surveys from the American Speech-Language-Hearing Association report the median salary of an academic SLP was $58,000 in 2010 (Brook, 2010) compared to $70,000 in 2011 for those working in the healthcare field (Brook, 2011). It is worth noting that the majority of school-based SLPs work nine to ten months, compared to healthcare SLPs who typically work 12 months.

Another reason schools have such a large number of positions to fill is the high turnover rate of SLPs due to job dissatisfaction. This includes stress from growing workloads, lack of resources, lack of recognition, few opportunities for promotion, professional isolation, and not having input on decisions (Edgar & Roas-Lugo, 2007).

One reason SLPs may have larger caseloads and workloads is because their scope of practice continues to grow. According to ASHA (2007), SLPs evaluate and treat communication disorders and swallowing in the following areas: speech sound production (articulation, apraxia of speech, dysarthria, ataxia, dyskinesia), resonance (hypernasality, hyponasality, cul-de-sac resonance, mixed resonance), voice (phonation quality, pitch, loudness, respiration), fluency (stuttering, cluttering), language (comprehension and expression: phonology, morphology, syntax, semantics, pragmatics, literacy, reading, writing, spelling, prelinguistic communication, paralinguistic communication), cognition (attention, memory, sequencing, problem solving, executive functioning), feeding and swallowing (oral, pharyngeal, laryngeal, esophageal, orofacial mycology, tongue thrust, oral-motor functions). In the school setting, one SLP often must treat many of these conditions, sometimes at the same time while students work in groups, a challenging task at best.

School SLPs are usually assigned to work with children who have autism. Recent news articles reported that the Centers for Disease Control and Prevention released a study that suggests a 23% increase in autism cases from 2006 to 2008. One in 88 American children are now on the autism spectrum (Weintraub, 2012). This is just one area where the demand for SLPs is climbing dramatically.

In addition to a growing need for SLPs, Flahive & Wright (2006) predicted that 50% of school SLPs will be eligible for retirement by 2021. Unless the number of new SLPs increases substantially, the shortage will widen further.

As 77 million Baby Boomers age, the need for care in skilled nursing facilities, hospitals, home care, and rehabilitation clinics will increase. This will create a bigger demand for SLPs in these settings, which may come at the expense of filling SLP positions in schools. As mentioned earlier, health settings tend to pay higher wages than schools and are often able to offer financial incentives to attract personnel. The need for SLPs is not just in the United States. U.S. firms must compete with their counterparts overseas when trying to attract qualified workers. The job advertisements in the *ASHA Leader* and *Advance*, two publications directed toward SLPs, continuously advertise openings in other countries.

When it comes to training future SLPs, university graduate programs are limited on how many students they can accept. The number of students applying far outnumbers the available slots. There could be a number of reasons for this. But one reason is that these programs are accredited by ASHA, which sets a low faculty/student ratio that precludes many training programs from expanding and prevents others from starting (Rosa-Lugo, Rivera, McKeown, 1998).

Possible Solutions

Training on the Job

To address the shortage of school SLPs, school districts, universities, and state agencies may have to get more creative. In Florida, for example, a shortage of SLPs encouraged several school districts and a nearby university to form a consortium that created a graduate cohort program for SLPs (Edgar & Rosa-Lugo, 2007). The university provided the training, sometimes in the evening, while the school districts agreed to give students time off so they could attend classes and engage in clinical requirements. Some districts even allowed their employees to continue to receive healthcare benefits, seniority, and – in some cases – salary. In return, the SLP students agreed to continue working in the public school setting for a certain number of years (Edgar & Rosa-Lugo, 2007).

While this option seems reasonable, it is not a quick fix. To complete a master's degree while maintaining a full-time job takes several years. In the meantime, huge caseload sizes are burning out SLPs already in the workforce. Many states, such as Indiana, do not limit the number of students an SLP can have on a caseload.

SLP Assistants

Many suggestions have been offered to alleviate the burden on school SLPs. One suggestion is to use support personnel such as speech-language assistants (SLAs) to help with the SLP's workload. However, ASHA guidelines limit the role of support personnel and also impose specific supervisory standards. As a result, the SLP's additional supervisory load may not result in a total decrease in the workload and, in the meantime, students may be subjected to compromised quality of care (Breakey, 1993).

The requirements of speech assistants vary by state. Indiana, for example has three levels of assistants, with requirements ranging from a high school degree to a bachelor's degree. In some states, speech assistants can perform direct therapy even if the SLP is not in the room. This raises the question of how well a person who may or may not even have a bachelor's degree can perform direct therapy that is otherwise performed by a SLP who graduated with a master's degree, clocked clinical hours, passed a national exam, and was supervised for a fellowship year by another SLP. It could also lead cash-strapped school districts to eliminate SLP jobs in favor of hiring more assistants (Breakey, 1993).

Teletherapy

Another possible solution is teletherapy, which is also called telepractice. ASHA believes that if done properly, teletherapy has the potential to improve access to speech-language services (ASHA, 2010) for children who live in high-need areas. Teletherapy allows an SLP to work with a student using a webcam and high-speed Internet connection. The SLP and student can see each other on their computer screens. Software also allows interaction between therapist and student as they perform tasks using the computer. Sometimes an assistant is in the room to help the student. As technology advances and the Internet gets faster, many school districts are turning to teletherapy as a way to provide services to their students.

Some school districts are discovering benefits with the teletherapy approach. First, by excluding travel time, it allows the district to pay the SLP only when his or her services are used. Second, it could allow the district to find SLPs who specialize in specific areas such as stuttering. Third, it allows districts to hire an SLP who does not live in the immediate area of the school, which widens the talent pool.

There are some limitations to teletherapy, however. First, the SLP must be licensed in the state where the student is located. This means if he or she is performing teletherapy for another state, the SLP will need more than one license. In some states this might require a state board license and a department of education license. Also, it is difficult to perform some evaluations and perform therapy via teletherapy. Children with oral motor problems, for example, require an oral mechanism exam, which needs to be performed in person. There are also children who benefit from tactile stimulation (i.e., tongue depressors) when learning how to coordinate their articulators (mouth, lips, tongue). Providing therapy over a computer precludes that intervention.

Financial Incentives

Some states and school districts have found success by offering scholarships, extra stipends, and loan forgiveness to attract school SLPs. The State of Washington, for example, offers loan forgiveness to those working in Title I schools (Office of Superintendent of Public Instruction, n.d.). In Nevada, SLPs could qualify for a 5% salary supplement above the annual salary (Nevada Speech Language Hearing Association, n.d.b) and student loan forgiveness (Nevada Speech Language Hearing Association, n.d.a).

Bachelor's Level SLPs

In order to make up for the short supply of SLPs, some have suggested licensing bachelor level therapists. In fact, Nevada allows professionals with only a bachelor's degree to work in the public schools.

One serious problem with this is that undergraduate training in communication disorders is limited because it is expected that students will go on to earn a master's degree. Students with a bachelor's degree in communication disorders lack coursework in assessment and evaluation, treatment, educational impact, and supervised clinical experience (Indiana Speech Language Hearing Association, n.d.).

Further, therapy provided by a bachelor's level therapist does not qualify for Medicaid reimbursement under current laws. In addition, it creates a two-tiered system of therapy, with a lower level of therapy being offered in public schools and a higher level in hospitals and skilled nursing facilities (Indiana Speech Language Hearing Association, n.d.). Using therapists who are not fully trained may lead to over-identification or misidentification of students with special needs (Indiana Speech Language Hearing Association, n.d.). In the end, students may not get the proper therapy, which could unnecessarily extend therapy and cost even more money.

5-Year Masters Degree Programs

Instead of certifying and licensing SLPs with only a bachelors degree, a better solution may be a five-year master's program. This allows students to enter the job market quicker while shaving off a year of college expenses. Marywood University in Scranton, Pa., The University of Texas at El Paso, LaSalle University in Philadelphia, Pa., and Calvin College in Grand Rapids, Mich., are a few schools offering a five-year program. In this five-year period, students take undergraduate and graduate classes and gain experience in clinical work. In addition to taking a year off a traditional program, a five-year program allows students to continue into the master's phase without having to complete a bachelor's degree and then reapply for a limited number of spots in a master's program.

Conclusion

While there is a documented shortage of SLPs in school settings, many locales are pursuing options to alleviate the shortage. Offering five-year programs that include a Master's degree, employing speech-language assistants to decrease the burden on SLPs, competing with health care settings by offering stipends and tuition reimbursements, and providing teletherapy to areas unable to attract SLPs are all being explored to address the SLP shortage. Continuing innovations with sound evaluation will be necessary to identify the most effective, practical approaches to this chronic SLP shortage; approaches that will also protect the integrity of the therapy provided to students in K-12 schools.

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