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# A Multi-Perspective Exploration of a Cross-Age Tutoring Initiative: An Analysis of the Responses of All Students

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A Multi-Perspective Exploration of a Cross-Age Tutoring Initiative: An Analysis of the  
Responses of All Students

by

Ann Gillies

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
Department of Special Education  
College of Education  
University of South Florida

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## DEDICATION

This work is dedicated to the amazing people who have been placed in my path to teach me some valuable lessons, who have shown me how to open my heart, and who have made my life worth living.

To Dr. Tim Heron who was with me as I began this journey in Special Education and whose guidance and support set me firm on this path. I've always wanted to be like him; scientific and professional, yet at the same time pouring out his whole heart.

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work hard and stay focused on the real reason we do the work we do. My teacup runneth over...

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dedicate his life to something he loves, to try hard, and in his own unique way make the world a better place. I know he is destined to do something great. Seize the day Son!

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## TABLE OF CONTENTS

List of Tables.....	iv
List of Figures .....	v
Abstract.....	vi
Chapter One: Introduction.....	1
Purpose.....	3
Rationale and Significance.....	4
Peer-Mediated Instruction.....	5
Research Questions .....	8
Chapter Two: Review of Literature .....	10
Peer-Mediated Instruction for Students with Low Incidence Disabilities .....	12
Who Are the Tutors and Tutees .....	12
Opportunities for PMI in School.....	14
Models of PMI .....	17
Peer Tutor Training and Interventions Used with Tutees .....	19
PMI in PreKindergarten and Elementary School.....	24
Skills Targeted in PMI .....	26
PMI Experiences From the Students' Perspectives .....	28
Insider Perspectives.....	28
Social Validity Measures .....	28
Tutors' Perspectives.....	30
Tutees' Perspectives.....	32
Conclusion.....	34
Implications of Previous Research.....	37
Chapter Three: Method .....	39
Purpose.....	39
Participants.....	40
Tutor/Tutee Pair 1: Julie and Michael.....	42
Tutor/Tutee Pair 2: Shawn and Mollie.....	43
Tutor/Tutee Pair 3: Janie and Jason .....	43
Setting and Materials.....	44
Design.....	45
Procedures .....	47
Baseline .....	47
Cross-Age Tutor Training .....	48
Intervention .....	50

Maintenance .....	51
Measures.....	52
Dependent Variables.....	52
Michael’s Goal.....	52
Mollie’s Goal .....	53
Jason’s Goal .....	53
Implementation Fidelity of Cross-Age Tutors’ Prompting Procedure/ Independent Variable .....	54
Collection of Student Voices.....	55
Qualitative Data Analysis.....	56
Inter-Observer Agreement.....	58
Data Collectors.....	60
 Chapter Four: Results.....	 61
Quantitative-Single Case Design-Multiple Baseline Across Participants.....	61
Michael, Tutee 1.....	63
Mollie, Tutee 2 .....	64
Jason, Tutee 3.....	66
Levels of Prompting.....	67
Michael, Tutee 1.....	68
Mollie, Tutee 2 .....	69
Jason, Tutee 3.....	69
Quantitative-Measurement of the Independent Variable .....	70
Julie, Tutor 1 .....	71
Shawn, Tutor 2.....	72
Janie, Tutor 3.....	72
Inter-Observer Agreement.....	72
Qualitative Analysis-Constant Comparison Analysis .....	74
Observations of Students.....	74
Tutor/Tutee Pair 1: Julie and Michael.....	75
Tutor/Tutee Pair 2: Shawn and Mollie.....	77
Tutor/Tutee Pair 3: Janie and Jason .....	79
Fourth Grade Students’ Written Work.....	81
Research Journal .....	85
Tutee Behavior .....	86
Tutor Behavior .....	87
Interactions with the Fourth Grade Teacher.....	89
Themes from Constant Comparison Analysis of All Qualitative Data.....	91
Quality Indicators.....	92
 Chapter Five: Discussion .....	 97
Research Question 1-What Effect, if any, does a Cross-Age Tutoring Intervention Have on the Achievement of Individualized Education Plan Goals Related to Behavior, Among PreKindergarten/Kindergarten Students with Autism?.....	97
Research Question 2-What is the Range of Perspectives of General	

Education Fourth Grade Tutors and PreKindergarten/Kindergarten	
Tutees with Autism on the Cross-Age Tutoring Experience?.....	99
Significance of Tutee Target Behaviors/Dependent Variables .....	101
Significance of Tutor Behavior/Independent Variable .....	103
Student Voices.....	105
Limitations .....	108
Issues to Consider.....	110
A Holistic Understanding of the Cross-Age Tutoring Intervention.....	113
Conclusion.....	114
References .....	118
Appendices .....	131
Appendix A: Observer Video Data Collection Sheet for Tutee/Tutor Pair 1 .....	132
Appendix B: Observer Video Data Collection Sheet for Tutee/Tutor Pair 2.....	133
Appendix C: Observer Video Data Collection Sheet for Tutee/Tutor Pair 3.....	134
Appendix D: Visual for Cross-Age Tutor Training .....	135
Appendix E: Journal Writing Prompts Used in Fourth Grade Disability	
Awareness Lessons .....	136

## LIST OF TABLES

Table 1: Research Tools and Corresponding Research Questions.....	56
Table 2: Data on Dependent Variables .....	62
Table 3: Levels of Prompts Used.....	68
Table 4: Data on Independent Variable.....	70
Table 5: Data on Inter-Observer Agreement.....	73
Table 6: Category 1 Themes from Tutors' Written Work .....	83
Table 7: Category 2 Themes from Tutors' Written Work .....	84
Table 8: Categories from Research Journal .....	90

## LIST OF FIGURES

Figure 1: Steps of Multiple Baseline Across Participants Design Phases.....	47
Figure 2: Graph of Michael’s Performance of Target Behavior in the Library .....	63
Figure 3: Graph of Mollie’s Performance of Target Behavior in the Library.....	64
Figure 4: Graph of Jason’s Performance of Target Behavior in the Library .....	66
Figure 5: Themes from Constant Comparison Analysis of All Qualitative Data .....	91

## ABSTRACT

This exploratory study assessed the effectiveness of a cross-age tutoring intervention on adaptive behavior goals of three PreKindergarten/Kindergarten-aged students with labels of autism spectrum disorder. Data were collected in an inclusive environment; the school library. Three fourth grade general education cross-age tutors were trained to use a simple, naturalistic least-to-most prompting strategy to support the young students with individualized adaptive behavior goals while in the library. A mixed method design was utilized in this study; a quantitative single case multiple baseline across participants design to show performance outcomes of the young students as a result of the tutoring intervention, and a constant comparison analysis of qualitative data gathered from observations of students, students' written work, and a research journal. Quantitative results indicated all three young students performed the target behavior in the library with support from their cross-age tutors and this behavior maintained one month after intervention ended as evident through a maintenance probe; all three students made progress on the achievement of adaptive behavior goals in an inclusive environment from this intervention. Qualitative results indicated the cross-age tutoring experience was positive and powerful for all six participants involved as evident through the construction of six themes that emerged from the qualitative data.

## CHAPTER ONE: INTRODUCTION

Research on variations of the best teaching practice of peer-mediated instruction is valuable in that it better informs teachers about the usefulness of this practice in their own teaching. Due to the movement in schools towards more inclusive education for all children, research on peer-mediated instruction with students with and without disabilities is important. Investigating the effects of peer-mediated instruction on students with and without disabilities will add to the knowledge base on this practice and deepen our understanding of this complex interpersonal experience. This chapter introduces several issues pertinent to the education of young students with autism and provides a rationale for further research into peer-mediated instruction that examines a wider variety of variables. Issues that warrant discussion include the need for highly individualized behavior support for students with autism (Bambara & Kern, 2005), teacher concerns with behavior (Giangreco, Broer, & Suter, 2011), barriers to inclusive opportunities (Almazan, 2009), and effects of segregated school placements (Peterson & Hittie, 2003). The present study is valuable because it delves deeply into a peer-mediated instructional strategy aimed at improving behavior and supporting more inclusive school opportunities that will benefit all children.

Despite the rising prevalence of autism, it is still considered a low incidence disability; it can be highly complex and variable, especially in regard to behavior, and is recognized to present characteristics across a broad spectrum (Bregman, 2005). PreKindergarten and Kindergarten-aged children, ages 3 to 6 years, often need instruction and support across a

variety of learning domains as they adjust to school, indeed, some children especially benefit from individualized behavior support throughout the day to help facilitate appropriate, adaptive behavior to prepare them for learning in other areas (Bambara & Kern, 2005). Teaching and supporting appropriate behavior of students with autism can be complex, and designing and implementing highly specialized and individualized programs for multiple students at the same time can present a challenge for teachers.

Teachers' experiences with the difficulties of behavior challenges may prevent them from leaving the security of their own classroom with their students for fear of losing control of the class, encountering supervision and safety issues, or causing a disruption to others on the school campus. In addition, teachers are not usually given the personnel to deliver the individualized, systematic, repeated instruction required for effective behavior support of an entire class of students with low incidence disabilities at the same time (Giangreco, Broer, & Suter, 2011; Godsey, Schuster, Shearer Lingo, Collins, & Kleinert, 2008; Kohler & Strain, 1999). The need for highly individualized behavior support for students with autism, coupled with teachers' fears of not being able to effectively support all of their students simultaneously outside of the classroom, creates a barrier separating the students with autism from accessing their school's other rich, inclusive environments and, as a result, they miss out on valuable inclusive learning opportunities (Fisher & Ociepka, 2009).

Education programs for PreKindergarten and Kindergarten students with autism in the United States are oftentimes housed on the campus of a public elementary school, which grants teachers access to rich opportunities and environments in which to teach and prepare these young children for a successful inclusive education (Wall, 2004).

Consequently, this situation may also provide opportunities to teach and prepare general education students and school staff members to work effectively with students with low incidence disabilities. A public school campus with a diverse student body is a setting conducive to influencing beliefs in the value of including students with autism as equal members of the school community (Jones, 2005).

Not only are there limited inclusive opportunities for students with disabilities who are placed in self-contained environments, for instance, lack of appropriate models of behavior and social skills, but another disadvantage of this restrictive placement directly affects students without disabilities. A lack of exposure to students with disabilities may limit the likelihood that typically developing students' skills, attitudes, and value of others who are different will become more constructive, tolerant, accepting, and appropriate (Brown, Wilcox, Sontag, Vincent, Dodd, & Gruenewald, 1977; Peltier, 1997; Peterson & Hittie, 2003). The rationale for educating students with and without disabilities together: all students involved in inclusive school experiences will be better prepared for a more inclusive life.

### Purpose

One purpose of this study was to implement a cross-age tutoring strategy with young students with autism that supported their adaptive behavior goals in an inclusive school environment. Another purpose of this research was to gain a more in-depth understanding of what cross-age tutoring was like for the tutors and tutees from their own perspectives.

Findings from previous studies on effects of peer tutoring and other peer-mediated interventions have shown positive gains for students with disabilities across a variety of

domains such as academic learning (Yawn, 2008), social skill acquisition (Thiemann, 2000), and independent functioning (Chiplin-Williams, 1997). Results from research on peer-mediated interventions indicate increases in desired behaviors, decreases in undesired behaviors, generalization of skills, and high satisfaction with the intervention as reported by the people involved in it. This research project aimed to add to the existing knowledge base through the extension of tutoring intervention studies done in the past, and contribute to the generalization of previous results. Some studies on peer mediation have also reported great personal benefits for students who serve as tutors including higher levels of perspective-taking and greater patience and tolerance for differences in other students (Ochs, Kremer-Sadlik, Solomon, & Gainer, 2001). Another aim of this study was also to confirm findings regarding the effectiveness of peer-mediated instruction, including its personal benefits for students, and to extend others' work using different variables and a different methodology. An additional aim was to examine the concept of cross-age tutoring being a potentially significant practice for students both with and without disabilities.

### Rationale and Significance

Legislation and policy initiatives in the United States have called for a change in the way schools set up educational programs for students with disabilities. Teachers of students with disabilities now have to prepare their students for a school experience that is less restrictive and more inclusive (Individuals with Disabilities Education Act of 2004, PL 108-446; National Council on Disability, 2004; No Child Left Behind Act of 2001, PL 107-110; President's Commission on Excellence in Special Education, 2002). Less restriction in schools means greater access for students with disabilities to the

general education curriculum, to a wider array of experiences with others, to more appropriate models of communication, socialization, and behavior, and to more opportunities to practice and generalize critical life skills (Peterson & Hittie, 2003; Vaughn, Bos, & Schumm, 2011). To prepare students with autism for an inclusive school experience, early intervention and training at the PreKindergarten and Kindergarten level is critical (Trevarthen, Aitken, Papoudi, & Roberts, 1998; Wall, 2004). Generalization of training and skills, from a self-contained classroom into inclusive school settings, is an area that teachers must focus and plan for, as children with autism may experience difficulty transferring their learning to different stimuli, environments, and people (Bigge, 1991; Browder & Snell, 2000; Cooper, Heron, & Heward, 1987). Training specifically for skill generalization in different places and with different people is especially important with this population of learners (Wall, 2004).

The present study responds to the call from legislation about the importance of inclusive experiences for students with disabilities by examining a strategy that paired students with and without disabilities together. This study recognized how critical early intervention and skill generalization are for children with autism by focusing on PreKindergarten and Kindergarten students in a general education environment, and explored one peer-mediated strategy, cross-age tutoring, which provided the necessary behavioral support required for successful learning in a less restrictive environment.

### Peer-Mediated Instruction

Peer-mediated instruction and/or intervention (PMI/PMII) is a strategy in which peers (same-age or cross-age) are trained or guided to act as facilitators of change in other students (Garrison-Harrell, Kamps, & Kravits, 1997; Laushey & Heflin, 2000). General

goals of PMI include teaching children how to talk and interact with each other, increasing the amount of interaction that occurs between students, decreasing dependence on teachers, and supporting learning and/or generalization of new skills (Sperry, Neitzel, & Engelhardt-Wells, 2010). The current study reflected these goals through the development of a cross-age tutoring intervention that provided help for teachers and support for students with autism as they learned to generalize desirable behaviors in an inclusive environment. One of the areas in which students with autism often need support is social skills (Cartledge & Fellows Milburn, 1995), and a direct benefit of PMI is the increased time students spend together, which facilitates more opportunities for social skills development and practice. Therefore, even though the present study focused on student performance of adaptive behavior goals, participants also benefitted socially through working closely with another student. Bass and Mulick (2007) discuss PMI as a type of social intervention that is the most empirically supported for students with labels of autism.

The opportunities for social interaction and social reciprocity inherent in PMI provide a strong rationale for using this intervention with students with autism spectrum disorders (Sperry et al., 2010). PMI can be used to improve skills across a wide range of domains (academic, social, communication, behavior, etc.) and with a wide variety of students. This strategy can also be implemented in a very systematic, precise manner, or in a more naturalistic way. Many variations of PMI have shown to be highly effective and versatile for students of all ages who have labels of autism spectrum disorder (see Chan, Lang, Rispoli, O'Reilly, Sigafos, & Cole, 2009).

Not only has research on PMI documented positive learning outcomes for students with disabilities, but positive effects on interpersonal and personal-social development have been reported as well, for both the tutees and tutors without disabilities involved (Ochs, Kremer-Sadlik, Solomon, & Gainer Sirota, 2001; Sperry et al., 2010). PMI allows for close, consistent contact between students, which appears to have positive benefits for the participants in many different ways. The present study aimed to explore in detail the complex ways PMI impacted students with and without disabilities through the collection and analysis of a variety of qualitative data including observations, writing samples, and a research journal. To develop a broad understanding of how PMI supports and benefits students, one must examine the intervention holistically (Browder & Cooper-Duffy, 2003). This project utilized a mixed method research design which allowed analysis of quantitative and qualitative data to uncover the multiple dimensions of PMI. Quantitative data was collected and analyzed through a single case design method which is a common approach within the science of behavior change emphasizing the individual as of greatest importance (Barlow & Hersen, 1984). Qualitative data was collected via observations of students, student work, and the researcher's journal, and was analyzed through the use of the constant comparative method which assists in the understanding of human experience (Charmaz, 2009; Glaser & Strauss, 1967; Leech & Onwuegbuzie, 2007).

The present study is significant in that it offers data on another naturalistic variation of peer-mediated instruction used with PreKindergarten and Kindergarten students with autism. This study addressed the issue of providing individualized behavior support to young students in an inclusive school environment, which in turn allowed more access for students to engage in a rich, active, integrated, and typical school experience. This

study also addressed the issue of general education students' exposure to valuable learning experiences with their diverse school community members.

The current project was conducted from a constructivist epistemology which values the perspectives of the participants who themselves construct their own social reality (Lincoln & Guba, 1985). A constructivist perspective was evident in this study through efforts to record and describe the students' perspectives, experiences, values, and beliefs about their cross-age tutoring experience (Koro-Ljungberg, Yendol-Hoppey, Smith, & Hayes, 2009). The research questions in this project inquired into the effects of an intervention as well as the personal experience of the students participating in the intervention, therefore, "methodological congruence" (Morse & Richards, 2002, p. 23) is achieved through mixed methods research from a constructivist point of view. There was significance in the contribution to the literature by supporting students with and without disabilities to voice their own opinions, feelings, and experiences with cross-age tutoring which will help others develop a holistic understanding of the different realities created by these particular students as they interacted in their social environment (Gall, Gall, & Borg, 2007). Information gleaned from this study will be helpful to teachers as they plan and prepare their students for an inclusive education, and this work will empower children by placing them into the role of expert so others can learn from them (Norwich & Kelly, 2004).

### Research Questions

One purpose of this study was to put a cross-age tutoring strategy in place with young students with autism to support their adaptive behavior goals in an inclusive school environment. Another purpose of this research was to gain a more in-depth

understanding of what the cross-age tutoring experience was like for the tutors and tutees from their own perspectives. This research project aimed to add to the existing knowledge base, through extension of tutoring intervention studies done in the past, and make a contribution to the generalization of previous results of this type of intervention.

The following research questions guided this study:

- 1) What effect, if any, does a cross-age tutoring intervention have on the achievement of Individualized Education Plan goals related to behavior, among PreKindergarten/ Kindergarten students with autism?
- 2) What is the range of perspectives of general education fourth grade tutors and PreKindergarten/Kindergarten tutees with autism on the cross-age tutoring experience?

## CHAPTER TWO: REVIEW OF LITERATURE

This literature review is organized into two main sections: Peer-Mediated Instruction for Students with Low Incidence Disabilities and Peer-Mediated Instruction Experiences from the Students' Perspectives, followed by a conclusion. The Peer-Mediated Instruction for Students with Low Incidence Disabilities section is divided into 6 subsections which compare 19 targeted research studies across a variety of significant variables important to consider when analyzing PMI. These subsections include: 1) Who Are the Tutors and Tutees?, 2) Opportunities for PMI in Schools, 3) Models of PMI, 4) Peer Tutor Training and Interventions Used with Tutees, 5) PMI in PreKindergarten and Elementary School, and 6) Skills Targeted in PMI. The second section entitled PMI Experiences from the Students' Perspectives is broken into 4 subsections: 1) Insider Perspectives, 2) Social Validity Measures, 2) Tutors' Perspectives, and 3) Tutee's Perspectives. At the end, a summary and final conclusion is presented with implications of previous research.

Through guiding principles from behavioral theory (see Skinner, 1938; Watson, 1924) and social learning theory (see Bandura, 1977), peer-mediated instruction (PMI) was born and has proven to be an effective instructional practice for many students. This versatile strategy has been successfully used with students of all age levels, for improvement on a variety of skills across many learning domains, and in a variety of classrooms and learning environments. In the 1970s when school populations began to change after the landmark court case *Pennsylvania Association for Retarded Children*

*(PARC) v. Commonwealth of Pennsylvania* (1971, 1972) and Public Law 94-142, the Education for All Handicapped Children Act of 1975 legislation, PMI began to be recognized as an effective practice for students with disabilities as well.

Peer-mediated instruction (PMI) is a strategy that has a number of variations and is referred to by many names in the literature; peer-mediated instruction and intervention (PMII), peer tutoring, classwide peer tutoring, peer buddies, tutoring, peer mentoring, and cross-age tutoring. These terms all refer to students helping students and will be used interchangeably throughout this chapter. The present study describes a cross-age tutoring strategy, meaning the tutors were several years older than the tutees.

Positive learning outcomes as a result of peer-mediated instruction are well documented for general education students, students who are low-achieving or at-risk (see Baker, Gersten, & Lee, 2002) and students with mild, high incidence disabilities (see Stenhoff & Lignugaris/Kraft, 2007). It is noted there exists a plethora of literature on peer-mediated instruction (PMI) with different populations of students (Barbetta, Miller, Peters, Heron, & Cochran, 1991; Kohler & Greenwood, 1990; Maheady, Harper, & Mallette, 2001). Because this study aims to extend the knowledge base on PMI with students with severe, low incidence disabilities, this review will delve only into the literature specifically about this population of students. Even though research has demonstrated positive effects on students from PMI (Carter & Kennedy, 2006; Strain & Odom, 1986), some teachers may not attempt to implement this strategy with their students with low incidence disabilities. Possible reasons may be that teachers are not confident that PMI can benefit students with severe disabilities, worry that PMI may not

be done reliably, or believe that students who serve as tutors may lack discipline (Godsey, Schuster, Shearer Lingo, Collins, & Kleinert , 2008).

### Peer-Mediated Instruction for Students with Low Incidence Disabilities

#### *Who Are the Tutors and Tutees*

Aligned with the purpose of the current study, the tutees described in this literature review have all been diagnosed with complex, severe, low incidence disabilities. Assigning labels to children can be inherently problematic. Additionally, different professionals use different labels for different student characteristics (Norwich, 2002). In the reviewed research included here, all tutees were described as having moderate to severe challenges in one or more areas of learning, necessitating a high level of individualized and specialized support. Moderate to severe challenges can mean multiple disabilities affecting cognition, behavior, mobility, language, and communication, and may require modifications in both curriculum and instructional methods, individualized behavior support plans, and assistive technology for communication (McLeskey, Rosenberg, & Westling, 2010).

Studies on PMI have reported positive learning outcomes for children with disabilities as young as 3 years to 5 years of age in Preschool and PreKindergarten (McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992; Takezawa, 2004), elementary students ages 5 through 10 years (Harper, Symon, & Frea, 2008; Kamps, Barbeta, Leonard, & Delquadri, 1994; Laushey & Heflin, 2000; Lawson & Trapenberg, 2007; Petursdottir, McComas, McMaster, & Horner, 2007; Pierce & Schreibman, 1997; Thiemann, 2000; Utley, Reddy, Delquadri, Greenwood, Mortweet, & Bowman, 2001), middle and junior high students ages 10 through 15 years (Jameson, McDonnell,

Polychronis, & Riesen, 2008; McDonnell, Mathot-Buckner, Thorson, & Fister, 2001; Tekin-Iftar, 2003), and high school students ages 15 to 20 years (Chiplin-Williams, 1997; Godsey, Schuster, Shearer-Lingo, Collins, & Kleinert, 2008; Kaufman & Burden, 2004; Yawn, 2008). Two additional studies reported here that focused on learners with low incidence disabilities included participants in both elementary and middle schools within the same study (Bensted, 2000; Carter, Cushing, Clark, & Kennedy, 2005). Positive learning outcomes reported in the studies with the young children with low incidence disabilities include increased verbal labeling of toys, more social interaction during free play, improved social skills, and increased number of reciprocal peer interactions.

A range of low incidence disability categories are also represented in the literature on PMI including students with traumatic brain injury, Down Syndrome, and cerebral palsy (Kaufman & Burden, 2004), intellectual disability (Jameson, McDonnell, Polychronis, & Riesen, 2008), severe emotional/behavioral disability (Yawn, 2008), and developmental disability and autism (Petursdottir, McComas, McMaster, & Horner, 2007). Some participants in these research studies have one low incidence disability label (Jameson, McDonnell, Polychronic, & Riesen, 2008; Laushey & Heflin, 2000); some have more than one label (Kaufman & Burdin, 2004; Petursdottir, McComas, McMaster, & Horner, 2007). At least 7 of the included studies had participants with the label of autism and found a peer-mediation intervention successful in improving social skills, enhancing reading skills, and increasing reciprocal peer interactions. Many studies that examined PMI used general education, nondisabled peers as tutors (Pierce & Schreibman, 1997), but other studies have recruited students as tutors who have been labeled as inattentive or low-achieving (Bensted, 2000), who have intellectual disability (Spencer & Balboni,

2003), and who are classmates in self-contained classrooms for students with low incidence disabilities (Utley, Reddy, Delquadri, Greenwood, Mortweet, & Bowman, 2001).

In a Pierce and Schreibman (1997) study, 8-year-old nondisabled tutors successfully used pivotal response training strategies to increase their tutees levels of social initiations. While Bensted (2000), used four tutors considered inattentive and low achieving. Both tutors and tutees exhibited higher levels of academic engagement while working together. Likewise, Utley et al. (2001) paired students who both had disability labels. They saw improvements in learning health and safety topics for both tutors and tutees. Spencer and Balboni (2003) did a synthesis on 52 studies related to peer-mediated instruction with tutors and tutees who were both labeled with intellectual disability and found outcomes from all studies to be positive.

Both male and female tutors and tutees have participated in PMI that has been reported in the literature, as well as, students from diverse racial and ethnic backgrounds including African American, Indian, Hispanic, European, Filipino, Pacific Islander, Vietnamese, Japanese, Turkish, and Caucasian. It is apparent from this review of the literature that PMI is an effective strategy for male and female students of all ages, all ability levels, and from diverse backgrounds. This relates to the current study through the examination of the participants in PMI again, this time cross-age tutors with different abilities and from diverse backgrounds.

#### *Opportunities for PMI in Schools*

As a result of recent legislation in the U.S., most importantly the reauthorization of Individuals with Disabilities Education Act (IDEA, 2004), more students with low

incidence disabilities are being served on public school campuses and in general education classrooms following the law's requirement that students with disabilities receive a free and appropriate public education and be educated in the least restrictive environment (Yell & Drasgow, 1999). This shift in service provision has created more opportunities for peer-mediated instruction and interactions with typically developing peers to occur (McLeskey, Rosenberg, & Westling, 2010).

Students with low incidence disabilities who are included in general education classrooms have direct access to nondisabled peers and studies in this inclusive school environment have shown PMI to not only be effective in teaching target skills, but instrumental in the development of friendships between students with and without disabilities. Harper, Symon, and Frea (2008) used peer tutoring in an inclusive third grade classroom where nondisabled peers effectively taught social skills to their classmates with autism. Because of the inclusive classroom model, tutors and tutees had ample opportunities to work together in various settings and throughout the course of a school day, and the PMI strategy fit very naturally into the classroom routine (Harper et al., 2008). Researchers in the Harper et al. (2008) study also reported observations of increased proximity of the tutors and tutees, engagement in mutually reinforcing activities, and reciprocity that led to the development of friendships between these children outside of the tutoring situation. PMI enabled students with autism to be an integrated part of the natural classroom environment, decreasing their dependence on adult support and increasing the interdependence of the peer group in the classroom (Harper et al., 2008).

Some students with low incidence disabilities receive their education in both self-contained and inclusive environments, mainstreaming into general education classrooms for part of the school day. Students are frequently accompanied by a paraprofessional who is directly responsible for them while in the general education classroom (Giangreco, Broer, & Suter, 2011). The use of a one-on-one paraprofessional can be associated with negative effects including interference with teacher and peer relations, unnecessary dependence, and stigmatization (Giangreco, Edelman, Luiselli, & Macfarland, 1997). Some paraprofessionals are expected to tackle pedagogical decisions even if inadequately trained (Downing, Ryndak, & Clark, 2000; Riggs & Mueller, 2001). There is always a fear that even with paraprofessionals present, students with disabilities will not be truly included or supported in an appropriate way (Marks, Schrader, & Levine, 1999).

To address schools' over reliance on paraprofessionals to serve as one-on-one supports for students with disabilities, Giangreco, Broer, and Suter (2011) used a tool with school teams to identify effective alternatives, one being the implementation of PMI in the form of natural peer supports and cross-age tutoring. Once PMI was implemented and observed over a short period of time, parents were more comfortable with paraprofessionals spending more time away from their children with disabilities, the children were more accepted in the class, PMI participants reported the experience as mutually beneficial, and children with disabilities became more independent and assertive (Giangreco et al., 2011).

Still, other students with low incidence disabilities are educated full-time in self-contained classrooms. This is common with PreKindergarteners on public school

campuses because no general education PreKindergarten classrooms exist on the campus (Wall, 2004). Children placed in this restrictive educational environment are limited in their opportunities to access PMI with nondisabled peers. One option however, is cross-age tutoring with older students in higher grades on the same school campus (Barbetta, Miller, Peters, Heron, & Cochran, (1991).

In a research project on cross-age tutoring, Pierce and Schreibman (1997) successfully paired students with and without autism from different classrooms which produced positive changes in social skills in the tutees with autism. The researchers were able to join the students in a variety of environments on the school campus including the classroom, a recreation room, and a new classroom, to work on generalization of skills. When researchers and teachers are creative, flexible, and resourceful, PMI opportunities become more accessible as viable intervention options, even for students who are educated in self-contained settings. The current study is similar to the Pierce and Schreibman (1997) study in that opportunities for PMI were not readily available for students due to the structure of the school and classrooms, but teachers put forth extra effort to develop a PMI program to enable students with and without disabilities to spend time together and learn from one another.

#### *Models of PMI*

Peer mediation is an umbrella term used for a number of different variations of students teaching, helping, or supporting each other. Peer-mediated instruction (PMI) can be arranged with students from the same classroom, students from different classrooms, students from different grade levels, and even students from different schools (Breen, Haring, Pitts-Conway, & Gaylord-Ross, 1985). A peer-mediation strategy can be

set up for one student in a classroom, for several students, or an entire class can participate in PMI at the same time. Classwide peer tutoring (Cooke, Heron, & Heward, 1983) is a strategy in which all children in a classroom are paired up and are actively engaging in learning and practicing academic skills all at the same time. Peer-assisted learning strategies (PALS) is a hybrid version of classwide peer tutoring that extends basic skill learning (Fuchs, Fuchs, & Kazdan, 1999). Other terms used in the literature that refer to students supporting students include peer tutoring, the buddy approach, peer-mediated instruction and intervention (PMII), and cross-age tutoring. More specifically, cross-age tutoring pairs older students with younger students.

Another variable in PMI models is the number of students who are paired with a target student. In a study focused on increasing reciprocal peer interactions of 3 students with autism, 3 typically developing classmates were recruited to participate in PMI and were paired with the tutees (McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992). The pairs were assigned and the children remained with the same partner throughout the study. As a result of this pairing, the students with autism increased the number of verbal labels of toys they used and an increase was noted in reciprocal peer interactions (McGee et al., 1992). In another inquiry aimed at improving social-communication skills in 5 students with pervasive developmental disabilities, 10 nondisabled peers were invited to engage in PMI and were assigned to the target students 2 at a time, creating triads (Thiemann, 2000).

Pierce and Schreibman (1997) assessed the effects of using multiple peer trainers in PMI on the generalization of targeted social behaviors of 2 children with autism. They found through employing 8 peers with the 2 target children, generalization of learned

behaviors were enhanced. This finding was supported in a study done by Harper et al. (2008) that paired 6 peers with 2 target children who improved their social peer interactions as a result of the intervention. The researchers found that utilizing multiple peers as trainers in PMI contributed to the rest of the class accepting the strategy. It also divided the responsibility of the inclusion of the target students across all of the class members (Harper et al., 2008). Carter, Cushing, Clark, and Kennedy (2005) designed a multiple baseline study on peer tutoring with two conditions; condition A was pairing one peer with a student with disabilities, condition B was pairing two peers with the student. Outcomes from this study favored condition B pairing two peers with the student. Higher levels of contact with the general education curriculum and increased amount of time actively engaged in instructional activities were reported (Carter et al., 2005).

Sperry et al. (2010) offer two reasons why multiple peers should be included in PMI to work with target children. First, children with disabilities need opportunities to practice new skills with multiple peers who will respond in unique ways. Second, sharing responsibility for target students increases peer motivation and success along with providing more meaningful interactions. Not only does including multiple peers in PMI allow greater availability of tutors and increased likelihood of skill generalization, it offers more nondisabled peers the rich opportunity to engage with and learn from those who are different from them.

#### *Peer Tutor Training and Interventions Used with Tutees*

When teachers or researchers recruit students to serve as tutors for peers with disabilities, they must find students who are willing to learn methods and strategies to use when working and interacting with their tutees. Some researchers have engaged tutors in

intensive, structured, and complex training programs to prepare them to work with their tutees (Chiplin-Williams, 1997; Lawson & Trapenberg, 2007; Tekin-Iftar, 2003); other researchers have taken a more simplistic, naturalistic approach to getting tutors ready (Harper et al., 2008; McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992; Pierce & Schreibman, 1997).

To train peer tutors to teach tutees social studies objectives while simultaneously working to increase tutors' verbal social approvals of their tutees, Lawson and Trapenberg (2007) implemented rule-governed responding in the form of Peer Tutoring Rules and a written checklist. Tutors were given four rules during each tutoring session to guide their work with their tutees:

1. Hold up the card so that your friend can see the question and you can see the answer.
2. Read the question to your friend and listen to their response.
3. Write down a "+" if they get it right. Write down a "-" if they get it wrong.
4. If your friend got it right, say good job, great, nice work, etc. If your friend got it wrong, tell them the correct answer and wait for them to repeat it. (p. 475).

The tutors were also given this written checklist to complete:

1. Did I hold up the card quietly? OR Did I ask the question nicely?
2. Did my friend get it right or wrong?
3. If they got it right, did I say good job? If they got it wrong, did I tell them the answer and they tell me the answer back? (p. 474).

Researchers sat with the tutor/tutee dyads, providing immediate feedback to the tutors regarding the fidelity of the strategy they were using. Results indicated the tutors mastered the peer tutoring process through this structured training system, tutees learned social studies objectives, and social approvals increased (Lawson & Trapenberg, 2007).

This supports the idea that student tutors can learn intensive, structured, and complex strategies to use with tutees.

To train peer tutors to help with the improvement of social interaction skills, Harper et al. (2008) used a simplified training method that incorporated modeling and role-playing to teach components of Pivotal Response Training to use with their tutees. The tutor training sessions were conducted across 7 days for 20 minutes each day. Visual training cards and cue cards were also used to aid the tutors in their learning of the strategy. The researchers collected data to assess the fidelity of implementation of the Pivotal Response Training and peer tutor training maintained until they could perform 4 of the 5 strategies with at least 80% mastery out of 10 opportunities (Harper et al., 2008). In this project, peer tutors learned the components of the Pivotal Response Training with this less structured training strategy and implemented them successfully with their tutees, improving social interaction skills as planned. In this study, tutors were trained to use a simplistic, naturalistic approach and were effective supporting their tutees. Apparently, student tutors can learn and use complex as well as simple approaches successfully with tutees with disabilities. The current study taught tutors a naturalistic prompting strategy that made sense to the tutors and was easy to learn, implement, and maintain with less guidance by the researcher.

Other methods used to train and prepare tutors for work with peers with low incidence disabilities include training packages consisting of a variety of teaching strategies. A training package with direct instruction, modeling, and role-play was used to prepare tutors to implement a constant time delay prompting procedure in the study done by Godsey et al. (2008), and the tutors implemented the procedure throughout the study with

an overall mean accuracy of 93.1%. Another training package consisting of group instruction, discussion, practice, and role-play (Chiplin-Williams, 1997) resulted in tutors supporting tutee learning of community and domestic skills using least-to-most prompts with 100% accuracy on all instructional sessions. Tekin-Iftar (2003) used verbal description, role-modeling, guided practice, and performance feedback sequence to teach tutors simultaneous prompting and instructive feedback, and Takezawa (2004) used didactic instruction, modeling, role playing, and feedback to support tutors in learning a modified version of Pivotal Response Training that helped to increase tutees social interactions. It appears that there are many ways to train and prepare peer tutors to effectively work with students with disabilities.

All of the abovementioned peer tutor training strategies have been shown to be effective in teaching tutors how to implement a wide variety of strategies with their tutees. The specific strategy tutors are asked to use with their tutees depends upon the desired learning outcome and what works best for individual tutees, but most often tutors are asked to directly teach or prompt their tutees. There are several prompting strategies identified by Browder and Cooper-Duffy (2003) that are highly effective with students with low incidence disabilities including time delay, graduated guidance, and least intrusive prompts, also known as least-to-most prompting. Least-to-most prompting involves the provision of a prompt when a tutee does not emit a target behavior (Cooper, Heron, & Heward, 1987). If the first prompt that is given is one that is the least intrusive the tutee is then given the chance to follow through with the target behavior more independently before more prompting is given. The prompting in this strategy begins less intrusive and progresses to more hands-on; for example, verbal then gestural then

physical prompting. Browder and Cooper-Duffy (2003) note that effective teaching and prompting strategies also have specific feedback including descriptive praise and instructive error correction. So, when tutees emit behaviors, tutors explicitly praise them for the specific behavior they emitted or they explicitly guide them to emit the desired behavior if the tutee makes an error.

Some of the strategies tutors are asked to use with tutees are highly structured and systematic, other strategies are more naturalistic. Tekin-Iftar (2003) trained tutors to use a highly structured strategy with their tutees; simultaneous prompting, instructive feedback, and data collection on their tutee's performance. Other systematic strategies used by tutors in the reviewed literature include a least-to-most prompting strategy (Chiplin-Williams, 1997), constant time delay (Godsey et al., 2008; Jameson et al., 2008), direct instruction (Yawn, 2008), rule-governed responding and data collection on tutee performance (Lawson & Trapenberg, 2007), and use of flashcards, error correction, and immediate feedback (Utley et al., 2001).

More simple and naturalistic strategies used by tutors to affect change in tutees are Pivotal Response Training (Harper et al., 2008; Pierce & Schreibman, 1997; Takezawa, 2004), modeling (Thiemann, 2000), incidental teaching (McGee et al., 1992), supervising assignments and facilitating socialization (Bensted, 2000), and interacting with tutees (Laushey & Heflin, 2000). The 5 strategies of Pivotal Response Training that tutors used in the Harper et al., (2008) study included gaining tutee attention, varying activities, narrating play, reinforcing attempts, and turn-taking, which resulted in improved social peer interactions of tutees with autism. McGee et al. (1992) defined incidental teaching as waiting for tutee to initiate request, asking the tutee to label what he/she wants, giving

the item to the tutee, and then praising the tutee for saying the correct label; this incidental teaching delivered by the tutors resulted in an increased number of responses from tutees with autism.

The reviewed research suggests that complex as well as structured and simple, naturalistic strategies are as effective as each other when implemented with fidelity. In the reviewed studies, the strategy used by the tutors was always selected beforehand by the researcher; it has never been reported that tutors have a say in the strategy they use with their tutees or in the way that strategy is implemented.

### *PMI in PreKindergarten and Elementary School*

Despite public policy, positive research outcomes, and advocacy in Early Childhood Education, inclusive opportunities for PreKindergarten students remain restricted because of limited opportunities and limited instructional resources (Fisher & Ociepka, 2009; Kohler & Strain, 1999). Of the 19 research studies included in this review, 2 studies were conducted with PreKindergarten students and 7 studies were conducted with students at the elementary school level, grades Kindergarten through fifth grade, ages 5-11. The PreKindergarten population is underrepresented in the research on PMI, yet the value of early intervention is well documented (Gutstein & Sheely, 2002; Wall, 2004). Both of the studies done with PreKindergarten children were conducted in integrated, inclusive Preschool classrooms; no studies were found that focused on PMI with PreKindergarten students in self-contained classrooms.

McGee et al. (1992) taught 3 typical preschoolers incidental teaching strategies to use during free play with their classmates with autism in an integrated preschool program. As a result of this intervention, tutees increased the number of reciprocal peer interactions

and increased the number of verbal labels they used. Takezawa's (2004) study was in an inclusive PreKindergarten classroom where 3 children with autism were paired with typically developing peers who were successful in supporting an increase in the tutees' social interactions.

PMI at the elementary school level is more easily arranged and accessible even if students with disabilities are in self-contained classrooms because of the proximity of general education classrooms on a public school campus. Laushey and Heflin's (2000) study took place in an inclusive Kindergarten class and paired two students with autism with different classmates every day. Due to the inclusive class setting, the tutor/tutee dyads rotated frequently allowing more tutors the experience of supporting a classmate and enabling social skill generalization for the tutees. Petursdottir et al. (2007) paired a student in a self-contained classroom with general education Kindergarten students for peer tutoring that led to increased social interactions during free play that occurred after structured tutoring sessions.

Some PMI experiences at the elementary level are arranged and maintained by individual teachers and are not a regulated or even expected school policy or practice. In the current study, a self-contained PreKindergarten/Kindergarten class on a public school campus has gained access to a fourth grade general education class because of a personal relationship developed between both teachers of these classes. A cross-age tutoring initiative was developed, and continues to be organized every year as a result of both teachers' commitment to providing inclusive learning opportunities for their students.

### *Skills Targeted in PMI*

Comprehensive reviews of the effects of PMI on academic skill acquisition of students with disabilities are abundant. Browder and Xin (1998) conducted a meta-analysis and review of 48 studies that effectively taught students sight word recognition through different strategies, and found most studies employed heterogeneous groupings of students with and without disabilities or peer tutoring, which promoted sight word learning in students with moderate and severe disabilities. Chiang and Lin (2007) conducted a review of the literature on reading comprehension instruction with students with disabilities and found 3 of the studies effectively utilized PMI. Of the studies investigated in the review on text comprehension strategies, peer tutoring and cooperative learning groups were shown to have been successful in teaching students with autism (Chiang & Lin, 2007).

One of the most common domains targeted in PMI with students with low incidence disabilities is social skills. Within this domain, studies have targeted social interactions (Harper et al., 2008; Laushey & Heflin, 2000; McGee et al., 1992; Petursdottir et al., 2007; Takezawa, 2004), social approvals and disapprovals (Lawson & Trapenberg, 2007), and conversation and play (Pierce & Schreibman, 1997). Improved social interactions in the form of social contact and social initiations to play were evident in the Harper et al. (2008) study as a result of peer tutoring, while interactions in the form of turn-taking, looking at a person, and waiting increased from a peer buddy program in the Laushey and Heflin (2000) study. McGee et al. (1992) defined social interactions as a social initiation to another child and a social response to an initiation which both increased from peer tutoring with preschoolers with autism. Social approvals in Lawson

and Trapenberg's (2007) study were identified as positive vocalizations and reinforcement directed at others. Social disapprovals were defined as negative vocalizations. From the peer tutoring strategy, approvals increased and disapprovals decreased. In Pierce and Schreibman's (1997) study, the three desirable social behaviors were maintaining interactions, initiating conversation, and initiating play, all of which increased from peer tutoring with students with autism. There have been no published studies to date conducted with students with low incidence disabilities that implemented peer-mediated instruction to affect change in student behavior.

No area causes more concern for teachers than student behavior problems, and behavior may be the most challenging in students with low incidence disabilities because of physiological issues, disregulation, lack of an effective communication system, anxiety, frustration, and fear (Peterson & Hittie, 2003). Providing appropriate supports is key, as is understanding each unique student, identifying environmental conditions that are creating behavior problems, and developing individualized interventions that provide support and teach appropriate behavior (Bambara & Kern, 2005). The key to effective behavior support is individualization, which in a typical classroom with many students and few teachers, can be a challenge to implement effectively all of the time.

Providing individualized student support through cross-age tutoring in an inclusive school environment and having the tutors implement a least-to-most prompting strategy that promotes independence and teaches appropriate behavior, grants students with disabilities access to more typical and enriching school experiences. The learning and practice of implementing a positive, supportive strategy with young children also has the potential to provide a rich learning experience for the tutors (Harper et al., 2008).

## PMI Experiences from the Students' Perspectives

### *Insider Perspectives*

As “outsiders” to the community of students, researchers need to address the psychosocial distance that exists between themselves and the students to gain insight into what is actually happening when students are together (Sixsmith, Boneham, & Goldring, 2003). Insider perspectives are those perspectives, views, and feelings of the people closest to something; in the case of examining peer-mediated instruction, insider perspectives are the voices of students who participate in the peer-mediated interventions. Listening to the personal experiences students have about their participation in PMI is of great value to teachers and researchers because when we listen to and try to appreciate accounts of real experiences, there is light shed upon what PMI ‘means’ for those involved. Working towards an authentic account as possible of student’s experiences is an effective way to create a greater depth of understanding and knowledge about PMI. Students’ perspectives better enable understanding about what helps and hinders an experience like PMI so teachers and researchers can make adjustments for greater success (Jones, 2005).

### *Social Validity Measures*

Social validity is the significance, appropriateness, and social importance of an intervention; Winett, Moore, and Anderson (1991) define social validity as also including the importance of the targeted problem, value and use of the intervention, and sufficiency of behavior change as a result of the intervention. Therefore, social validity is analogous with importance and is a critical step in assessing stakeholders’ satisfaction or dissatisfaction with an intervention (Wolf, 1978). Of the 19 studies on PMI with students

with low incidence disabilities included in this literature review, social validity or quality of the PMI intervention was addressed in 16 of them. The most widely used method for collecting social validity data, used in 7 of the 16 studies, was the use of a questionnaire with a Likert scale which offers researchers one way to solicit and look at data about the quality of the intervention quantitatively. Other methods used in these studies to gather data to evaluate the social validity of PMI were open-ended questions, interviews, researcher observations, anecdotal comments, and a picture rating sociometric measure. Of the 16 studies that did address the social validity of PMI, 2 studies reported observations from the researcher's perspective only, one study administered a questionnaire to parents/family members, 3 studies administered a questionnaire to teachers only, and 10 studies included comments from both teachers and student participants in their social validity measures. Of the 10 studies that included children's perspectives about the social validity of PMI, only 4 of the studies included the voices of students with disabilities.

Kamps, Barbeta, Leonard, and Delquadri's (1994) study conducted interviews of the 3 classroom teachers involved in a classwide peer tutoring intervention and reported each of the teachers "strongly agreed" that the intervention was easy to implement, all students benefitted academically, and all students benefitted socially. Teachers rated students' performance as tutors as "very good" to "excellent." The researchers administered a survey to the general education tutors and found 69% of the students liked being tutors a lot, and 25% liked it somewhat (Kamps et al., 1994). Similarly, the study by Utley et al. (2001) used a satisfaction survey for the teachers and the students finding high satisfaction ratings from students to statements like "belonging to a team", and high

satisfaction ratings from teachers about cost effectiveness of PMI and students' academic achievement (Utley et al., 2001).

A 14-item questionnaire was given to teachers in the Petursdottir et al. (2007) study on peer tutoring in a self-contained classroom and reported a mean score of 6, "Strongly Agree" regarding acceptability of the intervention, effectiveness, and simplicity of implementation from all teachers. Likewise, teacher scores on another survey about a classwide peer tutoring intervention done in triads of students rated the strategy as "good" and "excellent" with plans to continue the use of PMI after the study ended (McDonnell et al., 2001). Chiplin-Williams (1997) gave a questionnaire to parents and family members and found a peer tutoring intervention to teach community and domestic skills rated as "appropriate". The results from all 16 studies' data collection on the social validity of PMI were positive from the perspectives of family members, teachers, and students alike.

### *Tutors' Perspectives*

#### **Life**

Some people are deaf, some people are blind  
Some people don't talk, but we don't mind  
Some people are clever, some people are numb  
But when it comes to friendship we have lots of fun!  
Some people are short, some people are tall  
Some people are fat, it doesn't matter at all.

(Nasen, 2010, p. 16)

This is a poem written by Millie Hegarty, a young student from Summerhill Primary School in Liverpool, England that won a Highly Commended award in the 2010 Fifth Annual Inclusive Poetry Competition held in the United Kingdom. This poem emanated from an Inclusive Poetry Competition, and exemplifies a creative way to gather a deeper understanding of a student's perspective. This poem illustrates powerful feelings expressed by a student that deepens our understanding of how she feels about life and people; this insider perspective is valuable in knowing her personal experience of making friends.

Bensted's (2000) study on peer tutoring to improve academic engagement, homework completion, and self-esteem, included comments made by tutors about their tutees after having worked with them for an extended period of time. After the intervention, a tutor described her tutee as "very focused, kind, in general, more on-task and focused" and "cooperative, vocal, assertive, confident" (Bensted, 2000, p. 47). Also reported in this study, as a result of being a tutor, a teacher reported significant positive effects on the self-esteem of a student from being placed in the tutor role, responsible for the learning of another. Tutors in Yawn's (2008) study on peer tutoring to improve oral reading fluency and comprehension spoke of the importance of "Helping someone else to learn to read better" (p. 118), and agreed their participation as tutors would be helpful in their classes because "...I will be looked up to", and "...helps me comprehend" (p. 118). The current study aimed to expand on the reporting of such insider perspectives to gain a more in-depth understanding about how the tutors and tutees feel about their cross-age tutoring experience.

Tutors' perspectives can also offer insights about the effectiveness of strategies they have been trained to implement with their tutees. Tekin-Iftar's (2003) study on peer tutoring at the middle school level to teach community signs discussed qualitative data he collected from tutors about their enjoyment of the intervention and their wish to participate in tutoring again in the future. In the study with high school students acting as peer tutors to support students with disabilities as they prepared food, tutors expressed concern to the researchers saying the strategy they were instructed to use "felt unnatural" (Godsey et al., 2008, p. 120). Hearing different perspectives of an intervention is a strength with regard to our understanding of an inclusive practice like PMI (Rose, 2010).

*Tutees' Perspectives*

**Breaking Down Barriers-Being Talkative**

I was sat there all alone  
And they blocked me off their phones  
I asked to play their game  
But the answer was the same  
I wish I had some friends  
Can't wait until this all ends  
I crouched down very small  
I didn't want to exist at all  
I ran away very sad  
I wish that I could cuddle Dad  
I stared up at the sky  
Suddenly feeling shy  
Then Aaron so pleasant came along  
And together we sang a little song  
Now I don't feel so lonely

Or have an excuse to be moanie  
I overcame feeling left out by being talkative  
Aaron made me want to live  
Now I have a best friend  
Aaron brought loneliness to an end.

(Nasen, 2010, p. 13)

This is a poem written by Raisha Gibbs, a young elementary student with a disability from Shakespeare Primary School in Plymouth, England that won a Highly Commended award in the 2010 Fifth Annual Inclusive Poetry Competition held in the United Kingdom. This creative way to access insider perspectives, through poetry, is an example of how innovative and flexible researchers need to be to gather perspectives from students with disabilities. This work exemplifies the strong and powerful contribution young children with disabilities can make to our understanding of inclusive experiences, which strengthens the philosophical drive towards inclusive education for all students (Jones, 2005).

Several of the studies presented in this review of peer-mediated instruction allow more space than others for tutees' voices to be heard. In the study by Kaufman and Burden (2004) with students with low incidence disabilities acting as both tutors and tutees on learning peer mediation, a tutee's words about her tutor were captured; "her explanations are wonderful. She explains in a clear way...I admire her for being nice to me." (p. 112) Another student with disabilities in this study expressed his satisfaction with PMI "because it gives me inspiration for something new. It helps me to discover my abilities. It helps me to deal with what is surrounding me." (Kaufman & Burden, 2004, p. 111) Tutees in Tekin-Iftar's (2003) inquiry had much to say about their tutors and the

PMI experience, “Canan will be a very good teacher, I learned the community signs easily from her.” (p. 92), and a tutee was inspired to take on the tutor role, “Let me teach Selma. It is my turn.” (p. 92). This sharing of insider perspectives about PMI moves research on this subject beyond “reporting” about the intervention to developing a partnership and connection with the participants so we are taking full account of the opinions and expertise of the students themselves (Rose, 2010).

### Conclusion

In this chapter, studies on peer-mediated instruction with students with low incidence disabilities were discussed. This literature review has provided information suggesting the PMI strategy is appropriate for boys and girls of all ages, races, ethnicities, and ability levels. Some general insights about PMI are highlighted. Peer-mediated instruction is more readily accessible in public schools and there exists a variety of effective ways to train tutors to work with tutees. There are many variations of PMI that researchers and teachers have developed centered around the students with whom they work and the access they have to recruiting tutors. From the literature, it is evident that tutors are capable of implementing a variety of teaching strategies with their tutees with positive outcomes across many different learning domains, and one key to efficacy lies in the tutor training of the intervention approaches. Research has documented the improved performance of students with a variety of disability labels as young as 3 years of age, through PreKindergarten, elementary school, middle school, and high school. The literature on the use of PMI with students with low incidence disabilities aligns with the wealth of research conducted with other populations of students to strengthen the notion that all students can effectively and successfully teach one another.

This literature review represents a wide array of innovative approaches to PMI in schools. Several studies utilized a very structured and scientific process to implement PMI, others were more naturalistic and flexible. Some reports of studies were written for practical application by teachers, others were written in a more scholarly manner geared for researchers. Across the review as a whole, the one issue missing from the literature is research that focuses on understanding how the tutors and tutees perceive the PMI experience. There is an abundance of quantitative data reports showing great gains in skill performance, demonstrating experimental control over a variety of dependent variables, and ensuring tutors can implement interventions with fidelity, yet the voices of the students themselves are missing from the literature on this topic.

The current study aims to create a space in the literature on this topic for student perspectives to be heard by analyzing observations of students, student work, and notes about what students say and do recorded in a research journal, surrounding their feelings about their participation in a cross-age tutoring program. Results of research of this kind can be shared with administrators and policymakers to enact change in education systems and programs to allow for the use of PMI on a more frequent and regular basis in all schools with all children.

Peer-mediated instruction as a research-based best practice for a wide variety of students has strong practical significance for teachers because the practice is cost-effective with regard to money and time, easily implemented, and supportive of learning in classrooms with diverse students. Positive student outcomes from the use of PMI with students with and without disabilities also strengthen the philosophy of inclusive education for all children. The rigor with which the included studies on PMI were

conducted has scholarly significance because this research can be replicated and built upon to strengthen what is known about PMI and add to the understanding of this strategy as a best practice for different children.

Determining the social validity, or importance of an intervention used in schools with students is a critical component of its evaluation. Students themselves can offer an inside perspective of what the intervention is really like, especially when the intervention, like PMI, centers on interactions among students. Most of the literature reviewed in this chapter addressed social validity through the use of quantitative measures, qualitative measures, or both, and all of the studies presented here have reported positive outcomes for teachers, students without disabilities, and students with disabilities from engagement in a peer-mediated intervention.

The studies that expanded their discussion on social validity measures of PMI included data collected directly from student participants and several studies even reproduced the children's own words in their reports. It is apparent that a quantitative analysis of the social validity of PMI produces a result that can be interpreted as evidence to suggest PMI's efficacy, although different types of data offered in reports that shared actual children's voices produces a result that not only provides evidence of efficacy, but impacts the reader in a different way. Evidently, there are many ways to collect data on the social significance of PMI, and many ways to report those results for others to interpret.

Through analysis of this literature base, it is apparent that PMI is a very flexible, cost-efficient, and effective strategy to use with all types of students at all grade levels. This intervention produces positive results when used to target skills in the academic, life

skills, and social domains. Researchers have had great success teaching tutors through various methods, to use a variety of teaching strategies successfully with tutees. A variety of measures have also demonstrated the social importance of PMI from the perspectives of family members, teachers, and the students themselves. In conclusion, PMI is an effective practice for use with students of all ages with low incidence disabilities.

#### *Implications of Previous Research*

It has been suggested from researchers who have examined PMI that future research in this area concentrate on examining the quality of the interactions between tutors and tutees (Kamps et al., 1994), and there is a consensus that more research needs to be conducted that explores tutor and tutee perceptions and opinions about the use of PMI (Jameson et al., 2008). It is noted that there are only a few studies of PMI with PreKindergarten students with low incidence disabilities, and no studies at this time that target student skills in the adaptive behavior domain. Also, there are no studies at this time that have implemented PMI in environments other than classrooms and playgrounds, or that have used cross-age tutors as opposed to same-age tutors with students with low incidence disabilities. Working from previous research in this particular area and recommendations from researchers who have conducted similar studies, the current study aims to add to and extend the literature base on this topic. The current study focuses on PreKindergarten and Kindergarten students with autism, utilized cross-age tutors, targeted skills in the adaptive behavior domain, was conducted in an inclusive environment on a public school campus, and provides a deep, comprehensive insight into

the perspectives and feelings of students with and without disabilities during engagement in this peer-mediated intervention experience.

There exists a need in the literature on PMI for students with low incidence disabilities to demonstrate even more flexibility with this intervention, and to show positive effects on behavior so teachers in self-contained environments have an option to expose their students to more inclusive experiences at school. The literature base also needs more data on how students with and without disabilities experience this intervention. Hunt, Farron-Davis, Beckstead, Curtis, and Goetz (1994) discuss the need for further research in education on the development of complex social relationships between students with and without disabilities, including friendship. A more thorough analysis of the quality of PMI from the children's perspectives will present a comprehensive picture of what this intervention is really about. This study aimed to add to the understanding that inclusive school experiences are valuable for all students in a variety of ways.

## CHAPTER THREE: METHOD

### Purpose

The purpose of this study was to evaluate the effects of a cross-age tutoring program for young students with autism. There were two major elements to this investigation. One element was to examine the effectiveness of cross-age tutoring in supporting young students in meeting adaptive behavior goals in an inclusive school environment. A second element was to gain a more in-depth understanding of what cross-age tutoring was like for the tutors and tutees from their own perspectives through the analysis of observations of tutor/tutee pairs at work, fourth grade student journals from disability awareness lessons, and the researcher's journal. It was an aim of this study to compare previous findings regarding the effectiveness of peer-mediated instruction on student performance, including its personal benefits for students, and to replicate and extend others' work using different variables and a different methodology; mixed methods.

Specifically, the study addressed the following two research questions:

- 1) What effect, if any, does a cross-age tutoring intervention have on the progress of PreKindergarten/Kindergarten students' with autism Individualized Education Plan goals related to behavior, in an inclusive school environment?
- 2) What is the range of perspectives of general education fourth grade tutors and PreKindergarten/Kindergarten tutees with autism to the cross-age tutoring experience?

## Participants

“Mrs. Gillies I really like working with your class, the kids are sweet and nice, it mean a lot that you pick my class to work with your class!” (Janie, 10/11/11 Journal, p. 3).

Due to the special and unique case of studying a cross-age tutoring intervention with PreKindergarteners and Kindergarteners with autism, the participant sample of PreK and Kindergarten students was obtained through purposive sampling (Teddlie & Yu, 2007). The researcher conducting this study is also a full-time special education teacher in a public school who teaches in a self-contained classroom for young students with autism. For this study, the researcher invited 3 students from her own primary school classroom who are PreKindergarten and Kindergarten students, 4 to 5 years of age, with labels of autism spectrum disorder, to participate. Students with autism who had consistently high absenteeism (over one day per week over 2 months) were not asked to participate in this study because data was collected sometimes on a daily basis and missing data would have hindered the analysis and evaluation processes. The 3 students from the self-contained class were selected from the group who had good attendance. These students were the tutees. The other students who were invited to participate were 4 fourth grade general education students, 9 to 10 years of age, who have been coming into the primary classroom every day since the beginning of the school year to help out. These older students were the tutors. A cross-age tutoring program between these two classes (PreK/Kindergarten class for students with autism and fourth grade general education class) was organized at the beginning of the school year; each fourth grader in the class has been working voluntarily with the entire class of young students with autism each week for the past 9 months. This research study was introduced to the fourth grade class during a whole group discussion and every one of the students wanted to volunteer to

participate, so the two teachers involved talked privately and selected 4 fourth graders who had good attendance, and whose schedules allowed for them to help in the self-contained class most consistently.

Four fourth graders were invited to participate in this study in case one of the fourth graders moved, wished to withdraw from the study, had frequent absences from school, or moved out of the classroom which became the case early on in the data collection process. The teacher of the fourth grade class has expressed interest in pairing up with the teacher of the younger class of students with autism for the past 4 years because she feels it such a valuable experience for her fourth grade students to help others. The researcher obtained informed consent from the parents of the 3 students with autism and the 4 students in the fourth grade classroom, and then sought assent from the children themselves.

Parents of the 7 participants were contacted by phone, email, and/or note and an IRB-approved verbal recruitment script was utilized to inform them about the study. The researcher then met with all parents (and one grandfather) personally to reiterate the purposes of the study and to further explain what would be expected of their children. Parents were then presented with an IRB approved consent form either in person or it was sent home with students. All 7 consent forms were signed and returned. The researcher then asked each fourth grader for their assent to participate using an IRB-approved verbal script and each gave their verbal assent. To obtain assent from the 3 participants with autism, the researcher closely observed their behavior each time they were asked to go to the library. Each time the researcher wished to conduct a session for this research study in the library, students with autism were verbally asked, shown a picture card of the

library, and shown the video camera (an object symbol) to ensure understanding of the question. Each of the participants showed assent through smiling, following the researcher or tutor, not displaying tantruming behavior, taking the researcher's hand, walking ahead out of the door towards the library, or taking the cross-age tutor's hand for each session. Verbal assent to continue to participate in this study was also given several times during the study from the fourth graders as well. The fourth graders who volunteered for the study were able to choose which of the students with autism they wanted to be paired with through intervention and maintenance phases of the single case design inquiry. The same tutor/tutee pairs worked together throughout the study. All student names in this document are pseudonyms.

*Tutor/Tutee Pair 1: Julie and Michael*

Student Pair 1 was comprised of Julie, a fourth grade tutor, and Michael, a PreKindergarten student. Julie is a Hispanic female, 9.5 years of age and Michael is a Chinese male, 5.3 years of age. Julie is a very kind, helpful, and positive girl who goes out of her way to take care of the young students with autism. She is from a large family with older and younger siblings and one of her older sisters was a cross-age tutor for young students with autism several years ago. Michael is a very bright boy and is passionate about computers and video games. He requires extra support with language, attention, social interactions with others, and behavior. He loves exploring new places. When given a prompt to write about Michael in her journal, Julie wrote:

“(Michael) is a nice kid I am teaching him English and Chinese. I already taught him ‘nihow’ it means hello in Chinese, and in English I taught him bye-bye.” (Julie, 10/11/11 Journal, p. 4).

Below her writing is a picture she drew of Michael smiling with a cloud above him and two lightning bolts coming out of the clouds on both sides of him. Written in the cloud are the words “Great kid”. (Julie, 10/11/11 Journal, p. 4).

*Tutor/Tutee Pair 2: Shawn and Mollie*

Student Pair 2 was comprised of Shawn, a fourth grade tutor, and Mollie, a PreKindergarten student. Shawn is a Caucasian male, 9.9 years of age and Mollie is a Caucasian/Hispanic female, 4.7 years of age. Shawn is an extremely bright boy who is very thoughtful and conscientious. He often talks about helping take care of his younger cousins and is very interactive with the young students with autism. Mollie is an energetic emerging communicator who is learning to talk in 1-2 word phrases. She is a very friendly and sociable girl with familiar people and requires extra support with language and behavior. When given a prompt to write about Mollie in his journal, Shawn wrote:

“(Mollie) likes animal sounds but she does not like loud things.” (Shawn, 10/20/11 Journal, p. 3).

*Tutor/Tutee Pair 3: Janie and Jason*

Student Pair 3 was comprised of Janie, a fourth grade tutor, and Jason, a Kindergarten student. Janie is a Caucasian female, 9.11 years of age and Jason is a Hispanic male, 5.5 years of age. Janie is a very sensitive and committed helper and is always working to make sure the young children are happy. Jason is a boy who is always moving and is passionate about electronics and engaging in rough and tumble play. He loves to play with the older tutors and requires extra support with language, attention, and behavior.

### Setting and Materials

This study took place in various school environments on the campus of a public elementary school. The settings included the following: the fourth grade classroom and library for cross-age tutor training and lessons about disability; the self-contained special education classroom for prompting strategies practice with tutees; and the school library where qualitative data and quantitative data on tutee performance of targeted adaptive behavior goals were collected. Tutors and tutees had never worked together in the library prior to this study.

For the quantitative piece of this inquiry, frequency data on tutor and tutee behavior were collected in the school library. Sometimes during data collection people would come in and out of the library, and sometimes the library was completely empty. For the qualitative piece of this inquiry, data was collected in three forms (observations, student work, research journal) throughout the entire study in all of the aforementioned settings on the school campus.

A video camera was used to record the tutor/tutee sessions in the library. The video camera was focused on one tutor/tutee pair at a time. The camera was first set up on a tripod relatively close to the tutor/tutee pair to record tutor prompts, tutee behaviors, facial expressions, and student comments, and then the camera was carried around the library to film the students as they walked around. Videos were examined to record data on tutor's intervention fidelity and intervention effectiveness, as well as for qualitative data relating to how the students were feeling about their work together.

A research journal was purchased and used throughout the study as a place for the researcher to write anecdotal notes and stories about what was happening in the study, what the students were doing and saying, and how the researcher was feeling and

interpreting events in the study. The research journal traveled with the researcher from school to home and she would write in it whenever she had a thought about the project, whenever a student said something or did something she felt was significant, and to record incidents or stories that were occurring during the duration of the study. Notes in the research journal were hand-written and dated, but had no other structure or organization; it was in a free-write format. Half way through the study, the researcher used an audio tape recorder in addition to the research journal to record qualitative data because there were 2 stories she wished to record that she felt were too long and too cumbersome to write out. The data on the audio tape recorder were not transcribed. Other materials used in the qualitative piece of the study included student journals that the tutors wrote in during researcher-led disability awareness lessons.

### Design

This study utilized a mixed methods design to gather both quantitative and qualitative data about a cross-age tutoring experience that paired fourth grade general education students with PreKindergarten/Kindergarten students with autism. A mixed methods design enabled the researcher to look at a variety of data that described many aspects of the cross-age tutoring intervention, as well as to create a space for the children involved to voice their own opinions and thoughts about their experience. This research design gave the researcher a more holistic understanding of the significance of the intervention and the many ways in which it impacted all of the students involved.

A single case design, more specifically a multiple baseline across participants (Baer, Wolf, & Risley, 1968; Horner, Carr, Halle, McGee, Odom, & Wolery, 2005) with three phases (Baseline, Intervention, and Maintenance) assessed the effectiveness and lasting effects of the cross-age tutoring strategy on behavior goals of 3 young students with

autism in an inclusive school environment, the library. Qualitative data was collected throughout the study from and about both tutors and tutees in the form of written narratives of observations of tutoring sessions, student work samples (journals) from disability awareness lessons, and notes written in a research journal. Student journals were photocopied. Constant comparison analysis (Charmaz, 2009; Glaser & Strauss, 1967; Leech & Onwuegbuzie, 2007) was used by the researcher to construct themes she discovered in the qualitative data.

Through mixed methodology inquiry, the complexity of the cross-age tutoring project became more apparent, as did the significance of the experience for both tutors and tutees. Through the collection of quantitative and qualitative data simultaneously, the cross-age tutoring strategy was evaluated both in its power to affect change in student behavior and its personal effect on the participants with and without disabilities. This design showed the many factors at play when students work together, as well as the many outcomes. The different types of data collected and analyzed gave the researcher insight into very different, very significant effects from the same intervention.

## Procedures

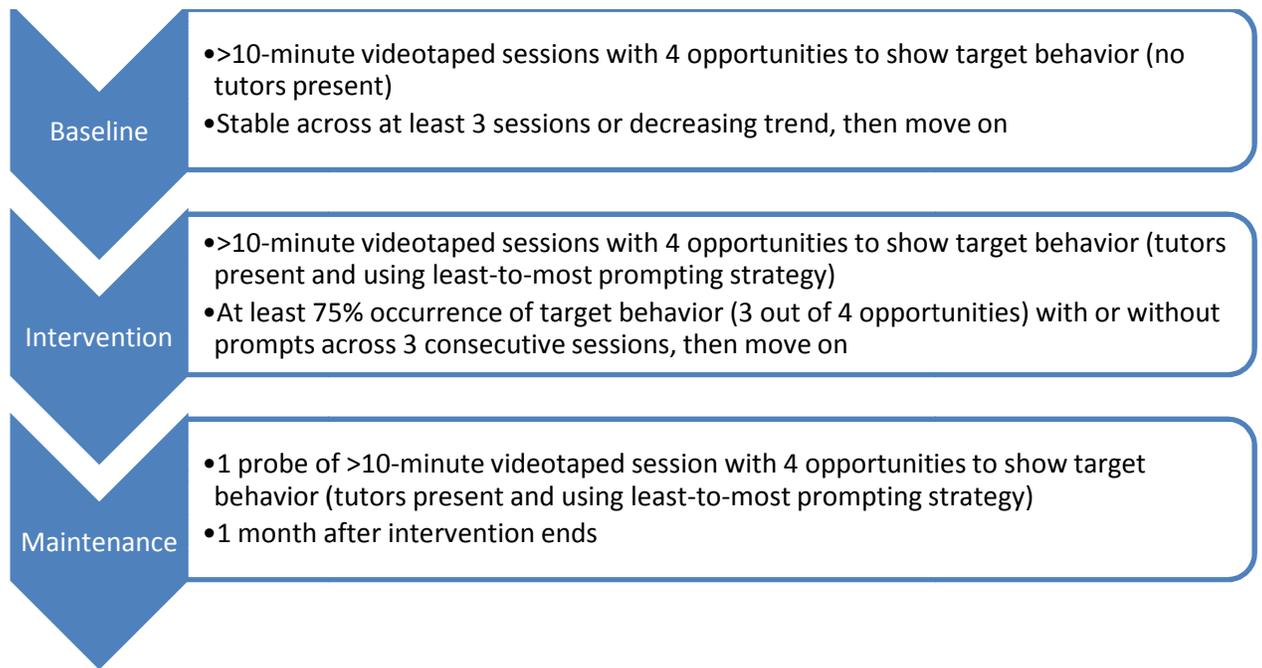


Figure 1: Steps of Multiple Baseline Across Participants Design Phases

### *Baseline*

First, data on target behaviors of the tutees with autism were collected in the inclusive environment (library) without the cross-age tutors present to serve as baseline data. The 3 students with autism were taken to the library individually, on separate occasions, for up to 10-minute blocks of time that were videotaped. The researcher provided 4 opportunities per session for the students to emit the target behavior within each session. The same verbal direction was given by the researcher to each of the 3 participants throughout the entire study to elicit the target behavior; the direction was “Go get a book.” The number of occurrences and/or nonoccurrences of the target behavior for each student were recorded on a data collection form (see Appendix A for Frequency Recording Data Sheet for Target Behaviors). When baseline data for each individual

student became stable across at least 3 sessions or showed a decreasing trend, the cross-age tutoring intervention was introduced. Qualitative data collected during this phase was in the form of observation of the tutees' behavior, fourth grade student work from disability lessons, and notes taken in the research journal. Behavior responses of the students with autism were carefully recorded with thick descriptions of their facial expressions, body language, gestures, engagement, eye contact, and attention.

### *Cross-Age Tutor Training*

Throughout the school year, the researcher had been teaching disability awareness lessons in the general education fourth grade class of tutors as part of the cross-age tutoring program. It was during these 30-minute lessons that occurred once every 7 school days, that the researcher trained the tutors in the use of the least-to-most prompting strategy at the onset of the study (Cooper, Heron, & Heward, 1987; Wolery & Gast, 1984). Least-to-most prompting was the strategy the 3 fourth grade tutor volunteers were asked to use when they were working with the students with autism on their behavior goals in the library. The steps in least-to-most prompting were adapted to the level a fourth grader would understand and were presented to the tutors as follows:

1. Listen as I give your tutee the verbal direction to "Go get a book" and watch him/her; if the student follows the direction, give him/her praise/high five/tickle/etc.; if the student does not follow the direction then use your words again to repeat the same verbal direction.
2. If the student follows the direction after you use your words, give him/her praise; if the student does not follow the extra verbal directions you gave then give the verbal direction again AND use a gesture to get him/her to follow the direction.

3. If the student follows the gesture, give him/her praise; if the student does not follow the gesture then give the verbal direction again AND use a gentle physical prompt to guide him/her to follow the direction and then give him/her praise.

These steps were presented to the fourth graders verbally and visually through whole group instruction. The researcher verbally explained the steps of the least-to-most prompting strategy while showing the steps in written format. The steps were discussed, the researcher provided a model of each step with a student volunteer, the students had opportunities to practice each step with the teacher and peers, and the students engaged in role-playing to master the strategy. The researcher modeled examples of how to prompt at each level of the strategy, and nonexamples. The researcher also developed a simple visual aid to help tutors remember the steps of the least-to-most prompting procedure (see Appendix B for Steps of Least-to-Most Prompting) that was used throughout tutor training and practice sessions in the self-contained classroom. The researcher conducted the same lesson 3 different times until the 3 volunteer tutors performed the least-to-most prompting strategy with 100% accuracy over 2 days with the researcher and indicated they felt comfortable trying the strategy with the young students with autism. The tutors then had the opportunity to practice using the least-to-most prompting strategy with the young students in the self-contained classroom for students with autism and the researcher gave the tutors immediate feedback and reinforcement for accurate implementation of the strategy. When tutors performed the strategy with the young students with 100% accuracy over 2 days in the self-contained classroom, and the young students had demonstrated a stable pattern of performance during the baseline phase of data collection, intervention in the library began. Several times throughout the remainder

of the study, tutors were informally reminded about the steps of the least-to-most prompting strategy and praised for their correct implementation of the strategy with their tutees.

### *Intervention*

The second phase of the multiple baseline across participants design was Intervention. The same 3 cross-age tutors using the least-to-most prompting strategy with their assigned tutees in the library made up the Intervention phase. All of the cross-age tutoring intervention sessions in the inclusive environment took place in up to 10-minute blocks of time and were videotaped. The researcher took one tutor/tutee pair to each session at a time; the sessions in the library occurred during the young students' Specials class time (which is when the fourth grade tutors were scheduled to help every day). The library had few additional people coming in and out, if any, during sessions conducted in that environment. Each tutor/tutee pair was videotaped separately. The researcher gave the same verbal direction to each student ("Go get a book.") to prompt the target behavior, and provided 4 opportunities for the young students to elicit the target behavior within each session. From review of the videotapes, the number of occurrences and/or nonoccurrences of the target behavior for each student were recorded on a data collection form (see Appendix A for Observer Video Data Collection Sheet). On the same form, data was also collected on the tutor's implementation of the least-to-most prompting strategy. The criteria for completion of the intervention phase for each student was 75%-100% occurrence of the target behavior with or without prompts across 3 consecutive days. Qualitative data collected during the intervention phase of the study included observations of student behavior, students' written work, and anecdotal notes written in

the research journal. Notes from observations of student behavior (verbal comments made, body language, facial expressions, eye contact, physical contact, etc.) in the form of thick descriptions were recorded daily from the videotaped tutoring sessions. Student work in the disability awareness lessons was collected weekly. The researcher wrote in the research journal at least several times per week, (recording events in tutoring sessions, events in disability lessons, reflections, stories, etc.) and more often when students exhibited evidence of how they were feeling about the cross-age tutoring experience.

### *Maintenance*

The third and final phase of the multiple baseline across participants design was Maintenance and included one probe. The Maintenance probe was collected at one month post the final intervention session with each of the 3 tutor/tutee pairs. During the interval between the Intervention phase and the Maintenance probe, the cross-age tutors continued to work with the tutees on a weekly basis in the Specials room as per their normal routine; the pairs did not work together at all in the library until the Maintenance probe began. The Maintenance probe was used to examine the continued performance of the target behavior by tutees when supported by their 3 assigned cross-age tutors in the library, and the continued fidelity of the strategy used by the tutors. The cross-age tutoring Maintenance session in the library took place in up to a 10-minute block and was videotaped separately. The researcher provided 4 opportunities for the students to elicit the target behavior within the session. From review of the videotape, the number of occurrences and/or nonoccurrences of the target behavior for each student was recorded on a data collection form as were the steps of the least-to-most prompting strategy used

by the tutors (see Appendix A for Observer Video Data Collection Sheet). Qualitative data collected during this phase of the study included observations of student behavior, student work, and research journal entries.

## Measures

### *Dependent Variables*

The 3 participants with autism in this study each had several different adaptive behavior goals on their Individualized Education Plans (IEPs), one of which served as the behavior targeted for change; the dependent variable. The behavior goals were pre-determined by the individual IEP teams to be important for each particular student. Even though all 3 participants had target behaviors that fell under the umbrella of adaptive behavior, each of the 3 behaviors presented slightly differently when operationally defined. All 3 behaviors aligned with the skill of getting a book from the library, hence the same verbal direction “Go get a book.” Was given to each of the participants.

### *Michael’s Goal*

In the library, Michael was given the verbal direction “Go get a book.” 4 times per session during Baseline, Intervention, and Maintenance phases to elicit the target behavior. Michael’s Individualized Education Plan goal that was aligned with this direction was: “Presented with the safety directions to ‘stop’, ‘wait’, and ‘look’ verbally by teachers and peers, (Michael) will follow each direction within 5 seconds.” When the goal was operationally defined it was embedded into the direction given in the library in the following way: Get up from the table, go to bookshelf and stop, wait at bookshelf while scanning for a book, look at the bookshelf, and look at one book while pulling it out of the shelf. This was Michael’s target behavior/dependent variable to be measured.

### *Mollie's Goal*

In the library, Mollie was given the verbal direction “Go get a book.” 4 times per session during Baseline, Intervention, and Maintenance phases to elicit the target behavior. Mollie’s Individualized Education Plan goal that was aligned with this direction was: “In structured and unstructured activities, (Mollie) will follow a one-step direction within 5 seconds with less than 2 visual, verbal, or gestural prompts with random errors as measured by teacher observation.” When the goal was operationally defined it was embedded into the direction given in the library in the following way: Get up from the table, go to bookshelf, and pull one book out of the shelf. This was Mollie’s target behavior/dependent variable to be measured.

### *Jason's Goal*

In the library, Jason was given the verbal direction “Go get a book.” 4 times per session during Baseline, Intervention, and Maintenance phases to elicit the target behavior. Jason’s Individualized Education Plan goal that was aligned with this direction was: “Given whole or small group instruction, (Jason) will stay with group for 20 minutes with 2 or fewer multisensory prompts (excluding physical).“ When the goal was operationally defined it was embedded into the direction given in the library in the following way: Get up from the table, go to and stay near the bookshelf, pull one book out of shelf while staying near the bookshelf and staying near the peer tutor. This was Jason’s target behavior/dependent variable to be measured.

To address the first research question “What effect, if any, does a cross-age tutoring intervention have on the progress of PreKindergarten/Kindergarten students’ with autism Individualized Education Plan goals related to behavior, in an inclusive school

environment?” the dependent variables in this study (targeted behavior goals) were measured through researcher and trained observer viewing of at least 7 videotaped tutoring sessions per student, use of data collection forms, and graphing data collected on the form as described in multiple baseline across participants design research (Baer, Wolf, & Risley, 1968).

*Implementation Fidelity of Cross-Age Tutors' Prompting Procedure/Independent Variable*

The independent variable in this study (cross-age tutors' use of least-to-most prompting strategy) was also measured through researcher and trained observer observation and use of a checklist (see Appendix A for Observer Video Data Collection Sheet). All of the cross-age tutoring sessions in the inclusive environment took place in up to 10-minute blocks of time and were videotaped. The videotapes were reviewed by the researcher and another trained, experienced observer and data on the fidelity of implementation of the least-to-most prompting strategy were recorded on the checklist. Cross-age tutors were expected to provide prompting with 80%-100% accuracy.

Inter-observer agreement on the occurrence or nonoccurrence of the target behaviors emitted by the young students with autism was calculated in 100% of the Baseline, Intervention, and Maintenance phases for each of the 3 young students. Inter-observer agreement on the cross-age tutors' use of the least-to-most prompting strategy was calculated in 100% of the Intervention and Maintenance phases. Inter-observer agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100.

## Collection of Student Voices

To gather data to answer the second research question “What is the range of perspectives of general education fourth grade tutors and PreKindergarten/Kindergarten tutees with autism to the cross-age tutoring experience?”, videotaped tutoring sessions were reviewed and detailed observations of both tutors and tutees were written. The observations included thick descriptions about what was said between the tutors and tutees as well as thick descriptions of behavior, facial expressions, body language, gestures, engagement, eye contact, and attention by the students.

Fourth grade student work in the form of student journals during disability lessons was collected and anecdotal notes were written by the researcher in her research journal. An example of a writing prompt used with the fourth grade students during a disability awareness lesson was “How do you feel about being a cross-age tutor to young students with autism?” (See Appendix C for Journal Writing Prompts Used in Fourth Grade Disability Awareness Lessons). Work samples from the tutors in the form of journals were collected. Notes written in the research journal throughout all phases of the study were also included. All of this qualitative data was compiled throughout the study and a constant comparison analysis (Charmaz, 2009; Glaser & Strauss, 1967; Leech & Onwuegbuzie, 2007) was conducted to develop a better understanding of how the tutors and tutees experienced the cross-age tutoring intervention and how they felt about being tutors and tutees. Data from both the single case design method and the constant comparison analysis were combined and interwoven to develop a comprehensive, holistic understanding of the cross-age tutoring intervention from multiple perspectives. The

following table outlines the research tools used in this mixed methods study and how they are aligned with the research questions.

Table 1: Research Tools and Corresponding Research Questions

Research Tools	Research Questions
Single case design	1. What effect, if any, does a cross-age tutoring intervention have on the achievement of Individualized Education Plan goals related to behavior, among PreKindergarten/Kindergarten students with autism?
Observations of student behavior recorded as thick descriptions	2. What is the range of perspectives of general education fourth grade tutors and PreKindergarten/Kindergarten tutees with autism on the cross-age tutoring experience?
Collection of student work	2. What is the range of perspectives of general education fourth grade tutors and PreKindergarten/Kindergarten tutees with autism on the cross-age tutoring experience?
Researcher journal	2. What is the range of perspectives of general education fourth grade tutors and PreKindergarten/Kindergarten tutees with autism on the cross-age tutoring experience?

### Qualitative Data Analysis

Charmaz (2009) offers steps for conducting a constant comparison analysis of qualitative data that the researcher followed, recognizing that this method is not a linear process; it is cyclic and the researcher constantly went back over data, codes, themes, and memos throughout the entire process of analysis.

1) Read and re-read all data from observations of behavior, student work, and the research journal, and open coded word-by-word, line-by-line, and/or incident-by-incident. Coding means attaching words or phrases to themes/concepts/constructs that the researcher saw in the data. The researcher decided which data were relevant to her codes and where the data fit into the codes. The codes developed help organize the

wealth of data collected. In the current study, the written data was repeatedly read through and different colored highlighters and symbols were used within the text to organize and code the various themes discovered.

2) During the coding process, the researcher wrote memos from her own perspective about what the data was saying to her personally. This space was used to explore ideas, think about the data, analyze, compare, synthesize, find relationships, and look for gaps. The memo-writing was done in an informal manner. In the current study, the researcher used her research journal to write memos from the qualitative data analysis.

3) Throughout the coding and memo-writing process the researcher compared data with data to find similarities and differences. Sequential comparisons across time and events were made. Outlines and visual aids were constructed to help organize, compare, and synthesize the codes into categories and then into concepts. In the current study, the researcher made lists, columned tables, and visual aids with circles and arrows pointing to main themes.

4) Open coding turned into focused coding which provided codes that were more directed, selective, and conceptual. These codes began to synthesize, explain, and represent larger chunks of data. The researcher compared category with category, and category with concept which ended with abstract concepts of how tutors and tutees experienced and felt about the peer tutoring process. In the current study, these concepts are reported as results along with direct quotes from both tutors and tutees. The researcher's outlines of codes/categories/concepts in the form of tables are included in the results section of this document for public disclosure of the analysis process (Anfara et al., 2002).

5) Throughout the process of the qualitative data analysis, quality indicator strategies recommended by McWilliam (2000), Leech and Onwuegbuzie (2007), Gall, Gall, and Borg (2007), and Anfara et al. (2002) were employed and are discussed further in the results section of this document. These strategies included member checks, asking multiple researchers to code the data, data triangulation, prolonged engagement in the field, providing thick descriptions, and creating an audit trail.

The sample size in this study (N=6) was sufficient to conduct the proposed analyses because of the wealth of qualitative data collected from each of the students. Written observations and work samples completed during lessons provided many pages of qualitative data for each student that were included in the qualitative analysis. Member checks were conducted individually with students by the researcher. The researcher told each student what she thought the student said or what she thought the student's work meant, and then asked the student if her understanding was correct. Data triangulation was achieved through the comparison of qualitative data obtained through 3 different sources; observations of behavior, student work, and notes from the research journal. Similar themes were evident in all 3 of these sources of qualitative data, so triangulation was apparent. A thorough audit trail was compiled from researcher notes that recorded detailed dates, times, and procedures of events throughout the study.

#### Inter-Observer Agreement

Inter-observer agreement was calculated for 100% of Baseline, Intervention, and Maintenance phases of the single case design part of the study. To conduct inter-observer agreement, 2 observers independently viewed the videotapes. An agreement of the occurrence of a target behavior was defined as both observers circling a "+" on the

data collection sheet during a session, an agreement of the nonoccurrence of a target behavior was defined as both observers circling a “-“ on the data collection sheet during a session. A disagreement about the occurrence/nonoccurrence of a target behavior was defined as one observer recording an occurrence/nonoccurrence and the other observer not recording an occurrence/nonoccurrence during a session. Simultaneously during the last 2 phases of the study, IOA was also employed with data collected on the delivery of the least-to-most prompting strategy by the 3 cross-age tutors. Inter-observer reliability was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. The goal was to achieve at least 80% inter-observer agreement for each phase of the study for student performance of the target behavior and for the intervention fidelity measure. If IOA were to fall below 80% at any time, additional training and clarification of the targeted student behaviors and/or prompting strategy would have commenced, but this plan was unnecessary as each phase of data collection IOA yielded 80%-100% agreement.

The researcher collaborated with the same observer for reliability checks of the qualitative data. The researcher and the observer engaged in discussions about the qualitative data they viewed on the videotapes and those discussion points were compared with the researcher’s codes to see if there were similarities. Themes constructed by the researcher, themes discussed by the observer, and data confirmed through member checks enabled another form of data triangulation for increased trustworthiness. Another process for member checking was debriefing with each student about what the researcher believed he or she shared during disability lessons and

experienced during intervention sessions, and then comparing each student's response with what the researcher recorded.

### Data Collectors

The researcher was the primary data collector and observer in this study. She trained one other observer, another teacher of students with autism at the same school, through discussion using videos of the student participants so they could see and agree on what occurrences and nonoccurrences of target behaviors in the students looked like. The researcher explained the data collection sheets and engaged the other observer in several practice sessions using the data sheets. Target behaviors of all 3 participants were operationalized, clearly written down on the data collection forms, and discussed between the observers. Steps of the least-to-most prompting strategy were also operationalized, clearly written down, and discussed. Once data collectors were able to reliably identify and record target behaviors and steps of the least-to-most prompting strategy, IOA from videotaped Baseline sessions began and continued on throughout the Intervention and Maintenance phases.

The 2 observers viewed videotaped sessions of students in the library and used the data collection form to record data on the dependent and independent variables. The trained observer also reviewed student work products and the researcher's journal to develop themes about the data that were compared with the researcher's themes through discussion. All data collected was assessed for inter-rater reliability.

## CHAPTER FOUR: RESULTS

### Quantitative-Single Case Design-Multiple Baseline Across Participants

For the quantitative portion of this mixed method study, a single case design methodology was used to analyze the effects of the cross-age tutors' implementation of a least-to-most prompting strategy on behavior goals of the 3 young participants with autism in the school library. The multiple baseline across participants design included 3 phases; Baseline, Intervention, and Maintenance. The following table reports the results from the 3 phases of data collection on the dependent variables of the 3 young students with autism. The first two students met the established criteria of 75% or above occurrences of the target behavior within the first 3 consecutive sessions in the Intervention phase so no additional sessions were conducted with these students, as indicated in the table by "NA".

Table 2: Data on Dependent Variables

		Baseline Phase			Intervention Phase					Maintenance Phase
	Session	1	2	3	1	2	3	4	5	1
Michael	# of occurrences of target behavior	1/4	0/4	0/4	3/4	4/4	4/4	NA	NA	4/4
	% of occurrences of target behavior	25%	0%	0%	75%	100%	100%	NA	NA	100%
Mollie	# of occurrences of target behavior	0/4	0/4	0/4	3/4	3/4	4/4	NA	NA	4/4
	% of occurrences of target behavior	0%	0%	0%	75%	75%	100%	NA	NA	100%
Jason	# of occurrences of target behavior	0/4	0/4	0/4	2/4	1/4	3/4	4/4	3/4	4/4
	% of occurrences of target behavior	0%	0%	0%	50%	25%	75%	100%	75%	100%

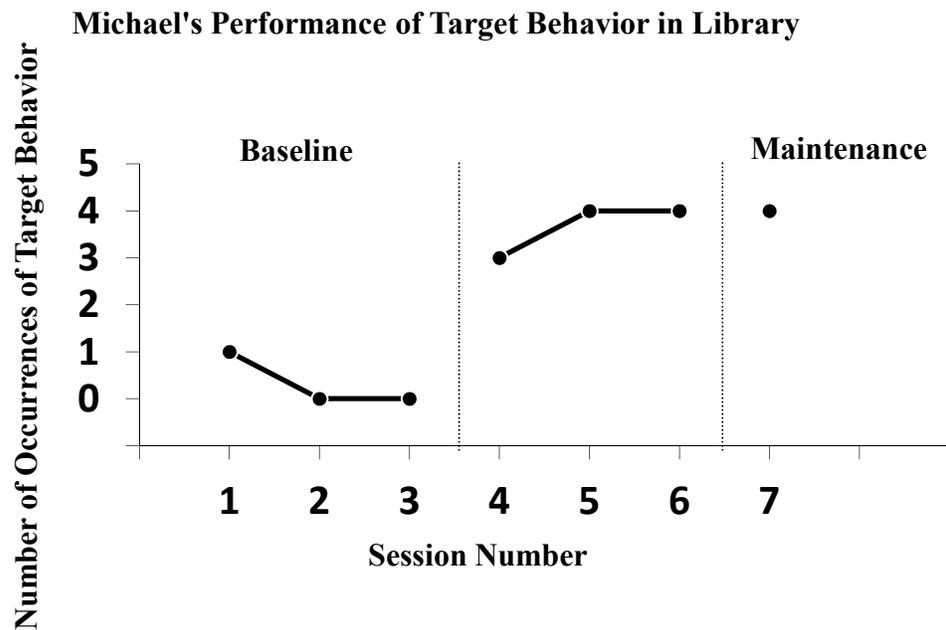


Figure 2: Graph of Michael's Performance of Target Behavior in the Library

From a visual analysis of Michael's graph, it is apparent that during Baseline there was a decreasing trend in the occurrence of the target behavior; his performance during Session 1, Baseline was 1 occurrence out of 4, and then Sessions 2 and 3 there were no occurrences of the target behavior. After 3 Baseline sessions, the cross-age tutoring intervention was introduced.

With the onset of the cross-age tutoring intervention, Michael's data indicated an immediate positive effect. The magnitude of the change in the dependent variable was strong and there was an increasing trend in the occurrence of the target behavior. In Session 1, Intervention with the tutor prompting, Michael performed the target behavior 3

out of 4 times, then during Sessions 2 and 3 with the tutor prompting, Michael performed the target behavior 4 out of 4 times each session. With 3 consecutive Intervention sessions showing 75%-100% occurrence of the target behavior, Michael progressed to the Maintenance phase.

The Maintenance phase probe was conducted one month after the last Intervention session and with the cross-age tutoring intervention in place, Michael performed the target behavior 4 out of 4 times.

*Mollie, Tutee 2*

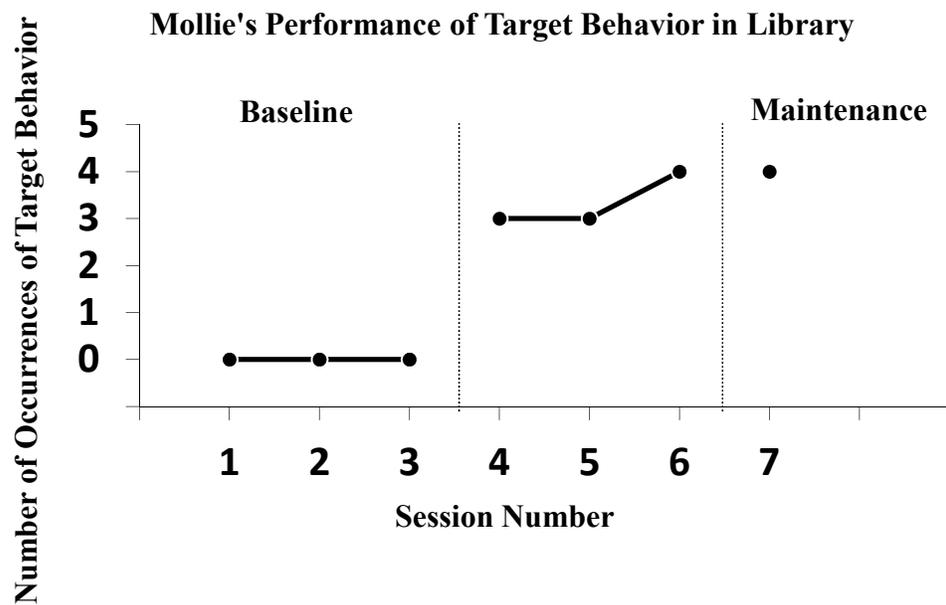


Figure 3: Graph of Mollie's Performance of Target Behavior in the Library

From a visual analysis of Mollie's graph, it is apparent that during Baseline, there was a stable trend in the nonoccurrence of the target behavior and the level was 0; in Sessions

1, 2, and 3 she did not perform the target behavior at all. After 3 Baseline sessions a trend was apparent and the cross-age tutoring intervention was introduced.

With the onset of the cross-age tutoring intervention, Mollie's data indicated an immediate positive effect. The magnitude of the change in the dependent variable was strong, from 0 occurrences to 3 occurrences, and there was an increasing trend in the occurrence of the target behavior. In Session 1, Intervention with the tutor prompting, Mollie performed the target behavior 3 out of 4 times. In Session 2, she performed the target behavior 3 out of 4 times again, and then during Session 3, she performed the target behavior 4 out of 4 times. With 3 consecutive Intervention sessions showing 75%-100% occurrence of the target behavior, Mollie progressed to the Maintenance phase.

The Maintenance phase probe was conducted one month after the last Intervention session and with the cross-age tutoring intervention in place, Mollie performed the target behavior 4 out of 4 times.

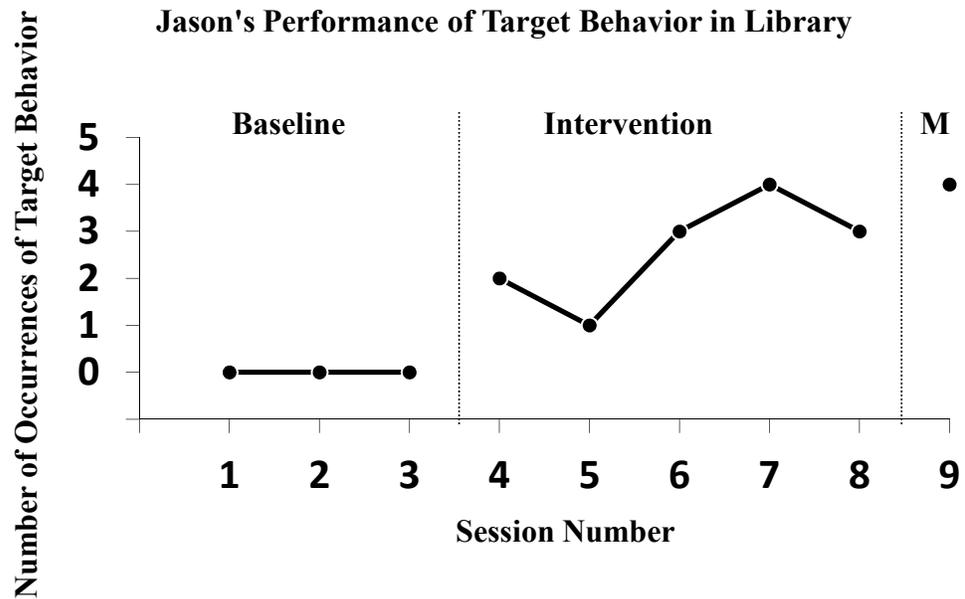


Figure 4: Graph of Jason’s Performance of Target Behavior in the Library

From a visual analysis of Jason’s graph, it is apparent that during Baseline, there was a stable trend in the nonoccurrence of the target behavior and the level was 0; in Sessions 1, 2, and 3 he did not perform the target behavior at all. After 3 Baseline sessions, the cross-age tutoring intervention was introduced.

With the onset of the cross-age tutoring intervention, Jason’s data indicated an immediate positive effect; from 0 occurrences of the target behavior during baseline to 2 occurrences of the target behavior as soon as the intervention was introduced. During this phase there was variability in the data points at first, but then the data indicated an increasing trend in the occurrence of the target behavior. In Session 1, Intervention with the tutor prompting, Jason performed the target behavior 2 out of 4 times. In Session 2,

he performed the target behavior 1 out of 4 times, Session 3, 3 out of 4 times, Session 4, 4 out of 4 times, and then Session 5, 3 out of 4 times. With the last 3 consecutive Intervention sessions showing 75%-100% occurrence of the target behavior, Jason progressed to the Maintenance phase.

The Maintenance phase probe was conducted one month after the last Intervention session and with the cross-age tutoring intervention in place, Jason performed the target behavior 4 out of 4 times.

### Levels of Prompting

The three levels of prompting in the least-to-most prompting strategy used by the cross-age tutors began with the least intrusive prompt and progressed to the most intrusive prompt and included: verbal prompt, gesture prompt, physical prompt. The level of prompting necessary to support the young students in emitting the target behavior is of interest in this study because the least intrusive the prompt given, the more independently the young student is able to function, and the ultimate goal is to support students in performing the target behavior with as much independence as possible, thereby decreasing their dependence on others. The following table reports the levels of prompts used by the cross-age tutors to support the young students to emit the target behaviors successfully during the Intervention and Maintenance phases of this study. A (-) indicates a trial in which the target behavior did not occur and the word “Independent” indicates that the young student performed the target behavior without any prompts at all from his/her tutor.

Table 3: Levels of Prompts Used

Session	Intervention Phase					Maintenance Phase
	1 4 trials	2 4 trials	3 4 trials	4 4 trials	5 4 trials	1
Michael	-	Verbal	Physical	NA	NA	Physical
	Physical	Gesture	Gesture	NA	NA	Independent
	Verbal	Physical	Physical	NA	NA	Physical
	Physical	Physical	Physical	NA	NA	Independent
Mollie	-	Gesture	Gesture	NA	NA	Gesture
	Physical	Gesture	Gesture	NA	NA	Gesture
	Gesture	Gesture	Gesture	NA	NA	Gesture
	Gesture	-	Gesture	NA	NA	Verbal
Jason	Independent	-	-	Independent	Independent	Independent
	-	-	Gesture	Independent	Independent	Independent
	Verbal	-	Physical	Independent	-	Physical
	-	Physical	Physical	Independent	Independent	Independent

*Michael, Tutee 1*

Michael required physical prompts during all 3 Intervention sessions to successfully perform the target behavior. He did perform the target behavior 2 times with gesture prompts only, and 2 times with verbal prompts only during the Intervention phase.

Michael required physical prompts on 2 of the trials of his Maintenance phase probe, and

performed the target behavior on 2 of the trials totally independently indicating he may become more independent performing the target behavior in the future with the support of his cross-age tutor.

*Mollie, Tutee 2*

Mollie began Session 1, Intervention requiring a physical prompt from her cross-age tutor, but then performed the target behavior in the Intervention phase 9 more times after that with a gesture prompt only. After one month of not visiting the library at all and not being given the direction to “Go get a book.”, Mollie required only a gesture prompt for the first 3 trials of the Maintenance phase to perform the target behavior, and then for the last trial, only needed a verbal prompt from her tutor. It is clear that Mollie was learning the target behavior and had become less dependent on her tutor to emit the behavior during the Intervention and Maintenance phases.

*Jason, Tutee 3*

Jason began Session 1, Intervention, Trial 1 performing the target behavior independently, with no prompts necessary from his cross-age tutor. After the first trial, Jason needed a verbal prompt to perform the target behavior. Session 2, the target behavior was emitted once and required a physical prompt. Session 3, the target behavior was emitted 3 times, once with a gesture prompt, and twice with a physical prompt. During Sessions 4 and 5, Jason performed the target behavior 7 times independently indicating his ability to perform this behavior with no prompting whatsoever, yet he performed the target behavior inconsistently. During the Maintenance probe, Jason needed a physical prompt for one of the trials, and then performed the target behavior independently for the other 3 trials.

Quantitative-Measurement of the Independent Variable

To ensure the least-to-most prompting strategy was delivered to the tutees by the fourth grade cross-age tutors correctly, intervention fidelity was also assessed during the Intervention and Maintenance phases of this study. A tutor’s correct implementation of the strategy occurred when the tutor waited for the student to perform the target behavior independently, and if the target behavior was not performed the tutor used a verbal prompt, then a gesture prompt, then a physical prompt in that order until the young student performed the target behavior. Tutors were also expected to praise the student when the target behavior was performed, no matter which level of prompting was necessary, to reinforce the target behavior. The following table reports the results from the 2 phases of data collection on the independent variable as performed by the fourth grade cross-age tutors.

Table 4: Data on Independent Variable

Fourth Grade Tutor	Session	Intervention Phase					Maintenance Phase
		1	2	3	4	5	1
Julie	# of times strategy implemented correctly	2/4	4/4	2/4	NA	NA	4/4
	% of times strategy implemented correctly	50%	100%	50%	NA	NA	100%
Shawn	# of times strategy implemented correctly	4/4	4/4	4/4	NA	NA	4/4
	% of times strategy implemented correctly	100%	100%	100%	NA	NA	100%
Janie	# of times strategy implemented correctly	4/4	4/4	4/4	4/4	4/4	4/4
	% of times strategy implemented correctly	100%	100%	100%	100%	100%	100%

*Julie, Tutor 1*

Julie's delivery of the least-to-most prompting strategy with Michael was done in the correct order 2 out of 4 times during Session 1, Intervention, 4 out of 4 times during Session 2, and 2 out of 4 times during Session 3. Several times during Sessions 1 and 3, Michael was lying on Julie's lap and she physically prompted him first to get him up off of her lap so he could go and perform the target behavior. Technically, she used a physical prompt first which is out of sequence of the correct implementation of the strategy, so in these instances, intervention fidelity was marked as "incorrect" on the data collection forms. Once Michael was off of her lap, Julie did deliver the prompts in the correct order to successfully support Michael in performing the target behavior. During training of the least-to-most prompting strategy with the researcher, Julie performed the strategy with 100% accuracy over 2 consecutive days, and then when practicing with the young students with autism before the data collection began, she performed the strategy with 100% accuracy over 2 consecutive days. The researcher did not provide any booster training sessions with Julie during the Intervention phase of the study after the 2 Intervention sessions when fidelity was recorded at 50% because the researcher felt the circumstance with Michael lying on Julie's lap was unexpected, she did not prepare Julie for what to do in this instance, and she felt this did not indicate that Julie did not understand how to implement the prompting strategy correctly. Julie delivered the least-to-most prompting strategy 4 times with 100% accuracy during the Maintenance phase probe. Julie was also very consistent with praising and reinforcing Michael each time he performed the target behavior.

*Shawn, Tutor 2*

Shawn's delivery of the least-to-most prompting strategy with Mollie was done in the correct order in each of the Intervention sessions; 4 out of 4 times across 3 consecutive sessions, and in the Maintenance session; 4 out of 4 times for 1 session. Shawn was also consistent with praising and reinforcing Mollie each time she performed the target behavior.

*Janie, Tutor 3*

Janie's delivery of the least-to-most prompting strategy with Jason was done in the correct order in each of the Intervention and Maintenance sessions; 4 out of 4 times across 6 consecutive sessions. Janie was also consistent with praising and reinforcing Jason each time he performed the target behavior.

Inter-Observer Agreement

Inter-observer agreement data was collected and calculated on 100% of Baseline (B), Intervention (I), and Maintenance (M) phase sessions of this study. Two observers (the researcher and a trained observer) collected data on the dependent variables (during Baseline, Intervention, and Maintenance phases) and the independent variable (during Intervention and Maintenance phases). The table below shows the inter-observer agreement on the dependent variables (DV) and the independent variable (IV). The table below indicates agreement on a session with a (+) and a disagreement on a session with a (-).

Table 5: Data on Inter-Observer Agreement

	B 1	B 2	B 3	I 1	I 2	I 3	I 4	I 5	M 1
DV Tutee 1	+	+	+	-	+	+	NA	NA	+
IV Tutor 1	NA	NA	NA	+	+	+	NA	NA	+
DV Tutee 2	+	+	+	+	+	+	NA	NA	+
IV Tutor 2	NA	NA	NA	+	+	+	NA	NA	+
DV Tutee 3	+	+	+	+	+	+	+	+	+
IV Tutor 3	NA	NA	NA	+	+	+	+	+	+
Total # of Sessions in Agreement for DV	3/3	3/3	3/3	2/3	3/3	3/3	1/1	1/1	3/3
% Agreement Per Phase for DV	9/9 x 100= 100% agreement for Baseline phase DV			10/11 x 100= 90% agreement for Intervention phase DV					100%
Total # of Sessions in Agreement for IV	NA	NA	NA	3/3	3/3	3/3	1/1	1/1	3/3
% Agreement Per Phase for IV	NA			11/11 x 100= 100% agreement for Intervention phase IV					100%

During the Baseline phase, data was collected on the occurrence or nonoccurrence of the target behavior (dependent variable) over 3 sessions for each of the 3 participants; 9 sessions total. Inter-observer agreement on observations of the dependent variables was 100% for all Baseline sessions. During the Intervention phase, data was collected on the occurrence or nonoccurrence of the target behavior (dependent variable) over 3-5 sessions for each of the 3 participants; 11 sessions total. Inter-observer agreement on observations of the dependent variables was 90% for all Intervention sessions. During the Maintenance phase, data was collected on the occurrence or nonoccurrence of the

target behavior (dependent variable) on one session for each of the 3 participants; 3 sessions total. Inter-observer agreement on observations of the dependent variable was 100% for the Maintenance phase.

During the Intervention phase, data was also collected on the fidelity of the intervention being implemented (independent variable) over 3-5 sessions by each of the 3 tutors; 11 sessions total. Inter-observer agreement on observations of the independent variable was 100% for all Intervention sessions. During the Maintenance phase, data was collected on the fidelity of the intervention being implemented (independent variable) over one session for each of the 3 tutors; 3 sessions total. Inter-observer agreement on observations of the independent variable was 100% for the Maintenance session.

#### Qualitative Analysis-Constant Comparison Analysis

Qualitative data were collected throughout this study in 3 forms to gather the students' perspectives about what it was like for them as a tutor or tutee in this cross-age tutoring experience; observations of all 6 students, tutors' written work, and a researcher journal. A constant comparison analysis was done on each of the 3 forms of data collection and on all of the data as a whole, and the researcher constructed concepts and themes she thought represented the wealth of data collected about each of the 6 participants of this study.

#### *Observations of Students*

Observations of students were recorded by the researcher in anecdotal form, short notes and phrases, and thick descriptions that were hand written on data collection forms while watching the videos taken in the library. The researcher wrote down observations about all 6 student participants' facial expressions, body language, gestures, engagement,

eye contact, attention, and verbal comments. The researcher had written observations for every session the students spent in the library; 9 sessions of the 3 young students by themselves (Baseline) and 11 sessions of the tutor/tutee pairs working together (Intervention and Maintenance). These observations of students produced 26 pages of data from which the researcher developed codes, concepts, and themes through the constant comparison analysis method.

The overarching theme that emerged from the observational data recorded on all 3 of the young tutees with autism was that a great, positive change occurred in their behavior in the library and they were happy as a result of the interactions with and support from their cross-age tutors. The overarching theme that emerged from the observational data recorded on all 3 of the fourth grade tutors was that the tutors were highly responsive and committed to their tutees when working with them. The data from these observations are reported here by student pairs.

*Tutor/Tutee Pair 1: Julie and Michael*

When Michael was first introduced to the school library during baseline sessions of the single case design, he was very excited to explore and play in this new environment. Michael was constantly smiling, looking around at all of the materials and decorations in the library, and running from one end of the room to the other. Data recorded indicated that Michael was spinning around, skipping, jumping, wandering, chewing on his sleeve, acting out his passions (archery and baseball), crawling on the floor, laying on the table, and moving his whole body in a dancing motion during all 3 baseline sessions, which the researcher/his teacher recognized as self-stimulatory behavior he exhibits when he is happy and excited. During baseline sessions in the library, Michael did not make any

verbal comments other than in Session 3, Baseline he said “Look how high.” in reference to videos placed on the top shelf of a bookcase and he repeated a verbal direction the researcher gave him. These 2 comments were not directed at the researcher, just overheard as the researcher was following Michael around videoing him. Throughout baseline sessions, Michael only made eye contact with the researcher a few times, and did not stay near the researcher.

Physical prompts were necessary to get Michael to sit down at a table in the library so a verbal direction could be given to him to begin the baseline trials. The researcher had to go to Michael, take him by the arm and guide him to the chair, point to the chair, and place him in the chair with several verbal and physical prompts to “sit down” as well as “stay in your seat”. When the direction was given “Go get a book.”, Michael took that direction as a cue to get up and engage in more self-stimulatory behavior (spinning, jumping, dancing, etc.). This same pattern of behavior continued throughout every one of the 3 baseline sessions and 12 trials; physical prompts to sit down at the table, then after the direction happily getting up and engaging in self-stimulatory behavior on his own, away from the researcher.

During Intervention and Maintenance sessions in the library with Julie, a change in Michael’s behavior was recorded. During Session 1, Michael began to talk to Julie, making several comments about the library computers and he looked at Julie several times during each session. Both Michael and Julie were happy to be in the library, they were both smiling and laughing. Julie observed the self-stimulatory behavior Michael was exhibiting and ran after him so she could prompt him to get a book. Julie was very persistent in her role as a cross-age tutor by constantly keeping near Michael, she was

assertive with delivering prompts, confident, and committed to making sure Michael followed through with the direction to get a book. She never gave up. She calmly and comfortably used physical prompts with Michael, guiding him by the arm and/or hand to the bookshelf to select a book, and still was patient enough to give him several seconds to get the book independently before she gave another physical prompt. Julie was smiling the entire time she was working with Michael and her face lit up with happiness and pride when Michael completed the task.

Other changes noted in the observations of Michael's behavior was that he stayed in close proximity to his tutor during each of the Intervention sessions and the frequency in which he engaged in self-stimulatory behavior decreased. Michael spent much more time with Julie, staying near her, and staying focused on the prompts she was supporting him with. The researcher/his teacher interpreted this behavior as Michael feeling safe, secure, and interested in Julie so he was motivated to stay near her and engage less in self-stimulating behaviors. Michael was even lying in Julie's lap during Sessions 1 and 3, which the researcher/teacher interpreted as affection, and did not have to be prompted to sit at the table with her, he sat and stayed independently. It was written in an observation during Session 2 that after Julie excitedly praised Michael for getting a book, Michael looked directly at the researcher and at Julie, maintained eye contact with her for several seconds, and smiled proudly for several seconds.

*Tutor/Tutee Pair 2: Shawn and Mollie*

When Mollie was first introduced to the school library during baseline sessions of the single case design, she was smiling, looking around, and looking directly at the researcher as if waiting for a sign to be shown what to do. She was happy to be in the

library, but after a few trials, she began to put her head down on the table, hide her face, and act shyly because she wasn't sure what was expected of her. During each of the 12 trials in 3 sessions during baseline, Mollie did not get up from the table at all. She did repeat several words from the researcher's verbal direction in Sessions 1 and 2 and looked at the researcher many times.

During Intervention and Maintenance sessions in the library with Shawn, a change in Mollie's behavior was recorded. When Mollie and Shawn were sitting at the table in the library together, Mollie was watching Shawn and was so eager and happy to follow his prompts. She was calm and comfortable, and let Shawn guide her out of her chair, over to the bookshelf, and to select a book. Once Mollie picked a book, she sat down on the floor to look through it, and looked up at Shawn. He sat down on the floor next to her and they began to share the book together. This pattern of behavior was evident throughout the rest of the 11 trials across the 3 Intervention sessions and the 4 trials of the one Maintenance session; Mollie would wait for Shawn to verbally and gesturally prompt her, they would go to the bookshelf together, select a book, and then sit down and read together. Mollie did not exhibit any more signs of shyness and her confidence grew; she would look at and maintain eye contact with her tutor the whole time, even reference him when he was behind her, and they were both smiling and laughing out loud. Another change that was recorded was the increased number of words Mollie used. She repeated Shawn's directions many times across the 3 sessions, and Mollie used many words as they shared books together including "Look, see!", "cat, meow", and "dog".

Shawn was very comfortable working with Mollie in the library as noted in observations of his calm behavior, quiet voice, patience, smiles, and attention on Mollie.

Shawn was very responsive to Mollie, waiting on her to move before delivering another prompt, wanting to make sure she had time to follow the direction as independently as possible, and repeating words Mollie was saying about the books they shared. Shawn showed his great liking of Mollie through instances of calling her by her nickname, talking in a high-pitched, sweet voice, and engaging for minutes at a time in the books she selected letting her lead their interactions.

*Tutor/Tutee Pair 3: Janie and Jason*

When Jason was first introduced to the school library during baseline sessions of the single case design, he was happy to be there and excited to run around, climb into bookshelves, and search for things he was interested in. Jason did not stay near the researcher and wanted to be left alone to explore and play on his own and in his own way. He did not look at the researcher or make any verbal comments. To begin the trials, the researcher had to go and get Jason, sometimes chase him, physically prompt him to sit down by taking his arm or carrying him, point at the chair, place him in the chair, and verbally prompt him many times to “sit down”, “stay at your seat”, and “wait”. When the researcher gave the direction to “Go get a book.” Jason took the direction as a cue to run off and play on his own. This same pattern of behavior maintained throughout the 3 baseline sessions in the library; full physical prompts to sit down and then running around and very energetic play on his own when given the direction to “Go get a book.” During Session 2, Baseline, Jason wanted to play on the library computers and when the researcher tried to physically prompt him back to the table he engaged in a very aggressive and disruptive tantrum. He was crying, screaming, pounding his head on the chair, kicking, and flailing; he took his shirt off and ran away.

During Intervention and Maintenance sessions in the library with Janie, a change in Jason's behavior was recorded. Jason was still very active in the library and wanted to run around and climb into the book- shelves, but as his tutor became more comfortable with his behavior and adapted her prompting, he began to look at her more, stay with her more, and then during Sessions 3, 4, and 5 he was smiling, happy, engaging with Janie, maintaining eye contact, and acting proud of himself after performing the target behavior. He was smiling, focused, and laughing when his tutor was cheering for him and praising him.

Observations written about Janie, the tutor, indicate a change in her behavior as well during the Intervention phase working with Jason in the library. In Session 1, Janie seemed very nervous when watching Jason's active behavior in the library; her face had a serious expression, she was looking at the researcher often as if she wanted to make sure she was doing what she was supposed to, and she was hesitant about physically prompting Jason because his behavior was very over-active; he was resistant to her prompts at first. Despite this nervousness, Janie stayed very positive, patient, and encouraging with Jason, saying in a calm, quiet voice, "Please Jason, go and get a book!". During Session 2, it was observed that Janie acted a little more confident and less nervous, being more active with Jason, following him more closely around the library and guiding him in a more assertive way. Her face showed more determination and more smiles. In Sessions 3, 4, and 5, Janie, on her own, adapted the way she delivered the prompts to Jason; she was more assertive and faster in the delivery of the prompts, especially the physical prompts. Janie put her hand on top of Jason's hand calmly and comfortably and without looking at the researcher. It seemed that Janie was learning that

since Jason was constantly moving at a fast pace, then she needed to deliver her prompts to him at just the same fast pace. Once Janie was successful in helping Jason perform the target behavior, she really began to smile, show pride in herself and in Jason, and become more confident. She looked less at the researcher for guidance, and focused more on Jason, and was more energetic and motivated to work with him in every trial. By Session 4, both Janie and Jason were looking at each other, laughing together, and celebrating Jason's performance of the target behavior by clapping, tickling, and cheering.

#### *Fourth Grade Students' Written Work*

Fourth grade tutors' written work in the form of journals were photocopied and compiled. At this time, the 3 young student participants were emerging writers so written work samples were not collected from these young participants. Each of the 3 tutors had written 14 journal entries each on 14 different days, totaling 42 different written journal entries and a total of 34 pages of writing from journals. The researcher read and re-read the written responses, began with word-by-word open coding, and found the data in the journals related to two major categories; how the tutors felt about themselves as cross-age tutors, and how the tutors felt about the young students with autism they work with.

After discovering these two major categories in the fourth graders' written work, the researcher began focused coding by copying direct quotes she felt were most significant from the students' work onto a list. The researcher made two lists; one with direct quotes from tutors about how they felt about themselves as cross-age tutors, and one with direct quotes from tutors about how they felt about the young students with autism. The researcher used different colored highlighters during focused coding to group the codes into concepts, and made notes in the margins near the list to help define the concepts

more clearly. After reading and re-reading the focused codes, four major concepts or themes emerged to the researcher related to the category of how the tutors felt about themselves as cross-age tutors, and three major concepts or themes emerged to the researcher related to the category of how the tutors felt about the young students with autism.

Based on the analysis of the focused codes from the first category from the written journals, the researcher developed four major themes surrounding how the tutors felt about themselves as cross-age tutors: 1) the tutors felt important being a cross-age tutor, 2) they were confident in the work they did as a cross-age tutor, 3) they felt protective of the young students with autism who they work with, and 4) they felt connected to and committed to the young students.

All three of the tutors wrote about their feelings as a cross-age tutor and all three students wrote comments in their journals that indicated tutoring made them feel important. All three fourth graders also wrote confidently and with assurance about the work they did with their tutees, and all three fourth graders wrote about protecting their tutees from harm. All three tutors' writing also spoke of their important connection to the tutees; they were deeply invested in the young children and felt a strong commitment to them. The table below lists the four themes the researcher constructed about the first category developed from the written journals of the fourth grade tutors and provides direct quotes from the fourth graders' writing that the researcher felt supported the established theme. All journals were written between 9/21/11 and 2/29/12.

Table 6: Category 1 Themes from Tutors' Written Work

Themes From Category 1: How Fourth Graders Felt About Themselves As a Tutor	Examples of All 3 Tutors' Written Words That Support Theme
Important	"means a lot" (Janie, p. 3), "really like to help" (Janie, p. 6), "good person" (Janie, p. 9), "like teaching little kids" (Julie, p. 5), "love myself" (Julie, p. 10), "useful" (Shawn, p. 1), "want to help" (Shawn, p. 4), "they look up to me" (Shawn, p. 4), "feel different and I'm proud" (Shawn, p. 5)
Confident	"like a real teacher" (Janie, p. 1), "show them" (Janie, p. 7), "I communicate" (Julie, p. 9), "I would want to work with him this year" (Shawn, p. 2), "already teaching him" (Julie, p. 3), "I taught him" (Julie, p. 4), "I know what to do" (Julie, p. 6), "I think I can" (Shawn, p. 5)
Protective	"not like labels" (Janie, p. 5), "always don't judge people" (Julie, p. 13), "should not be labels" (Shawn, p. 3), "hate how people make fun of people, it annoys me" (Shawn, p. 3)
Connected and Committed	"love to work with (student)" (Janie, p. 2), "I love the kids" (Julie, p. 5), "he is always happy and funny, nice" (Shawn, p. 2), "really fun" (Julie, p. 9), "I'm fascinated with... the kids I teach" (Julie, p. 12), "would hang out with them" (Shawn, p. 7), "happy" (Janie, p. 1), "like working" (Janie p. 3), "awesome" (Julie, p. 2)

Based on the analysis of the focused codes from the second category from the written journals, the researcher developed three major themes surrounding how tutors felt about the young students with autism who they work with: 1) tutors were focused on what the young students could do; their strengths, 2) tutors were focused on what the young students like, and 3) tutors had warm and positive judgments about the young students with autism.

All three of the tutors wrote about their feelings about the young students with autism, and all three wrote comments that fell under each of the themes named above. Despite the skill deficits evident in all three tutees with autism in the language/communication,

behavior, and social/interaction domains, not one of the tutors wrote about what their tutees cannot do. The fourth graders' writing was full of statements of what the young children's strengths were and what they could do. The fourth graders also write specifically about what their tutees liked; their interests and passions. General observations were also evident in the fourth graders' writing that indicated their overall positive feelings about their tutees. The table below lists the three themes the researcher constructed about the second category developed from the written journals of the fourth grade tutors and provides direct quotes from the fourth graders' writing that the researcher felt supported the established theme.

Table 7: Category 2 Themes from Tutors' Written Work

Themes From Category 2: How Fourth Graders Felt About the Young Students with Autism	Examples of All 3 Tutors' Written Words That Support Theme
Focus on Strengths	"they run and play" (Janie, p. 2), "we always jump on the trampoline" (Julie, p. 2), "loves to sing and play with everyone" (Julie, p. 6), "he always sings songs in class" (Julie, p. 7), "loves dancing" (Shawn, p. 3)
Focus on Interests	"likes to smile" (Janie, p. 2), "likes gummies" (Janie, p. 2), "likes to hold hands" (Janie, p. 5), "loves Thomas the Train and airplanes" (Shawn, p. 4), "likes animal sounds" (Shawn, p. 3), "loves the table and balls" (Shawn, p. 2), "loves to sing and play with everyone" (Julie, p. 6)
Positive Judgments	"sweet" (Janie, p. 2), "kids are sweet and nice" (Janie, p. 3), "very special" (Julie, p. 1), "he's a nice kid" (Julie, p. 2), "great kid" (Julie, p. 4), "she is a good person to me" (Julie, p. 6), "the happiest person in class" (Julie, p. 7), "so so so so so so cute" (Julie, p. 7), "I would like to be with you more" (Janie, p. 7), "always has a smile and never pouts" (Shawn, p. 2), "they have more energy" (Shawn, p. 7)

The qualitative data analyzed from the observations of student behavior written from watching the videos also support the 7 themes outlined in this section.

### *Research Journal*

The researcher kept a personal journal throughout the entire duration of the study where she hand-wrote in narrative form and in thick descriptions how she was feeling about the research project, what she was thinking about different events that took place with the participants, incidents that happened that were related to the students in the study, and details about the context of the cross-age tutoring program. The journal had 16 pages of writing that was included in the constant comparison analysis. The researcher also used an audio recorder to record herself retell 2 stories that she felt were too long to write in the research journal. The 2 incidents happened unexpectedly during the school day, they elicited emotion from the researcher, and she wanted to record these details and feelings immediately so she used an audio recorder because of the convenience. Those 2 stories were listened to and included into the constant comparison analysis.

The use of audio/video recording and detailed notes written about student behavior and interactions were effective research tools used in a study conducted by Snelgrove (2009) with students with low incidence disabilities. Through the use of these qualitative research tools, Snelgrove aimed to elevate the roles of her students with low incidence disabilities from ‘subjects’ in her research, to active participants with a voice and an opinion deserving to be heard. Using a variety of research tools supports the case made by Brantlinger, Klingner, and Richardson (2005) that “...diverse ways of writing reports can meaningfully convey ideas about social situations and contexts.” (Brantlinger, Klingner, & Richardson, 2005, p. 99).

The researcher read and re-read the written responses in the research journal, began with word-by-word open coding, and found the data in the research journal falling under 3 major categories; tutee behavior, tutor behavior, and reflections about the researcher's interactions with the general education fourth grade teacher who taught the class the tutors came from. Specific phrases and words were pulled from the research journal and copied onto another page, creating a list of concepts under each of these 3 categories. The main concepts from the 2 stories recorded on the audio recorder also fit into the 3 established categories. The concepts were analyzed and the researcher constructed a theme for the data under each of the 3 categories: tutees feel excited about the cross-age tutoring program, tutors are very responsive to their tutees, and the fourth grade teacher was totally committed (just as her students were) to the program because of the benefit to her students.

#### *Tutee Behavior*

The main theme regarding the tutee's behavior throughout the course of this study that was evident in the research journal was the young students' with autism excitement about visiting the school library and working with their cross-age tutors. As evidenced in the written descriptions recorded in the research journal, all 3 of the young students exhibited excitement through smiles, laughter, jumping up and down, energetically making their way to the library, making eye contact with their tutors, and staying near their tutors for most of the time they were together. When the researcher asked Michael, "Do you want to go to the library?", he stopped what he was doing, looked directly at the researcher, and quickly responded, "Yes!" as he ran for the door. Usually, getting a response to a

question directed at Michael takes several verbal prompts because his attention can be difficult to get.

Excitement was evident in Mollie and Jason about going to the library with their tutors as they both skipped, hopped, sang, and held their tutors hands as we transitioned across campus to the library. Prompts to transition to the library were not necessary with these students, they walked independently and stayed with their tutors the whole way because they wanted to go to the library and they were focused on getting there. Jason, Janie, and the researcher developed a fun routine on their way to and from the library; Jason would hold hands with Janie and the researcher, say “1, 2, 3, jump!”, and Janie and the researcher would pull him up so he could jump high in the air. Jason would make eye contact with Janie, smile, laugh, and prompt her to continue this game during the entire transition across campus. This fun, shared experience was a significant event as Jason usually prefers to be on his own.

#### *Tutor Behavior*

The main theme regarding the tutor’s behavior throughout the course of this study that was evident in the research journal was the great responsibility tutors showed towards their tutees. All 3 fourth grade tutors were constantly watching their tutees, looking into their faces, holding their hands, asking them questions, repeating what they said, keeping them safe, and playing with them. The tutors constantly watched over their tutees, protected them, and cared for them; through their high level of responsiveness, it was evident that the tutors felt responsible for and committed to their tutees. One of the stories recorded on the audio recorder happened on the school’s Picture Day. The young students with autism were having a very difficult time waiting for their turn to get their

pictures taken in the cafeteria; they were crying, screaming, crawling around on the floor, and trying to run away. The fourth grade class came into the cafeteria for their turn to take pictures, observed what was happening with the young students, and without being asked the fourth graders came right over, sat down in between the young students and began to soothe them, entertain them, redirect them, and hold them in their laps to help them wait comfortably.

Another example of the fourth grade tutors' feelings of responsibility recorded in the research journal was every time the tutors saw the young students on the school campus they wanted to hug them and make sure they were happy. Every day, the young class entered the cafeteria for lunch at the time the fourth grade class was leaving the cafeteria, and every day the fourth grade tutors held their arms wide open and waited for each of the tutees to come and give them a big hug, then they would direct them into the lunch line so they would get their lunch. Every day, both the tutors and tutees had big smiles on their faces, they both embraced each other, and the fourth graders always gave positive remarks to the young students like, "Have a good lunch!", "I miss you!", "I can't wait to see you later!", and "I like your new shoes!". This shared experience became a routine that both tutors and tutees looked forward to every day.

A final illustration of one of the tutor's responsible acts was the way Janie learned from and adapted the least-to-most prompting strategy on her own to better suit her energetic and active tutee, Jason, to make sure he was successful in performing the target behavior. Janie watched Jason closely during the first Intervention session, she attempted the strategy the way she was taught by the researcher, but was not having success so she changed her own behavior in response to her tutee's behavior. She altered the strategy so

it would fit Jason, so the strategy would work for him, and she was successful. Her response to Jason when he performed the target behavior was so full of excitement, pride, and happiness that the researcher believed that response to be a main reason Jason continued to perform the target behavior. Janie's responsiveness and positive reaction to Jason's behavior reinforced him and motivated him to want to perform the target behavior again and again for his tutor.

#### *Interactions with the Fourth Grade Teacher*

The main theme regarding the interactions the researcher had with the fourth grade teacher throughout the course of this study that was evident in the research journal was her serious commitment to the cross-age tutoring program for her fourth grade students. The fourth grade teacher has expressed her interest in developing a cross-age tutoring program with the young class of students with autism for the past 3 years, and every year she has been communicative with the special education teacher, she alters her schedule so her students can volunteer, and she plans with the special education teacher on her own time after school. During a time the two teachers were setting up the program, the fourth grade teacher said "...but I am happy to adjust our schedule and have you come in..." and "I'm sure we can make it work!" The interactions with the fourth grade teacher and the researcher have always been positive throughout this research project; she has been excited about this experience for her students, enthusiastic about hearing the progress all the students have made, and supportive in offering her help with any part of the project to enable it to run more smoothly. In the fourth grade teacher's words, in reference to her students, she said "They love coming!! I am so excited to share in this learning experience with them." The researcher felt this category and theme was relevant in

determining how the tutors feel about being a cross-age tutor because it is believed that the fourth grade teacher's positive attitude, excitement, and commitment to this cross-age tutoring program is communicated to and influential upon the students in her class and contributed to how the students felt about being tutors.

Qualitative data gathered from the observations of student behavior and from the fourth graders' written work also align with the themes constructed from the research journal. The table below lists the 3 themes the researcher constructed about the 3 categories developed from the research journal and provides direct quotes from the research journal that the researcher felt supported the established themes.

Table 8: Categories from Research Journal

Categories	Themes	Examples from Research Journal that Support Themes
Tutee Behavior	Excitement	"loves going to the library" "with eye contact" "hopefulness" "skips and hops as we walk and is smiling, happy, and carefree" "lots of language" "comes with me voluntarily and happily" "enjoyed going" "responded so positively" "calm" "behavior was appropriate and they were happy"
Tutor Behavior	Responsibility	"they soothed the kids, redirected them, played with them, talked to them, tickled them, and wanted them to be happy" "they were responsible" "trying so hard" "so patient" "asked him for a hug" "so forgiving and really understands that (Jason) is different and can't help his behavior" "surprisingly adept" "so the young kids can see their faces, see their gestures" "really giving young kids a chance to do the skill independently" "patiently wait again and again (and watch)" "so hopeful the young kids will do it" "into the moment, into the experience"
Interactions with Fourth Grade Teacher	Commitment	"volunteered to work with me" "strongly believes in this experience" "happy to agree to a more involved project" "asking a lot of questions" "very enthusiastic" "talking about how she can make it work" "she believes in this program" "she has seen the benefits for her students" "she values the experience" "kind, friendly, flexible, caring, committed teacher and person"

## Themes from Constant Comparison Analysis of All Qualitative Data

In summary, the researcher constructed themes from a constant comparison analysis of 3 types of qualitative data collected throughout this study; observations of students, students' written work, and a research journal. This qualitative data was collected to answer the second research question about how the young tutees and the cross-age tutors felt about this tutoring experience. From the constant comparison analysis of all of the data, the researcher constructed 2 themes from the observations of students, 7 themes in 2 different categories from the students' written work, and 3 themes from the research journal. The following diagram outlines the 3 qualitative data sources and the themes discovered in the data.

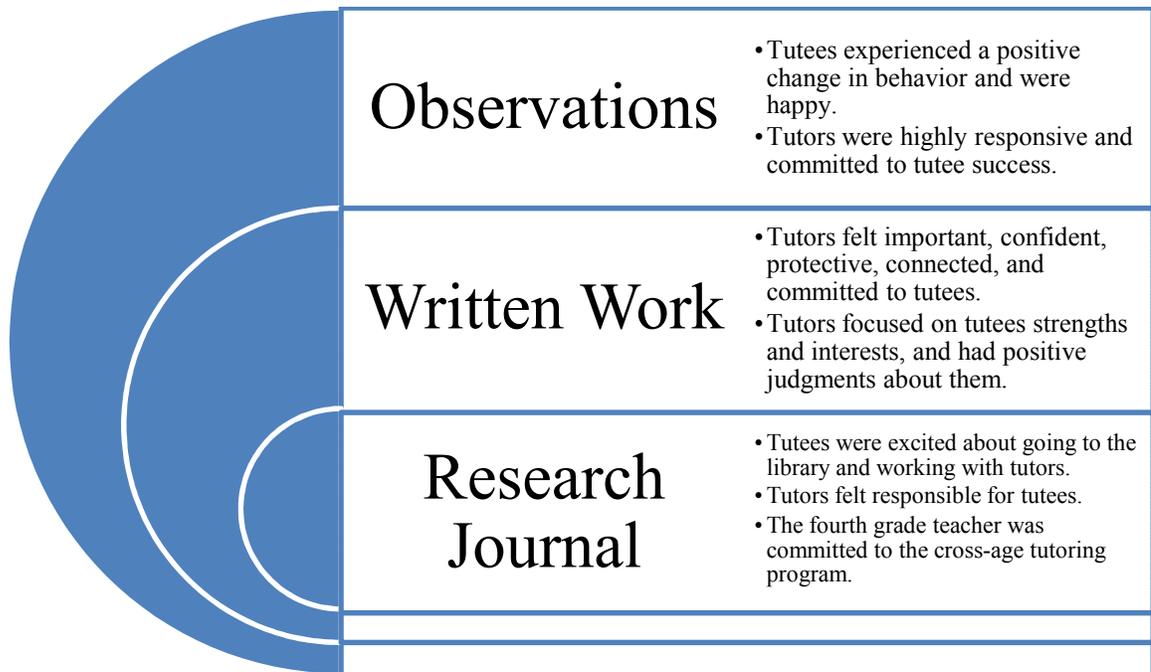


Figure 5: Themes from Constant Comparison Analysis of All Qualitative Data

From the analysis of all of the qualitative data collected in this mixed method study, it is evident that all 6 of the student participants in this study felt happy and excited to work

together, they were responsive to and responsible for one another, and they felt a strong commitment to their role as a tutor or tutee and to one another.

### Quality Indicators

To increase the trustworthiness of the qualitative data collected, analyzed, and reported in this study, several quality indicators were employed including member checks, asking another teacher to review the data then assess inter-observer reliability, data triangulation, prolonged engagement in the field, providing thick descriptions, and creating an audit trail (Anfara et al., 2002; Gall, Gall, & Borg, 2007; Leech & Onwuegbuzie, 2007; McWilliam, 2000).

Member checks were done many times throughout the tutoring sessions in the library that were videotaped to improve trustworthiness in the data collected through observations of students. As the researcher was videotaping the tutors and tutees working together, she often would ask and/or confirm events that occurred as the students were working together and this dialogue was recorded on the videotape so the researcher could confirm it while making observations from the videos at another time. For example, after Jason performed the target behavior in the library and Janie cheered for him, the researcher asked “Are you proud of Jason for finally getting a book?”. Janie replied “Yes!” and confirmed the observation made by the researcher that Janie’s cheering meant she was proud of Jason. A member check with Michael, a young student with autism was done when he sat at the table ready to begin a session in the library. He was smiling and looking at his tutor and the researcher observed this behavior as Michael being excited to begin the session in the library; the researcher asked “Michael, are you happy to be in the library?”, and Michael’s response was “Happy!”, which the researcher understood as his

way of agreeing with the statement he heard, confirming her observation and interpretation of his behavior.

Member checks were also completed with the fourth graders' written journals in the form of researcher notes written back to the fourth graders to confirm what they had written. For example, the researcher interpreted Shawn's journal writing "There should not be labels" as a form of protectiveness of his tutee. The researcher conducted a member check through writing back to Shawn in his journal, "I agree that there should not be labels put on kids. What are some things that you don't like?". Shawn's written response back to the researcher was "I hate how people make fun of people, it annoys me." This response reinforced the idea that the researcher was developing about Shawn's protectiveness of his tutee.

Member checks were completed to confirm data collected in the research journal through informal conversations about incidents that the researcher had recorded. For example, after the tutors helped calm the young tutees on Picture Day, the researcher had a conversation with 2 of the tutors about the event and asked them, "Why did you come over and sit with the young kids on Picture Day?". Their responses were "Because they were so stressed out!", "They needed to be distracted.", and "It was so sad to see (Mollie) crying.", which confirmed the researcher's idea that the tutors felt responsible for the tutees and were very committed to making sure they were happy.

The researcher and the other teacher who agreed to be the second observer in the data collection for the quantitative portion of this study got together several times throughout the study to code data and discuss the research project. While the observers were viewing the videotaped tutoring sessions in the library, they engaged in many discussions

about their observations of the students. Due to time constraints, the other observer did not write down her observations of student behavior like the researcher did, but student behavior in each of the 26 videotaped sessions was discussed among them during each session the observers met. Both observers agreed on observations of students aside from one session when Michael was lying on his tutor's lap. The observer interpreted the tutor's behavior of lifting Michael off her lap as the first prompt in her delivery of the least-to-most prompting strategy, whereas the researcher interpreted that same behavior as moving him out of the way so she could get up, more unconsciously done. All the other discussions the two observers had about data collected on observations of student behavior were in agreement. The researcher also shared the fourth graders' written work and the research journal with the second observer and discussions ensued about that data as it did for the data on the observations. All the rest of the discussions on the 3 forms of data collected were all in agreement.

Through the constant comparison analysis, data triangulation was achieved with the same concepts being evident in each of the 3 different forms of qualitative data collected (observations of students, students' written work, notes from the research journal). For example, the researcher's idea that Janie felt important being a cross-age tutor was supported through observations of her working with Jason ("Janie prompted Jason to sit with the sign language sign and a point to his seat so we could get started on the last trial." "Janie was so happy he did it on his own..."), her written work ("means a lot", "want to be a teacher", "love helping"), and notes recorded in the research journal ("She was trying so hard, so patient with Jason..."). Triangulation among the 3 different forms

of qualitative data collected was evident for almost all of the themes the researcher constructed, excluding the theme constructed about the fourth grade teacher.

The researcher was able to achieve prolonged engagement in the field because she is also the full-time special education classroom teacher of the young tutees with autism. The researcher interacted with the tutors and tutees every school day; she was with the tutees 7 hours per day every day and the tutors 30 minutes once a week in addition to 30 more minutes every 7 days, and every day for several minutes during transitions on the school campus. The duration of the study was about 4 months, about 75 school days.

Thick descriptions were able to be written about observations of student behavior because the researcher videotaped the tutoring sessions in the library and was able to go back over the videotapes and take extra time to write detailed, thorough notes about what she observed. The total number of pages of thick descriptions written from observations of student behavior was 26. Thick descriptions were also written in the research journal because the researcher would often sit down during her lunch, planning period, after school, and at home to take the time to write out in detail what she was feeling or specific details of an event that happened. The total number of pages of thick descriptions written in the research journal was 16.

Finally, to aid in trustworthiness and clear documentation of qualitative data collected, an audit trail was established. Each piece of data collected for this project was labeled with the date, time, phase of study if appropriate (Baseline, Intervention, Maintenance), and participant names, numbers, or pseudonyms. The videotapes used were checked often for quality and stored in a secure location, and the data collection sheets were reviewed frequently, organized by student pairs, and stored in a secure location.

Students' written work was collected at the end of each class session and stored in a secure location and the research journal traveled with the researcher at all times. Dates, times, and durations of tutor training sessions, fourth grade disability lessons, and sessions spent with the second observer of data were also recorded. The researcher's school principal and major professor were kept informed of the progress of the students and were involved in each phase of the study.

## CHAPTER FIVE: DISCUSSION

### Research Question 1-What Effect, if any, does a Cross-Age Tutoring Intervention Have on the Achievement of Individualized Education Plan Goals Related to Behavior, Among PreKindergarten/Kindergarten Students with Autism?

Quantitative data collected through a single case, multiple baseline across participants design addressed the first research question. The individual student data collected in this study showed that the cross-age tutoring intervention consisting of tutors delivering a least-to-most prompting strategy, had a positive effect on the progress of all 3 of the PreKindergarten/Kindergarten students' with autism targeted behavior goals in the school library.

All 3 young participants' baseline data indicated a stable trend of the nonoccurrence of the target behaviors, then when the tutoring intervention was introduced there was an immediate positive effect. A sharp increase in the number of times the target behavior was performed was evident from a visual analysis of the graphs of data across all 3 participants. The occurrences of the target behaviors remained stable (between 75%-100%) across 3 sessions with the tutoring intervention in place. During the Maintenance session probe, one month later, the occurrences of the target behaviors maintained at the same high level as the end of the Intervention sessions.

As a result of this cross-age tutoring intervention, all 3 students with autism worked towards achievement of specific Individualized Education Plan (IEP) goals related to the behavior of following directions. Michael's IEP goal of following directions to stop,

wait, and look was directly connected to the target behavior of “Go get a book.” in that he had to stop at a bookshelf, wait long enough to scan the bookshelf and complete the direction, and look at the bookshelf and book as he was pulling it out of the shelf. Mollie’s IEP goal of following a 1-step direction was directly connected to the target behavior of “Go get a book.” in that the direction is one step, and Jason’s IEP goal of following directions and staying with the group was directly connected to the target behavior of “Go get a book.” in that he stayed near his cross-age tutor as she was supporting him to follow the direction.

This data suggests that this cross-age tutoring intervention is an effective strategy to use with these young children with autism in the library. The data collected on the independent variable showed good intervention fidelity and the immediate, dramatic change in the number of occurrences of the target behaviors when the intervention phase began showed the independent variable’s experimental control of the dependent variables; the cross-age tutoring intervention worked with these 3 young students with autism, and the positive effects maintained one month after the last Intervention phase. These results are consistent with other studies done with students with low incidence disabilities paired with peers who were typically developing. The Harper, Symon, and Frea (2008) study noted high intervention fidelity, 80% and above, with peer tutors implementing components of Pivotal Response Training to target social and play skills on the playground. Participants in that study also experienced a dramatic increase in the number of occurrences of desired behaviors (Harper, Symon, & Frea, 2008).

The documentation of a functional relationship between the independent and dependent variables in this study, added to the research that already exists of the

effectiveness of peer-mediated interventions with students with low incidence disabilities, strengthens the notion that this type of intervention is effective and reliable. The literature reports a variety of interventions implemented with students with low incidence disabilities by their peers; constant time delay to teach food preparation (Godsey, Schuster, Shearer-Lingo, Collins, & Kleinert, 2008), incidental teaching to increase reciprocal peer interactions (McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992), direct instruction to improve oral reading fluency and comprehension (Yawn, 2008), and least-to-most prompting to teach community and domestic skills (Chiplin-Williams, 1997), all of which prompted positive behavior change in the student participants. The present study has replicated the effects noted in the literature on the least-to-most prompting intervention, and used different participants, different conditions, and different measures of the dependent variable, thereby enhancing external validity (Horner, et al., 2005). This research affirms the literature base and adds to it through demonstration that peer-mediated instruction is effective with PreKindergarten and Kindergarten students with autism in an inclusive school environment, which has not yet been shown to date.

Research Question 2-What is the Range of Perspectives of General Education Fourth Grade Tutors and PreKindergarten/Kindergarten Tutees with Autism on the Cross-Age Tutoring Experience?

Qualitative data collected from 3 sources (observations of students, students' written work, research journal) and analyzed using the constant comparison method addressed the second research question. The data suggested that both the fourth grade tutors and the young tutees were excited and happy about the experience of going to the library and working together, and that all the students were very committed to the tutoring

experience and each other. In summary, this experience was a positive and enriching one for all of the students involved. These results were similar to results gleaned from social validity measures in the literature on peer-mediated interventions. Interviews conducted with tutors in the Bensted (2000) study revealed how positive and important the tutors felt helping others, likewise, interviews and surveys done with tutors and tutees in the Kamps, Barbetta, Leonard, and Delquadri (1994) study reported favorable reactions to the tutoring experience. The use of an open-ended questionnaire by Yawn (2008) gave a deeper insight into the effects of the experience in that study and reported both tutors and tutee's opinions including "I like that peers help [me] during sessions" and "I kind of enjoyed teaching my tutee and enjoyed him getting better" (Yawn, 2008, p. 116).

In the present study, the tutees' excitement about going to the library and working with their tutors emerged through the analysis of the data from the student observations and the notes from the research journal because these 3 young students are emerging communicators, not yet verbally explaining their feelings to others or writing their feelings down on paper. The tutors' excitement about participating in this program was determined from observations, notes, and their written work which was included in the data analysis. The fourth grade tutors were more skilled at communicating their feelings both orally and in written form, so it was easier for their own words to be reproduced here and their own voices to be heard. It was evident to the researcher through the young students' behavior and through the fourth graders' voices that this tutoring experience was meaningful and significant because of these same themes emerging over and over again across the duration of the study. This positive effect on the student participants is consistent with findings from the Tekin-Iftar (2003) study in that behavioral observations

and anecdotal data collected in that study reported that all of the student participants were in favor of the peer tutoring intervention, all of the students had fun, they enjoyed their time together, and they wanted other opportunities to engage in peer tutoring again.

#### Significance of Tutee Target Behaviors/Dependent Variables

Not only were the targeted adaptive behavior goals/dependent variables of the three tutees in this study aligned with their Individualized Education Plan goals, they were aligned with developmental benchmarks in the Battelle Developmental Inventory (LINC Associates, 2005), the Brigance Diagnostic Inventory of Early Development (Brigance, 2004), the general education Kindergarten curriculum, and school-wide citizenship goals.

In the Battelle Developmental Inventory, a goal for a typically developing four-year-old child in the Personal Responsibility domain reads “Responds to instructions given in a small group and initiates an appropriate task without being reminded.” Under the Personal-Social Domain, a typical five-year-old child “Follows adult directions with little or no resistance.” Under the Receptive Communication Domain, a typical four-year-old child “Follows 2-step verbal commands.” Finally, under the Attention and Memory Domain, a typical five-year-old “Focuses his or her attention on one task while being aware of, but not distracted by, surrounding activities.” Being able to follow the adult direction “Go get a book” in the library of a school campus falls under goals outlined in these four domains in the Battelle Developmental Inventory which is an instrument PreKindergarten and Kindergarten teachers are required to administer to their students with autism in the county school system where this study took place. Getting a book from the library is an appropriate task for a PreK/Kindergarten student as Kindergarten

students in general education classes at this school visit the library and have the opportunity to check out books every seven days.

In the Brigance Diagnostic Inventory of Early Development II, the target behavior of getting a book in the library supports a benchmark for six-year-olds under the General Knowledge and Comprehension Domain of “Knows Where To Go For Services: when we want to borrow a book.” The target behavior supports another benchmark in this assessment for six-year-olds under the Social and Emotional Development Domain; “Remains engaged in an assigned task even when minor distractions are present.” The Brigance assessment is another instrument PreKindergarten and Kindergarten teachers are required to administer to their students with autism in this county school system.

Developing the skill of visiting the library and getting a book is one that is supported by two benchmarks in the general education Kindergarten Social Studies Standards in the county where this study took place. Benchmark Code SS.K.G.2.1 reads “Locate and describe places in the school and community.”, and Benchmark Code SS.K.C.2.1 reads “Demonstrate the characteristics of being a good citizen.” Being able to visit the school library with the necessary behavioral support grants students with autism equal access to this inclusive place in the school community, and being able to successfully follow the direction to get a book while in the library shows the characteristics of being a good citizen and using the library appropriately just like the other students in the school. For some students with autism, following a direction in an unstructured, unfamiliar environment shared by others is a challenging task (Wall, 2004), therefore this adaptive behavior skill necessitates attention and appropriate skill training. McLeskey, Rosenberg, and Westling (2010) discuss challenging behaviors as the greatest

impediment to success and acceptance for students with low incidence disabilities, so an intervention that focuses on improving and generalizing adaptive behavior skills is likely to facilitate more positive inclusive experiences.

In the elementary school where this study took place, there is a school-wide citizenship program in effect that educates, supports, and rewards students for exhibiting behavior on the school campus that is “Responsible, Respectful, and Resourceful”. Appropriately getting a book from the library is an example of a school-wide behavior that is responsible, respectful, and resourceful and is therefore aligned with this school’s adopted citizenship program.

In summary, the behaviors targeted for change in the young students with autism in this study were significant in many ways. Not only are these particular behaviors important developmental milestones for all children, they are critical adaptive behaviors for student success in inclusive environments. As noted from the literature review in Chapter 2, there have been no studies to date that target adaptive behavior goals as dependent variables in peer-mediated interventions with students with low incidence disabilities so this study is an important addition to the literature base on the effectiveness of this intervention with this population of learners.

#### Significance of Tutor Behavior/Independent Variable

The efforts of the tutors in this study to volunteer as cross-age tutors for young children with autism and learn a least-to-most prompting strategy to use with them so they could access the school library is significant in several ways. The tutors’ behavior aligns with the fourth grade general education curriculum as well as with the school-wide citizenship goals.

Benchmark Code SS.4.C.2.2 in the general education fourth grade curriculum in Social Studies reads “Identify ways citizens work together to influence government and help solve community and state problems.” Benchmark Code SS.4.C.2.3 reads “Explain the importance of public service, voting, and volunteerism.” If one looks at the segregation of students with autism in self-contained educational programs as a community problem, then the fourth graders’ efforts to support the students with autism so they can be integrated into the school community by visiting the school library directly aligns with the first benchmark. The issue of segregating students with disabilities has been in the literature for many years beginning as far back as 1968 with the work of Lloyd Dunn. Dunn (1968) argued that segregation was a form of homogeneous grouping and tracking that actually, based on educational research at the time, worked to the disadvantage of students with disabilities. Further developments in the history of education in the U.S. also found segregation to be a problem in need of remediation; the landmark court case *PARC v. Pennsylvania* in 1972 ruling that the exclusion of students with disabilities was unconstitutional, and then the influential article by Brown, Wilcox, Sontag, Vincent, Dodd, and Gruenewald (1977) arguing that students with disabilities have the right to full participation and that separate education is not equal.

Because of their participation in this cross-age tutoring program, the fourth graders have some experience with students with autism at their school, so they are well-positioned to explain the importance of their volunteer work with the children and meet the second Social Studies curriculum benchmark about the importance of volunteering and serving others. Listening to these students’ explanations will provide a way into their lived experience of this cross-age tutoring program and their voices are critical in

improving teaching practice (Brown, 2010; Humphrey & Lewis, 2008). Fourth grade students volunteering their time to help students with disabilities is another example of responsible, respectful, and resourceful behavior (McLeskey, Rosenberg, & Westling, 2010) and aligns directly with the school's adopted citizenship program.

In summary, the importance of what the fourth grade tutors did during the course of this study was significant in many ways, above and beyond just helping out young kids. There have been no studies to date that have explained in detail the significant role the tutors play in a peer-mediated intervention with students with low incidence disabilities, and how the time they dedicate to the intervention provides just as much critical learning for them as it does the tutees. The benefit for typically developing students from participating in peer-mediated instruction with students with disabilities is often overlooked and these positive results make the argument for inclusive education much stronger.

### Student Voices

The constant comparison analysis of the qualitative data in this study revealed several recurrent themes. From the analysis of the written work of the fourth grade tutors, their feelings about the cross-age tutoring experience were expressed through descriptions of how being a tutor made them feel and descriptions of how they felt about the young children with whom they worked. Reporting this type of data in this detail contributes to the research done on peer-mediated instruction because few studies have offered the perspectives of the participants and have reported their own voices. The themes that emerged related to how being a cross-age tutor made the fourth graders feel indicated that this inclusive experience brought them feelings of importance, confidence, protectiveness

of the young students, and connectedness to the young students. An example of one tutor's writing explained the importance and confidence she felt working with the young children with autism:

"I help them stay focused and show them how to be nice to others. I help them by read books to them so they can learn to read. And I help them speak. I love helping them!" (Janie, 11/21/11 Journal, p. 7)

Another tutor wrote about the challenge of teaching young students with autism, but showed her confidence in believing she can accomplish this challenge by writing:

"I am all ready teaching him he is almost trying to say 'teacher' right now all he can say is 'no'. I am still working on it I will not give up with faced with a challenge. Never!!!" (Julie, 10/11/11 Journal, p. 3)

The third tutor expressed his belief of the importance of what he did with the young children and his confidence in his work with them by writing:

"They look up to me so if someone hits someone I say stop and they stop." (Shawn, 10/21/11 Journal, p. 4)

The themes that emerged related to how tutors felt about the young students they worked with were centered around students' strengths, students' interests, and positive judgments about the students with autism. An example of one student's writing about Mollie:

"(Mollie) loves to sing and play with everyone, but she doesn't like loud noise." (Julie, 11/1/11 Journal, p. 6)

Another tutor picked up on a tutee's passion for trains:

"He loves Thomas the Train and like to play with Sam." (Janie, 11/10/11 Journal, p. 5)

The fourth grade tutors' writing was full of positive comments and judgments about all of the tutees with autism and the other students in the PreKindergarten/Kindergarten class:

“When he talk he just makes noises. I love (Ollie).” (Janie, 11/10/11 Journal, p. 6)

“He is sleepy. He like to smile. He love Lily and like kisses. You have to pick him up off the floor. (Adam) is sweet, loves to play. He like gummies.” (Janie, 9/30/11 Journal, p. 2)

“I would want to work with him this year. (Michael) is nice he always has a smile and never pouts, and he loves table and balls.” (Shawn, 10/11/11 Journal, p. 2)

“I would hang out with them because they are fun and nice.” (Shawn, 2/8/12 Journal, p. 7)

“...because they have more energy.” (Shawn, 2/29/12 Journal, p. 7)

“(Adam) is a sweet kid he enjoys playing and he a nice kid and we always jump in the trampoline, even if he doesn't talk he still an awesome kid.” (Julie, 9/30/11 Journal, p. 2)

“(Ivan) is a nice kid he like to hug me and he like to read to me. I love the kids.” (Julie, 10/12/11 Journal, p. 5)

“He's like the happiest person in class. I love (Ollie) he always sing songs in class.” (Julie, 11/10/11 Journal, p. 7)

It is apparent from listening to their words that these fourth grade tutors feel very important about their role as a tutor for young students with autism, and it is evident in their writing how much they know and like the students and how positive they feel about this experience. These results, as results found in previous studies on peer-mediated instruction (Lawson & Trapenberg, 2007; Tekin-Iftar, 2003; Utley, Reddy, Delquadri,

Greenwood, Mortweet, & Bowman, 2001), indicate high satisfaction among tutors who participated in this type of program.

### Limitations

The present study has several limitations including the low number of sessions in the Maintenance phase of the single case design, the researcher's dual role, the over-reliance on observations of the students with autism done by the researcher, and the weak method of interrater reliability of the qualitative data collected in this study. More Maintenance phase sessions were planned at the onset of this study, but unforeseen absences and class interruptions interfered with the original schedule of planned sessions for the single case design part of this study. Time in the school year ran out, which implicated the Maintenance phase of the single case design. It only had one session for each student that was conducted one month after the Intervention phase was complete.

The researcher's dual role in this study, one of researcher and teacher of the participants, could be viewed in both a positive and potentially problematic way (Bournot-Trites & Belanger, 2005). On a positive note, the researcher was able to spend an extended and prolonged period of time in the field working directly with the participants and was granted an inside view of the cross-age tutoring program and experience (Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005). Also, because the researcher/teacher is an experienced teacher of the students with autism in this study, she was able to more accurately understand and interpret her students' behavior. The researcher is an inside witness to how the students acted before the study began, and how the students' behavior changed throughout the study. The researcher/teacher has had the entire school year to develop a rapport with each of the students involved in this study

and has had the privilege of getting to know each of the students on a personal level. On the other hand, the researcher has a strong personal investment in the students and in the cross-age tutoring program she has developed which may have biased her perspective on the program and influenced the way in which she collected, analyzed, and reported the qualitative data (Leech & Onwuegbuzie, 2007). Efforts to reduce this bias were built into this study through data triangulation and the involvement of a second trained observer of the data. The researcher believes strongly in the efficacy and significance of cross-age tutoring for both students with and without disabilities and is passionate about inclusive education, so her personal feelings have impacted the qualitative data in this study.

The collection of the fourth grade student voices in this study was done through observations, written work, and note-taking on discussions the students had with the researcher; all of the fourth grade participants are skilled speakers and writers with good receptive and expressive language skills. Member checks were easily completed with the fourth graders that confirmed the data the researcher collected about their feelings and perspectives so qualitative data reported about the fourth grade students' feelings had a good level of trustworthiness. The collection of feelings of the young students with autism was done only through observations, as these participants are emerging communicators and are in need of high levels of support with expressive and receptive language. The observations were seen, recorded, and analyzed through the researcher's eyes and filtered through the researcher's own experiences and perspectives so it is not known how accurate the researcher's interpretations are of the perspectives of the young students with autism. More work needs to be done to find a more reliable and

trustworthy way to report the experiences of students who are emerging communicators because it is recognized that their voices are just as important to hear as all others.

A final limitation in need of discussion is the lack of a rigorous method to increase the trustworthiness of the qualitative data analyzed through the constant comparison analysis method. In this study, all 3 forms of qualitative data were shared with an outside observer and discussed with the researcher, but because of time limitations, the outside observer did not write down a formal analysis and interpretation of the qualitative data. It is recognized that having only compared analyses through discussions, there exists no audit trail to confirm the similarities and differences in the data discussed by the 2 observers of the data.

### Issues to Consider

Several issues in need of consideration and discussion apparent throughout the course of this study include:

- behavior as a target for change in peer-mediated instruction, and
- lack of total control when doing research in the field with young students in a school environment

Research about children that is designed to aid in more appropriate decision-making for children should be done in the field with actual students in actual classrooms and schools because of access to the critical inside perspective, yet inherent in this type of research are variables and circumstances that are unable to be controlled by a researcher and that may not perfectly fit into the traditional model of rigorous scientific experimentation.

Young students with autism oftentimes need support with adaptive behavior, especially when in an environment that is unstructured, new, and stimulating because of feelings of lack of control, not understanding the expectations in the new environment, or overstimulation (Bregman, 2005). Behavior is one of the most important areas to address with young children, especially in an inclusive environment, but it is recognized that challenging behavior, even from a young PreKindergarten/Kindergarten student can sometimes be severe and very difficult for experienced teachers to manage (Wall, 2004). An issue that arose in this study is the extent to which fourth grade cross-age tutors should be involved with and responsible for challenging behavior in their tutees. Tutee 3, Jason, is a student that sometimes has a difficult time controlling his behavior and his body can be easily over-stimulated and over-active. The physical prompts teachers sometime have to use with him are full physical ones that are intended to control his arms and legs, and prevent him from running off; these types of prompts are inappropriate for fourth graders to provide because they are so intrusive into Jason's space and he could potentially become aggressive and inflict harm on the person delivering the prompts. Jason does not have a history of aggressive behavior towards others, but responsible implementation of a peer-mediated intervention should never place another child in a potentially harmful situation. During the first session of the Intervention phase of this study, Jason had a difficult time controlling his body and became very over-active and resistant to physical prompting from his tutor, Janie. Janie was uncomfortable witnessing Jason's behavior and didn't know what to do; she was unsure about continuing to physically prompt him yet she wanted to help him to perform the target behavior. The researcher stopped the trial, intervened with Jason, and supported him in gaining control

of his body and becoming calm. The researcher talked with Janie about what she was doing and reassured Janie that she had done everything right and that she should never intervene with Jason when his behavior became that challenging or if she felt uncomfortable. The session ended on a positive note with no further challenging behavior, and the subsequent sessions went very smoothly, but that first incident brought to light the potential issue with involving children as tutors in interventions that target behavior in other children.

Along these same lines, student behavior can interfere with an intervention's systematic implementation. Julie, the fourth grader who was working with Michael, demonstrated 100% proficiency with using the least-to-most prompting strategy when practicing with the young students before data collection began. During Michael's Intervention phase, he was lying in Julie's lap at the onset of several of the trials being videotaped. As planned, Julie used a verbal prompt to try to redirect Michael to perform the target behavior, but was unsuccessful. If Julie were to next give a gesture prompt to Michael he would not have seen it because he was lying in such a way he was not looking at Julie and she could not move her body to get in front of him to show him a gesture, so naturally she used a physical prompt to push him up off of her lap and then began the prompting procedure. Because of Michael's unexpected behavior of lying in her lap, Julie used a physical prompt to get Michael up so she could get up and better support him in completing the task, but this event interfered with the sequential steps in the implementation of the least-to-most prompting strategy. There were 2 instances where observers coded the independent variable as "Incorrect" because a physical prompt was delivered before a gesture prompt, because of Michael lying on Julie's lap, which

translated into 2 sessions with an implementation fidelity of 50%. Luckily, there is space in this mixed method research design to describe this event and explain the discrepancy in the data collected on the independent variable so readers will be better informed about how student behavior can interfere with the systematic implementation of the least-to-most prompting strategy, which would therefore impact the data on the intervention fidelity.

Another issue that arose that was beyond the researcher's control was the number of extra people in the library at the time the tutee/tutor sessions were conducted. This varied from there being no extra people in the library during tutee/tutor sessions, to some people walking in and out during sessions, to there being a large meeting with 10 or so people in the library while one session was being conducted. The researcher could not get control over the number of extra people in the library because this inclusive environment is for the school's public use and the teacher work room is in the library which teachers need to access at unplanned times throughout the day. The researcher did not observe this variable to interfere with any of the tutor/tutee sessions, but it is not known for sure if this variable, the number of extra people in the library, had an effect on the tutor or tutee's performance.

#### A Holistic Understanding of the Cross-Age Tutoring Intervention

Through mixed method design, a variety of data were collected, written about, analyzed, interpreted, and discussed in a deeper way and from a variety of perspectives which enhances the understanding of what really happened to these students throughout the course of this study. Inherent in a study about a peer-mediated intervention in a school setting are a variety of variables and different understandings and feelings from all

of the people involved. The mixed method design allows for such complexity to be better revealed and for voices of all participants to be heard. The quantitative data reported in this study suggests that cross-age tutoring is an effective strategy for supporting individualized adaptive behavior goals of young students with autism in an inclusive environment, and the addition of the qualitative data broadens our understanding that a lot more happened in this tutoring program than just increases in the performance of target behaviors in the 3 tutees. Participation in this program made 6 students with and without disabilities happy and excited to spend time together, it made the tutors feel important, and it connected the students in such a powerful way that the young students with autism were more responsive to their tutors, and the fourth grade students felt protective and responsible for their tutees.

### Conclusion

A solution for teachers of young students with low incidence disabilities that addresses the challenge of supporting student behavior in order to access more inclusive opportunities is cross-age tutoring with general education students. In this study, the implementation of a cross-age tutoring intervention, more specifically teaching cross-age tutors to use a least-to-most prompting strategy, successfully enabled students with extensive behavior support needs to access an inclusive environment and successfully perform adaptive behaviors that made that inclusive experience meaningful and educational.

Cross-age tutoring met the students' needs for highly individualized behavior support, it helped alleviate teacher concerns with behavior because the tutors delivered the prompting strategy with fidelity, it lifted a barrier to an inclusive opportunity in the

school library, and it offered general education students a valuable learning experience, all at the same time. These were all critical issues discussed in Chapter 1 that usually present a major problem as teachers try to plan for inclusive opportunities, and all were addressed with this low cost, time efficient, effective cross-age tutoring intervention. The quantitative data collected in this study suggests that not only can cross-age tutors support young students' behavior, but cross-age tutors can teach young students new adaptive behavior skills. This is evident through the documentation of the specific prompts that were necessary for the fourth grade tutors to use with their tutees. All 3 tutees required less intrusive prompts from their tutors during the course of the study, suggesting the tutees were learning the skills and performing them more independently.

This research shows the intervention to be a powerful behavior change tool, and also the personal effects for all of the children involved are significant. Young students with autism who participated in this study who usually do not make or maintain eye contact did so with their tutors; these students who typically play by themselves and walk away from others were referencing their tutors, sharing experiences with them, and spending whole tutoring sessions in close proximity to the tutors, sometimes even being affectionate. The students with autism who sometimes have behavioral outbursts and who do not use many words throughout the day were calm, comfortable, responsive, and repeatedly talking to their tutors during their time together in the library.

The fourth grade tutors in this study also experienced some meaningful personal effects as a result of being a part of this program, and have strong voices in expressing how they felt:

“I feel awesome. I feel like going there the whole summer. The kids are very special.”

“I like teaching little kids.” (Julie, 9/21/11 Journal, p. 1)

“...because that way I can learn more about Autism. So then next time I see you I know what

to do.” (Julie, 11/1/11 Journal, p. 6)

“I love myself because all I do is share and care for all I do.” (Julie, 12/14/11 Journal, p. 10)

“I’m fascinated ...with the kids I teach, I try my best and most of all I love you guys who (I

help out.” (Julie, 1/19/12 Journal, p. 12)

“...they’re just kids; because no matter what I’ll always don’t judge people the way they look

like.” (Julie, 1/30/12 Journal, p. 13)

“It is ok because what is important is what students need.” (Julie, 2/29/12 Journal, p. 15)

“I feel different and I’m proud.” (Shawn, 12/14/11 Journal, p. 5)

“I love it! It is fun! It makes me happy. I feel good. It makes me feel like a real teacher.” (Janie, 9/21/11 Journal, p. 1)

“I help them stay focused and show them how to be nice to others. I help them by read books

to them so they can learn to read, and I help them speak. I love helping them!”  
(Janie, 11/21/11 Journal, p. 7)

“I feel like I am nice to others and a good person.” (Janie, 12/14/11 Journal, p. 9)

“I feel useful to the world, not like before I felt useless to the world.” (Shawn, 9/21/11 Journal, p. 1)

As a result of this project, the researcher/teacher of young students with autism can now take her students out of their self-contained classroom to the school library for a successful, enriching, and fun inclusive educational experience with their tutors, just as their typically-developing peers are able to do. The library has become another inclusive environment in which the students can practice and generalize their skills, and it is another place they are likely to have the opportunity to interact with their typical peers. The fourth grade tutors are now skilled enough, confident enough, and willing to help support their tutees in other inclusive school environments, to help support their tutees with other skills, and to help support other students with disabilities. This cross-age tutoring experience has been a successful and memorable experience for all 6 of these special children, and as a result it is believed they will find greater value in being a part of a more inclusive school community and a more inclusive life.

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## APPENDICES

Appendix A

Observer Video Data Collection Sheet for Tutee/Tutor Pair 1

Observer Name:

Session \_\_\_\_\_, Phase \_\_\_\_\_, Date \_\_\_\_\_

Student 1 and Tutor 1		
Target Behavior	Student response	Tutor prompt
Get up from table, go to bookshelf, pull 1 book out of shelf.	+ -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
Get up from table, go to bookshelf, pull 1 book out of shelf.	+ -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
Get up from table, go to bookshelf, pull 1 book out of shelf.	+ -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
Get up from table, go to bookshelf, pull 1 book out of shelf.	+ -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
<i>Total Correct</i>	<i>/4</i>	<i>/4</i>

\*\*\*Specifics for IEP objective: stop at bookshelf, wait at shelf, look at shelf, look at book while pulling it out.

Appendix B

Observer Video Data Collection Sheet for Tutee/Tutor Pair 2

Observer Name:

Session \_\_\_\_\_, Phase \_\_\_\_\_, Date \_\_\_\_\_

Student 2 and Tutor 2		
Target Behavior	Student response	Tutor prompt
Get up from table, go to bookshelf, pull 1 book out of shelf.	+   -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
Get up from table, go to bookshelf, pull 1 book out of shelf.	+   -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
Get up from table, go to bookshelf, pull 1 book out of shelf.	+   -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
Get up from table, go to bookshelf, pull 1 book out of shelf.	+   -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
<i>Total Correct</i>	/4	/4

Appendix C

Observer Video Data Collection Sheet for Tutee/Tutor Pair 3

Observer Name:

Session \_\_\_\_\_, Phase \_\_\_\_\_, Date \_\_\_\_\_

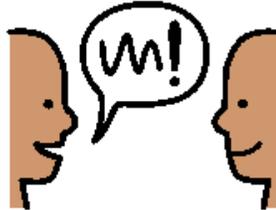
Student 3 and Tutor 3		
Target Behavior	Student response	Tutor prompt
Get up from table, go to bookshelf, pull 1 book out of shelf.	+ -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
Get up from table, go to bookshelf, pull 1 book out of shelf.	+ -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
Get up from table, go to bookshelf, pull 1 book out of shelf.	+ -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
Get up from table, go to bookshelf, pull 1 book out of shelf.	+ -	V _____ G _____ P _____ Praise _____ None _____ Incorrect _____
<i>Total Correct</i>	<i>/4</i>	<i>/4</i>

\*\*\*Specifics of IEP objective: stay near bookshelf, teachers, and peers.

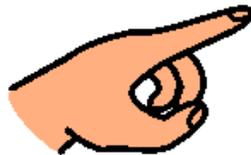
Appendix D

Visual for Cross-Age Tutor Training

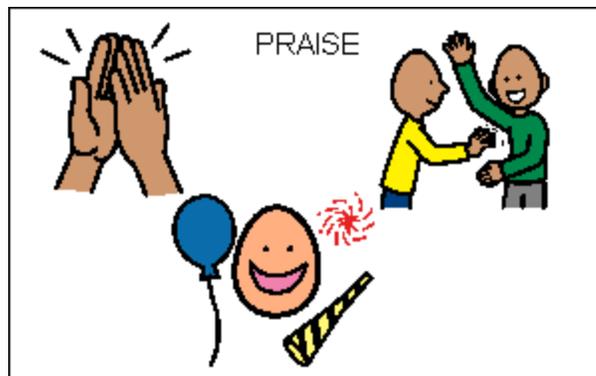
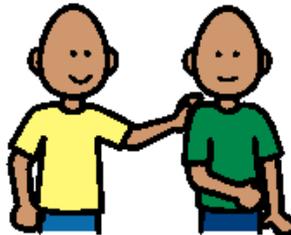
1. Use your WORDS



2. Use your BODY



3. Use light TOUCH



\*Pictures generated with Boardmaker © software from Mayer-Johnson.

## Appendix E

### Journal Writing Prompts Used in Fourth Grade Disability Awareness Lessons

How do you feel about being a cross-age tutor to young students with autism?

Tell me about (Adam).

Tell me about (Michael).

Tell me about (Ivan).

Tell me about (Mollie).

Tell me about (Ollie).

In what ways do you help the little kids?

How do you communicate with the little kids?

How do you feel about yourself?

How are you different from kids with autism? How are you the same as kids with autism?

What are you fascinated with?

What would you say to someone that was making fun of a kid with autism?

Would you be friends with someone your own age with a disability?

Is it OK that the rules might be different for a classmate with autism?