The Academic Effects of Low Achieving or Inattentive Students
Providing Peer Support
To Students with Moderate to Severe Disabilities
In General Education Classrooms

by

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ABSTRACT

The effects of using inattentive or low-achieving students as peer supports for students with moderate to severe disabilities in general education classrooms were examined in this study. Four inattentive or low-achieving elementary school students were studied as they participated in peer-mediated instruction. Dependent measures included direct observation of academic engagement, homework assignment completion data, and interviews regarding self-esteem. Treatment consisted of serving as a peer support and included training and supervision. Students serving as a peer support assisted students with disabilities by adapting curricula, supervising assignments and facilitating socialization. An ABAB single-case design was used to determine the effects on supporting peers. In addition, follow-up data were gathered for some peers. It was concluded that serving as a peer support person positively affected the academic engagement of inattentive or low-achieving students who were enrolled in inclusive classrooms. Some changes in homework completion behaviour and self-esteem were also noted. The introduced peer support intervention was suggested as an example of an instructional system that could be applied in heterogeneous general education classrooms to improve the participation of some students.

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Table of Contents

List of Tables

List of Figures

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Dedication

I dedicate this work to my best friend and closest companion, Tony, whose patience and faith in me has enabled a dream to be fulfilled.

Chapter One - Introduction

Background to the Problem

The inclusion of all students in regular classrooms has brought about a need for alternative and supplementary strategies for teaching and learning (Kauffman, 1994; Sindelar, 1995). In heterogeneous classrooms, methods are needed in which learning can be maximized for all students (Baker & Zigmond, 1995). Such diverse needs as poverty, multiculturalism, abuse, ethnicity and disability present multiple challenges for educators. In order to deliver the best education to the diverse group of learners now found in most North American classrooms, educators are studying a number of teaching interventions that meet the needs of a wide range of student abilities and backgrounds (Marini, 1993). Inclusionary practices have brought about the interaction of disabled and non-disabled students in general education classrooms, and at the same time have added complexities to classroom planning (Hess, 1997; Salisbury, Gallucci, Palombaro & Peck, 1995; Thousand, Rosenberg, Bishop & Villa, 1997). If inclusionary practices are to be sustained, educators must investigate classroom strategies that are effective for a broad range of learners. One such possibility is peer tutoring, which has been demonstrated to be helpful to selected students with diverse needs (Barfield, Hannigan-Downs, Lieberman, 1998; Fuchs, Fuchs, Mathes, & Simmons, 1997).

Research Overview

Rationale for the study. Peer tutoring has been widely studied (Mercer & Mercer, 1993). There are many different forms of peer tutoring, among them Class Wide Peer Tutoring (Allsopp, 1997; Cheung & Winter, 1999; Vadasy, Jenkins, Antil, Phillips & Pool, 1997), reverse-role tutoring (Brown, 1993), and within-class peer support dyads

(Cushing & Kennedy, 1997). Little research is available on the effects of peer tutoring on the tutors, particularly when the tutors are themselves students with disabilities. As a growing number of children with disabilities are being included as fully participating members of elementary, middle, and secondary classrooms (Thousand et al., 1997), research is needed to expand the information available on the effects of peer mediation strategies.

Peer tutoring has been used both as a teaching strategy and a learning strategy for decades (Allen, 1976, Levin & Meister, 1986). As a teaching strategy, traditional peer tutoring has been used to expand the influence of the teacher in large classes (Osguthorpe & Scruggs, 1986). As a learning strategy, peer tutoring has been shown to provide directed repetition, regular review, and functional practice to overlearn skills, operations and concepts (Lerner, 1993) or to offer one-on-one support with certain basic skills (Miller, Barbetta, Drevno, Martz, & Heron, 1996). The benefits for the tutees that have participated in peer tutoring programs (such as increased social contacts for students with disabilities) have been demonstrated (Kennedy & Itkonen, 1994; Staub, Spalding, Peck, Gallucci, & Schwartz, 1996). It has also been shown that peer tutors without disabilities who participate as educational supports for peers with disabilities have benefited by demonstrating improved academic engagement, assignment completion, and perceived classroom participation (Cushing & Kennedy, 1997).

Statement of the Problem

As noted above, peer tutoring has been shown to benefit students in a broad range of situations (Barfield et al., 1998; Cushing & Kennedy, 1997). One question that merits further investigation is whether serving as an educational support for a peer with

disabilities would benefit a specific group of students, such as students experiencing problems of attention or poor academic achievement.

The Purpose of the Study

The purpose of this study was to seek a better understanding of the effects of peer support strategies on participating students with diverse learning needs. In particular, the effects on elementary students who were inattentive or had poor academic achievement who served as peer supports in inclusive classrooms for students with moderate to severe disabilities were investigated.

Research question. The fundamental question raised in this investigation was whether serving as a peer support would have positive or negative effects on the academic engagement, homework completion behaviour and self-esteem of the peer tutors who were inattentive or had poor academic achievement.

Definition of terms. There are various models of peer tutoring and with each model, different definitions of peer tutoring ensue. The following three definitions illustrate the variety of interpretations that have been placed on peer tutoring. Brown (1993) begins by describing tutoring, in general, as "the system of instruction in which learners help each other and learn by teaching (p. 239), and subsequently defines peer tutoring as "a more capable peer or student of the same age helping a less able child in a particular curriculum area", cross-aged tutoring as "an older tutor helping a younger tutee in a curriculum area", and reverse-role tutoring as "a tutor with learning disabilities or poor academic achievement helping a tutee who is normal achieving" (p. 239). Fuchs et al. (1997) define peer tutoring as "the pairing of a more accomplished student with a less accomplished student for the purpose of working on academic content" (p. 178). Mercer

and Mercer (1993) describe peer tutoring as "an instructional arrangement in which the teacher pairs two students in a tutor-tutee relationship to promote learning of academic skills or subject content" (p. 114).

Common to each of these descriptions of peer tutoring is a theme of students helping students. This basic underlying framework is tempered with variations in age (same or cross-age), competency (more competent student teaching less competent student or the reverse) or structure (teacher-designed outline or open student-led dialogue) but all variations support the basic underlying framework of student to student teaching.

Cushing and Kennedy (1997) further analyze peer tutoring, contributing two subsets: peer mediation and peer support. Peer mediation strategies are described as the use of peers without disabilities, where peers without disabilities are required to actively promote the participation of students with disabilities (Cushing & Kennedy, 1997). They describe several peer mediation strategies which foster inclusion in general education classrooms, among them, peer support. Peer support strategies involve "one or more peers without disabilities working with a student with disabilities to adapt course curricula and assignments and to serve as a social facilitator" (Cushing & Kennedy, 1997, p. 140). In the context of this study, the definition of peer support proposed by Cushing and Kennedy was adopted, that is, peer support refers to peers who adapt and synthesize classroom material for disabled students and offer suitable interaction to enable the disabled students to complete the assignment.

Chapter Two - Review of the Literature

Overview

The purpose of this review of literature pertaining to peer tutoring is to examine the use of peer tutoring in past eras, situate peer tutoring in current educational practice, review recent research, and establish the significance and relevance of the proposed study.

Peer Tutoring: Historical to Current Usage

A growing body of knowledge regarding peer tutoring supports its instructional use (Allsopp, 1997; Carpenter, Bloom, & Boat, 1999; Schloss, Kobza, & Alper, 1997). The transference from research-based intervention to practice has been studied (Vadasy et al., 1997). More research, however, is needed to determine the effectiveness of peer tutoring between students with and without disabilities and special needs students who are in the same class (Mortweet et al, 1999). An examination of a representative body of research will be made in order to situate the proposed study in existing work.

Many educators consider the use of peer tutors a recent educational innovation. In fact peer tutoring has a lengthy history. Mercer and Mercer (1993) traced the origins of students teaching students to historical accounts of the dynamics of the family group, where parents taught skills to the older children in the family and the older children passed those same skills down to younger children. Mercer and Mercer also made reference to recorded descriptions of peer tutoring in teaching settings as early as the first century A.D.

In Canada, peer tutoring has been used to solve distance and isolation problems. Many pioneering families were situated far from any educational facility and therefore

school attendance on a daily basis was impossible. Parents relied on their own resources or correspondence programs to educate their children. The older children were required to help the younger children master basic reading and mathematical skills at home. Those students close enough to a school perhaps attended a one-room school where many grades received instruction in the same room. Teachers of these classes depended upon peer tutoring, whereby older children taught or reviewed lessons with younger children, to allow the teacher to meet the needs of students at many different levels. Even today, many rural families use this teaching method when distances prevent school attendance. Other families choose to school their children at home for a variety of reasons, and employ peer tutoring on an informal basis, either within the family or among other home-schooling families. Thus it can be seen that peer tutoring is a technique that has been used for centuries and is still in use today in a multitude of informal settings.

According to Fuchs et al. (1997) enthusiasm for peer tutoring among educators waned in the second half of the 19th century. However, in the late 1960s, American educators rediscovered the value of peer tutoring, particularly when considering the underachievement of many poor and minority children. Peer tutoring represented an economical means of providing individualized, intensive instruction to academically needy pupils.

More recently, Levin and Meister (1986) compared the cost effectiveness of four contemporary teaching strategies (reduced class size, computer-assisted instruction, a longer school day and cross-age peer tutoring) for the reading and math outcomes of 86 students in an elementary school. They found that peer tutoring produced more than twice as much achievement as computer assisted instruction, three times more than

reducing the class size from 35 to 30 students, and almost four times greater achievement than lengthening the school day by 1 hour.

The adoption of inclusionary practices in special education settings has increased the complexity of the use and study of peer tutoring. Researchers have explored the efficacy of peer tutoring in which the special needs student has been employed as both tutor and tutee (Scruggs & Richter, 1985; Osguthorpe & Scruggs, 1986; Fuchs et al., 1997). As classroom teachers have been challenged to find new ways of helping children learn due to the increased diversity of needs in the classroom, the usefulness of these findings has become evident. The benefits of peer tutoring, for both tutor and tutee, that reach beyond increased mastery of material and include increased self-esteem and increased socialization make the technique very attractive.

Previous Overviews of the Effectiveness of Peer Interactions, 1970-1985

Osguthorpe and Scruggs (1986) reviewed research that measured the effects of tutoring on the academic performance and social development of special education students. They synthesized the results of 26 investigations published between 1970 and 1985 involving students of wide-ranging disabilities from special education settings as both tutors and tutees. The student population included those who were learning disabled or academically delayed, mentally retarded, or behaviorally disordered. The examination was restricted to students delivering academic instruction to other students on a one-to-one basis. Osguthorpe and Scruggs found that special education students functioned effectively as tutors if they were trained and supervised appropriately, and that they experienced academic and social benefits by functioning as either tutor or tutee. They noted that tutoring was not beneficial in improving self-esteem. Furthermore, they

observed that many studies reviewed in the investigation suffered from methodological weaknesses (such as no control group), and it was hard to compare results when the studies differed so greatly in research design. Three recommendations concerning cost-benefit analysis arose from this investigation, as teachers needed to know how much time, effort and expertise were required to implement a tutoring program. One such recommendation was that teachers clearly wanted to know the specific needs of both tutors and tutees. Another was that they needed to have an idea about the time and effort required to train tutors. The third recommendation was to include an estimate of the tutoring time needed for positive results. Osguthorpe and Scruggs also suggested the need for more effective materials to be used by special education personnel.

Scruggs and Richter (1985) reviewed 24 studies published between 1972 and 1982 in which students with learning disabilities were involved in tutoring interventions where the interventions measured academic and/or social performance. The purpose of the review was to locate studies that included learning disabled students and to synthesize the findings. Included were studies in which the subjects were described as learning disabled, reading disabled or as functioning at least two years below grade level without mention of an accompanying deficit in ability. Excluded were studies in which peers were used as behavioral models or reinforcers. The tutors in these studies ranged from 4th graders to high school adolescents, and included academically aggressive or withdrawn children, children on probation, academically and socially outstanding youths, dropouts, economically disadvantaged adolescents, educably mentally retarded youths, learning disabled and behavioral problem children. The tutees ranged in age from 8 to 17, and included learning disabled, slow learning and EMR children. Situations included

self-contained remedial or learning disabled classrooms, minimum-security correctional institutions, special education resource programs, and regular classrooms. Studies were located through use of computer-assisted searches and reference to two previous works on tutoring (Allen, 1976; Strain, 1981). Each study was coded for variables including description of tutor and tutee, research design, level of intervention, comparison groups, procedures, and results. Interrater consistency was achieved by having two independent raters evaluate each article and discuss any disagreements. Research designs included six pre-post test designs, 11 experimental group designs and two single case designs. Seven of the experimental, group design projects employed no-treatment control groups for comparison. None of the pre-post test designs had a comparison group. The single case designs were short (less than two weeks) and used either alternating treatments or multiple treatments. Most studies used reading as a subject area, some focused on spelling, math, or library skills. Eleven studies employed learning disabled or reading disabled students as tutors. Most studies reported that tutoring increased academic performance and that the intervention had been successful. Flaws in the methodology of the investigated studies indicated that caution against unqualified endorsement should be exercised. Scruggs and Richter found that each design tended to address a different type of question. Careful documentation of the activities of no-treatment control groups was often lacking and minimized the strength of the results. Other deficiencies in designs highlighted the need for more systematic study of the effects of peer tutoring on learning disabled students.

Scruggs and Richter (1985) concluded that although there had been several studies conducted on peer tutoring, much of it was difficult to interpret due to threats to

validity. They also concluded that there was professional support for learning disability tutoring intervention despite the lack of empirical evidence. According to Scruggs and Richter, "peer tutoring has great power and utility in special education" (p. 297) and is in need of further research to bring about clarity. They noted that all investigators favored the use of peer tutoring and that there was support for the continued use of tutoring with students with learning disabilities. Nevertheless, Scruggs and Richter cautioned against unequivocal endorsement of peer tutoring because many of the studies they cited on peer tutoring had methodological flaws. They noted that interventions such as those described in their synthesis were subject to the interpretive difficulties that are common in large scale experimental programs in school settings.

Thus it would seem that there had been a need for the systematic study of the effects of peer tutoring with special education students. As can be seen in both the Osguthorpe and Scruggs (1986) review and the Scruggs and Richter (1985) synthesis, there had been a lack of replication in studies done on peer tutoring between 1970 and 1985. Each study was different in terms of research design, characteristics of participants, setting, and length and type of intervention. Comparisons were difficult. Systematic study, replication and extension were needed to build a solid base of empirical knowledge. Scruggs and Richter suggested in particular, small-scale studies in school settings as being useful to bring about clarity.

From the narrative reviews of Osguthorpe and Scruggs (1986) and Scruggs and Richter (1985) of investigations of peer tutoring conducted in special education settings, or with special needs students as tutors and tutees, it was concluded that tutoring has been an effective technique for promoting academic gain among children with disabilities.

Needed still was information about peer tutoring's effects on the academic achievement of different learner types in the regular classroom (Fuchs et al., 1997).

Peer Tutoring and Inclusion

Allsopp (1997) argued that the success of including students with disabilities in general education classrooms is dependent upon the documentation of effective instructional strategies in heterogeneous classes. Studies that took place prior to the movement towards inclusion required pull-in or pull-out of either tutors or tutees. Studies situated in remedial or learning disabled classrooms did not represent the current circumstances where classrooms contain students of a variety of abilities. Peer tutoring is considered to be an effective teaching technique for students with disabilities (Barfield et al., 1998) and those at risk of academic failure (Miller et al, 1996). Allsopp (1997) offered that the success of using peer tutoring for students of diverse skills who are in the same class has only been documented in a few studies. Needed are classroom strategies that can be used with students who have different learning styles and students who are at different stages of development.

Williams and Fox (1996) highlighted six classroom strategies that accommodate the diverse learning styles of students in regular classrooms. These strategies were co-operative learning, collaborative teaming, partner learning, peer tutoring, student empowerment and creative problem solving.

Brown (1993) reaffirmed that tutoring is one of the interventions available to educators to meet the needs of all students in inclusive settings. Four studies were completed during 1982 to 1990 in the United States and Britain in which the effects of reverse-role tutoring, (where the tutors are learning disabled students with poor academic

achievement and the tutees are normal achieving students) were investigated. She concluded that tutors consistently showed evidence of improved academic achievement, and less consistently showed evidence of improved self-worth. Brown noted the lack of Canadian articles on the topic of reverse-role tutoring. She pointed out the benefits to both tutor and tutee from the point of view of Gestalt theory. According to Bruner (1963) tutoring helps students develop an awareness of their own learning process and makes academic material more meaningful to them. Such effects would greatly benefit learning disabled or low achieving students who need to become aware of their thinking and their learning strategies. Brown further pointed out that role-model theory suggests that tutoring enhances learning by offering opportunities for responsibility, which in turn lead to an enhanced feeling of self-esteem. Both these effects are often badly needed by inattentive, learning disabled or low achieving students and frequently listed in individualized educational plans as goals. Finally, she outlined several critical components of optimum reverse-role tutoring: define objectives, plan for evaluation, structure the tutoring sessions as far as materials and goals, consult with teachers, train the tutors, support the tutors with follow-up sessions, and organize the project following a "Who?" "What?" "When?" and "Where?" format. Brown suggested four limitations when designing a tutoring project. First, amount of available time must be considered, and a minimum of two, thirty-minute weekly intervals must be consistently available for progress to be achieved. Second, regular feedback and problem solving sessions between the tutors and the project supervisor must be planned. Incentives may encourage attendance by the tutors in these sessions. Third, Brown recommended that the tutors be at least two years ahead of tutees in academic ability in the subject areas under study, and

that tutors and tutees be matched for social interaction style. Finally, Brown recommended a tutoring duration of from six to twelve weeks (the longer the duration, the greater the generalizability of the project).

In a recent meta-analytic review of the relationship between reading outcomes for students with disabilities (learning disabilities or behaviour disorders) and grouping formats (including student pairs) it was found that alternative grouping formats, particularly student pairing, represented an effective instructional practice for improving reading outcome for students with disabilities (Elbaum, Vaughn, Hughes & Moody, 1999).

Hess (1997) illustrated five strategies for inclusion in practice in American schools, among them, peer tutoring in a high school. There, peer tutors participated in a credit course that offered training and practice in peer tutoring while facilitating the integration of special education students into regular high school classes. Hess concluded that inclusion had social, behavioral and academic benefits, but the biggest obstacle was convincing teachers that students could participate in an activity while having different learning objectives.

Longwill and Kleinert (1998) reviewed some characteristics of an innovative high school peer-tutoring program. They described how high school peer tutoring programs enhanced the educational outcomes, including increased academic performance, for students both with and without moderate and severe disabilities. Furthermore, they argued that peer-tutoring programs have played an important role in the restructuring of high school educational programs as high schools have adapted to the inclusive model.

Peer tutoring programs, they suggest, can promote greater levels of general education class participation and community inclusion for students with significant disabilities.

Research on Peer Tutor Training

Yasutake, Bryan, and Dohn (1996) examined the effects of training on peer helpers. They applied attribution theory to 93 at risk, learning disabled, and average students of mixed ethnicity at three Chicago public schools. Attribution is defined by Piper (1993) as "the interpretation one gives to the behaviour of another" (p. 178). When applied in the learning disabilities context, attribution theory can be seen as the interpretation a learner gives to his or her own behaviour or learning. In academic learning, Yasutake et al. suggested, when failure is perceived as due to lack of ability, there are lower expectancies of future success. When failure is perceived as due to lack of effort, expectancies are not lowered. Yasutake et al. also pointed out "students with learning disabilities are more likely than their peers to attribute their failures to a lack of ability rather than to a lack of effort . . . and . . . tend to attribute their successes to external causes, such as being given easy work" (p. 83). The study was designed to use remediation as a vehicle to change faulty student attributions while addressing academic need. The students were randomly assigned to dyads that resulted in age differences of at least two years between tutor and tutee. These pairs were randomly assigned to one of two conditions: attribution-plus-strategy training, or strategy training only. The authors found that attribution training combined with peer tutoring influenced third through eighth graders' self-perceptions of competence. According to Yasutake et al., "for students with learning disabilities, who are more likely than average-achieving students to experience difficulty gaining approval, the act of giving and receiving feedback about

increasing ability may have a particularly strong influence on self-perceptions of competence" (p. 90).

Models of Peer Tutoring

Classwide peer tutoring.

Classwide peer tutoring (CWPT) has been found to be an effective instructional practice for student in heterogeneous high school math classes (Allsopp, 1997). Success has been demonstrated for primary students with disabilities (Mortweet et al., 1999) and for students who are at risk of failure (Fuchs et al., 1997; Miller et al., 1996).

Allsopp (1997) described Classwide Peer Tutoring as "a systematic instructional strategy that uses students within the same classroom to tutor one another" (p. 369). During CWPT the teacher defines an academic task to be learned and trains the students to use the appropriate tutoring behaviours. Each student serves as both a tutor and a tutee. The class is randomly divided into two teams of tutoring pairs. Peer partner and team assignments are changed weekly. Sessions take approximately 30 minutes each, ten minutes for each student to tutor and ten minutes for transition and point recording. Sessions take place two to four days per week. Points are given for correct answers, correct tutoring behaviour, and for cooperative work habits. At the end of each week all points are totaled and students on the winning team celebrate in some way.

One reason Classwide Peer Tutoring is an effective instructional strategy is that it does not require students who are having difficulty learning to leave the classroom, nor other students to come into the classroom. It is a within-class intervention that can be used without stigmatization. The classroom teacher maintains direct supervision of his or her students. Two important learning variables may be responsible for CWPT's success.

First, it offers many opportunities for students to respond to academic tasks, and second, students receive frequent and immediate feedback.

Mortweet et al., (1999) investigated classwide peer tutoring for students with mild mental retardation (MMR) and their typical peers in inclusive classrooms. They asked 1) whether students with mild mental retardation and their typical peers would receive higher posttest scores on spelling tests during classwide peer tutoring when compared to teacher-led instruction; and, 2) whether students with mild mental retardation and their typical peers would engage in higher rates of academic behaviour during classwide peer tutoring when compared to teacher-led instruction. These questions were applied to two inclusive, grade three general education classrooms. Although all the students within these classrooms participated in the study, data were collected on two MMR and two typical peers (one high achiever, one low achiever) in each class. A withdrawal treatment design was used to compare the effects of teacher-led instruction with CWPT on spelling test performance. Also, rates of academic engagement were probed once during each condition. Before the first CWPT phase, two half-hour spelling periods were used to explain, describe and practice the procedures. Teachers observed and provided feedback to each tutoring pair until tutoring procedures were being conducted correctly for 90% of tutee attempts to spell.

Teacher-led spelling instruction consisted of 20-minute teacher specified lessons using a grade-level spelling book, small group activities, whole class lectures, flashcards, games and written activities. These phases lasted 5 weeks each.

During classwide peer tutoring, all students were randomly paired, and each pair was randomly assigned to a team. Peer partner and team assignments were changed

weekly. Peer partners moved their desks together for that week. Tutoring material packets (spelling list, point sheets, practice sheets) were available on each desk before each CWPT session. Tutoring took place four times a week for 20 minutes a day and used teacher designated spelling tests. Each student was a tutor for 10 minutes and a tutee for 10 minutes. During each 20-minute session, the tutor read the spelling word to the tutee, and said the letters of the word out loud while writing the word. The tutor then awarded the tutee two points for correct spelling and moved to the next word or told the tutee how to spell the word. The tutee then practiced writing the misspelled word three times while saying the letters out loud. Words that had to be practiced were worth one point, zero points if the practiced words were also spelled incorrectly. The teacher provided bonus points for correct tutoring procedures and cooperative behaviour.

At the conclusion of the 20-minute tutoring sessions, students reported their total number of points to the teacher who recorded the scores on a poster for the appropriate team. Daily, the winning team earned a special privilege such as lining up first for recess.

Modifications to accommodate MMR students and others who were experiencing low scores were shorter lists, enlarged practice sheets and allowing tutees to read the list word if their tutor did not know the word. These phases lasted eleven and six weeks.

Classwide peer tutoring was found to be an effective strategy for improving spelling test scores of students with MMR and their typical peers and that both target groups engaged in higher rates of academic engagement during CWPT when compared to teacher-led instruction. The majority of the students with MMR improved their letter grades on spelling from D's and F's to A's and B's. A higher level of academic

engagement was attained for all target students during CWPT procedures, adding approximately five to ten daily minutes of active involvement in spelling when compared to teacher-led instruction.

This research on Classwide Peer Tutoring is illustrative of the use of a within-class intervention to teach subject matter to students at varying levels of ability. The clear goals for tutor and tutee (both behavioural and instructional), the reward system, and the modifications made to incorporate students with Mild Mental Disabilities are of interest to those designing programs in inclusive environments.

In an effort to learn about the effects of peer tutoring on the academic achievement of different learner types in the regular classroom, Fuchs et al., (1997) explored the effectiveness of Peer-Assisted Learning Strategies (PALS) by comparing the reading progress of three learner types – low-performing students without disabilities (LP), low-achieving students with learning disabilities (LD), and average-achieving pupils (AA). These students were compared to corresponding control students. The students who participated in the study were from 12 schools and in grades two to six. The treatment was applied to the whole class, and three students in each class were identified who demonstrated the characteristics of the three learner types (LP, LD, and AA). Students were paired; one stronger and one weaker reader formed a group. Within each pair, the role of tutor and tutee was reciprocal. Pairs remained together for four weeks, then were changed. In addition to assigning students to pairs, teachers assigned pairs to one of two teams. The students engaged in three strategic reading activities intended to improve reading comprehension: partner reading with retell, paragraph summary, and prediction relay. Students earned points for their team by reading

sentences without error in partner reading; working hard and trying their best in retell; identifying the correct subject and main idea during paragraph summary; making reasonable predictions, reading half a page, checking predictions and summarizing the main idea during prediction relay; and behaving cooperatively. The intervention was carried out for 35 minutes a day, three times a week for 15 weeks. A full day workshop for participating teachers preceded the intervention, and in-class support from project staff was available during the treatment. Measurements included observations of teacher-student interactions, an individually administered reading assessment, teacher questionnaires and student interviews.

LD, LP and AA students in PALS classrooms made significantly greater progress in reading achievement than their counterparts in the no-PALS classrooms across three reading measures: words correct, questions correct, and maze (cloze) choices correct. Effect sizes were .22, .55, and .56 respectively. This result was attained despite teachers in both the control and treatment groups allocating similar amounts of time to reading instruction. On questionnaires, teachers believed PALS had positively affected all three groups' reading achievement, reading self-confidence and social skills, but felt that it had positively affected LD and LP children most. Students had positive ratings of PALS, but did not differentiate student types. No mention was made of a self-esteem measurement.

Fuchs et al. (1997) believed that the teachers' positive response to the study might have been due to the small amount of time that teachers and students were engaged in the activity (between 20% and 25% of the reading and language arts block). Also, inspection of teachers' instructional planning sheets indicated that PALS teachers allocated considerably more classroom time to peer-mediated instruction and to one-to-one

instruction (and less time to independent seatwork) than no-PALS teachers. PALS teachers also claimed to make more frequent and systematic use of rewards.

The authors isolated six explanations for PALS effectiveness for average achievers and low performing children with and without learning disabilities. First, PALS materials were concrete, specific and user friendly. Second, PALS materials and activities complemented whole language instruction as easily as phonics-based approaches. Third, they credited the availability of technical assistance through on-site support in increasing teachers' comfort level and willingness to stick with the program. Fourth, Fuchs et al. (1997) credited their three reading activities, the purpose of which was to encourage students to practice strategies that have been shown to strengthen reading comprehension. Fifth, the PALS structured, reciprocal, one-to-one interaction between partners permitted frequent opportunity to respond, facilitated immediate corrective feedback, increased academic engagement time, and offered social support and encouragement. Finally, the points earned by reading sentences correctly, formulating appropriate main idea statements, offering reasonable predictions, and displaying cooperative behavior were highly motivating and fostered an esprit de corps.

This exploration of Peer Assisted Learning Strategies offers several ideas of use to those interested in a continuing study of peer tutoring strategies. One of the most useful aspects of the study was the specific structure of the tutoring sessions. Participants worked with clear goals in mind for both behaviour and learning outcomes; methodology was in place for both teachers and students. The model also provided objective training for students, and peer tutoring was carried out at regular intervals for an extended time period. The reciprocity of tutoring in this model would not be applicable in all inclusive

settings, that is, not all students with moderate to severe disabilities would be able to participate reciprocally. Also, PALS was described as a whole class activity, although this author believes it need not be limited as such. Many aspects of the study could be utilized when applied to peer tutoring dyads, triads or small groups.

Interestingly, Fuchs et al. (1997) addressed the performance of severely learning disabled students with caution. While as a group, the LD students in this investigation were fairly accomplished readers, a post hoc analysis of the distributions of reading gain for 20 LD students revealed four students for whom the PALS treatment was ineffective. The authors stated that "these four students were the poorest readers among those with LD in PALS and . . . three of the four were also described by their teachers as disruptive" (p. 200). The authors further suggested that "students with severe LD may require intensive, individualized instruction from specialists before profiting from peer-mediated strategies like PALS" (p. 200).

Allsopp (1997) explored the effectiveness of CWPT compared to independent student practice in learning and practicing algebra problem solving skills in heterogeneous classrooms in three middle schools in Florida. Performance of students at risk of math failure was compared with performance of students not at risk of math failure. There was no significant difference in problem solving skills between CWPT and independent practice. Reasons for these results might have been that the algebraic problem solving task involved a higher level of thinking (unlike many other CWPT studies whose instructional tasks had been predominantly basic in nature, and involved scripted tasks such as memorizing math facts, reading sight words, reading passages orally or reviewing spelling word lists), the age of the participants, or the fact that the

classroom teachers in this study found the process cumbersome and thus did not follow the research protocol throughout.

Individual peer tutor dyads. Cushing and Kennedy (1997) employed a single case research design (ABAB) to study the effects on academic engagement of low achieving students without disabilities when they served as peer supports for students with disabilities. Three students in a school were paired with three students of the same ages who had moderate to severe disabilities and shared some general education classes with the three subjects. Time on task, as defined as "a student attending to ongoing classroom activities or engaging in work-related assignments" was recorded for each subject using a time sampling strategy. Once baseline conditions had been established for all three children, interventions were applied. Interventions consisted of training and supervision by a special education teacher, supervision by the general education teacher, and participation with a student with disabilities. During training, the special education teacher gave instructions on how to act with students with disabilities, adapt assignments, take and revise notes for students with disabilities, and provide instructions for those students' assignments. All three students showed improved levels of academic engagement during and following periods of peer support in relation to working alone, and follow-up measurements for two of the students remained high. From this study the authors concluded that working as a peer support for a student with moderate to severe disabilities had positive effects on students without disabilities who were in need of increased academic engagement.

Cushing and Kennedy (1997) employed a methodology that allowed close observation of the effects of an intervention on inattentive or low achieving students.

This was appropriate since inattentive and low achieving students often vary widely in their school-based performance. Unlike some recent research which has dealt with larger numbers of students with learning difficulties (Yasutake et al., 1996; Fuchs et al., 1997) and has needed elaborate peer tutor training and measuring techniques, single case research design allows training and measurement tools to be applied in a sensitive, individual and personal manner.

Peer Tutoring in High School

The results of research in two high school settings have already been discussed (Hess, 1997; Longwill & Kleinert, 1998). Staub et al.(1996) examined a peer support program at the junior high school level. They used qualitative research methodology to describe a program that utilized typically developing students as aides to support students with disabilities in an inclusive school. The participants were four disabled students, their parents, 31 student aides, general education teachers, special education assistants, and special education teachers. The setting was a 900-student junior high school. Data were collected in two ways. First, participating disabled students were observed monthly over a two-year period; after each observation, objective descriptors were written. Secondly, semi-structured interviews with all participants were carried out at the conclusion of each year. Constant-comparative procedures were used to categorize data, in order to derive categories and patterns. These outcomes were shared with adult participants to validate emergent themes.

With regard to the development and implementation of the student aide model, many aspects of interest emerge from the study. Student aides were selected through written applications and teacher references, and were eligible for class credits (including

a letter grade) at the end of term. Training was carried out by the special education teacher during the first week of school and consisted of ability awareness preparation (which addressed differences among people, fears, misconceptions, prejudice and bigotry) and adaptation training. Responsibilities of the student aides were influenced by the subject matter, the needs of the students with disabilities, teacher expectations and the personalities of the student aides.

In addition to growth and change noted in the students with disabilities, four outcomes of the student aide program emerged for the aides. These were an increased social network, feelings of self-worth and esteem, increased empathy for the disabled, and increased feelings of responsibility which in turn promoted improved school attendance and improved academic performance. Some concerns were expressed by the student aides, such as their role with regards to difficult behaviour (they preferred special education assistants to enforce "time out" or do the disciplining), and uncertainty about explaining or adapting curriculum.

The case study methodology used in this study offered an opportunity to describe the complexities of a student aide program at a junior high school, including contextual, social, and behavioural variables. Of particular note were the rich descriptions of the roles taken by the aides. These roles tended to fall into one of four categories: monitor (keeping the student on task, reminders about behaviour), helper (assistance in following routines or completing work, occasional academic tutoring), friend (offering praise, encouragement, or companionship), and teacher (modifying or adapting curriculum or activities). An interesting and unexpected outcome of this student aide program was the benefit for the student aides labeled as mildly disabled. Increased feelings of self-worth

and esteem were noted by the special education teacher, who addressed the value of this outcome for students who are often the lower achievers in their class. This study extended peer support research into the junior high level and offered valuable insight into how and why the program has been successful.

Thus it has been shown that peer tutoring has a long history, can be utilized in large group tutoring programs or with smaller student numbers. A common theme present in most of the recent research is the importance of training for the tutors. The positive effects of peer tutoring range from improved feelings of self-worth experienced by low achieving tutors and improved academic results for both tutor and tutee, to improved measures of academic engagement displayed by inattentive students. Therefore the questions arises as to what mechanisms are at work when students act as tutors which might explain the success of this process.

Peer Tutoring and Self-regulation

Contemporary cognitive research and the study of self-regulated learners has contributed theory and practical information about the learning styles of underachieving, low-achieving, and learning disabled students. Walsh (1992) highlighted many characteristics of self-regulation. Two characteristics stand out in particular. First, the ability to systematically use metacognitive, cognitive, and motivational strategies to achieve learning goals is characteristic, and second, the understanding of the relationship between these strategies and specific learning goals is often present. Self-regulated learners enhance their thinking by engaging in such tasks as organization, transformation, rehearsal and memorization. They also set goals, make plans, monitor and evaluate their progress (Walsh, 1992).

In contrast, low-achieving students (particularly learning disabled students) characteristically do not spontaneously use such strategies. These students are distinguished by their cognitively passive approach to academic learning (Walsh, 1992). Their learning styles are often characterized by insensitivity to academic tasks, lack of metacognitive awareness, lack of strategic knowledge, and impulsive task execution. Some of the differences between low-achieving and high-achieving students can be attributed to engagement or lack of engagement in self-regulation. Learning disabled children perform poorly on tasks requiring active information processing (Torgesen, 1981, as cited in Sattler, 1990). They tend to make little use of strategic or organizational aids that would categorize, focus, or otherwise assist them in deepening or manipulating their associative network. According to Sattler, (1990), "their difficulty in focusing attention may reflect inadequate executive control functions (for example rules and strategies used to understand, remember, and solve problems, including generalization of strategies and flexible deployment of strategies".

The differences between the self-regulated learner and the low-achieving student are also apparent when examining motivation. Learning disabled or low-achieving children may employ negative motivational thinking (Walsh, 1992) while self-regulated learners are attentive to positive and negative motivational information. They process information from their enactive experience with tasks, from witnessing others performing the same tasks, and from listening to encouragement from others (Walsh, 1992). From these cues, they make judgements concerning their competency. Low-achieving students, in particular learning disabled students, are less attentive to such information. Even when they are presented with information that would support their self-efficacy,

learning disabled students tend to attribute their success to factors other than their own ability or effort. This avoidance of positive self-efficacy is part of a negative cycle in learning disabled and low-achieving students, one which results in less persistence, failure to achieve, or non-engagement in academic tasks.

The characteristics of self-regulation have at times been viewed as fixed personality traits, characteristics with which one is (or isn't) born. Alternatively, these characteristics have been attributed to the use of self-discipline. Analysis by cognitively-based instructional psychologists (Bandura, 1977, as cited in Hergenhaun & Olson, 1997) has shown that self-regulation is a set of skills, some of which can be taught and most of which lend themselves to mediation amongst the cognitive demands of the classroom. Higher levels of task engagement, if they can be achieved by teaching self-regulatory skills, should, if accompanied by self-perceptions of competence, invoke higher levels of cognitive engagement.

Self-regulated students employ specific strategies to guide their levels of learning and task involvement. Practices such as setting short-term goals of moderate difficulty, regularly monitoring progress, rewarding accomplishments, and using task focused, self-encouraging adaptive inner speech promote and reward self-regulation in the academic world. These strategies are adaptable to peer tutoring situations. It is believed that the application of self-regulation strategies in peer tutoring situations, mediated as necessary by adult supervisors, may have positive effects, not only in tutoring assignments but in other academic and social areas which have been delineated in students' Individual Education Programs (IEPs).

Peer Tutoring and Self-esteem

A recurrent theme in the reviewed literature on peer tutoring was the concept of self-esteem (Osguthorpe & Scruggs, 1986; Brown, 1993; Staub et al., 1996). None of the aforementioned studies included self-esteem in their research design yet changes in self-esteem or self-worth of the tutors were mentioned as outcomes of the peer tutoring situations. Self-esteem, or how a person feels about him or herself, was found to be improved (Osguthorpe & Scruggs, 1986), show little consistent evidence of improvement (Brown, 1993), or show increased feelings of self-worth and esteem, especially for student aides labeled mildly disabled (Staub et al., 1996). As important as self-esteem is to successful student learning and behaviour, there is a need for more purposefully collected data on the effects of the peer tutoring or peer support on the self-esteem of the students who are the tutors, particularly for students who are frequently low achieving or learning disabled and in need of help themselves.

Summary

In summary, peer tutoring has been found to have positive effects such as cost effectiveness, some increased feelings of self-worth for tutors and tutees, increased interaction through direct instructional time, and improved student relationships. Academic gains for both tutor and tutee also have been demonstrated. Findings from cognitive psychology highlight several components of self-regulation which may be absent in the learning disabled or low-achieving student's repertoire but which can be delineated and taught in the context of the peer-tutoring situation. Needed now are more classroom-based studies that show the effects of peer tutoring strategies on participating

students, and in particular, the effects on inattentive or low-achieving students serving as peer supports.

The purpose of the current study was to collect empirical data on one aspect of inclusion, that of the effects of peer support strategies on participating students. Two research questions were examined. One concerned the academic engagement and associated measurements of students serving as peer supports, compared to their academic engagement when working alone or in other classroom situations. The other pertained to the self-esteem of these students when they served as peer supports, in contrast to when they worked alone or in other classroom groupings.

Two questions were asked specific to peer support. In what ways do serving as a peer support positively or negatively affect the academic engagement and associated measures of students displaying inattentiveness or poor academic achievement in grades three to seven in inclusive schools, compared to when they work alone? How does serving as a peer support positively or negatively affect self-esteem in these same students?

Chapter Three – Method

Overview

This chapter provides a description of the students and classes that participated in the study. Dependent measures, as well as the experimental design and the procedure are described. Finally, an account of interobserver agreement measurements and the social validity assessment procedure are given.

Students and Classes

The Peer Support Study took place in two elementary schools in British Columbia in the spring of 1999. One elementary school, School One, is located in the southern part of Vancouver Island and serves 300 students in Grades K to 5. This rural school serves families from a broad socioeconomic base, and from diverse ethnic and economic backgrounds. Small farms surround the school, but newer subdivisions located near the school contain large, well-appointed homes. Families are able to commute to the nearby city, airport or ferry terminal to work in professional jobs or skilled trades, to shop or attend university. In addition, the school is near a First Nations Reserve and Band Office and has a high First Nations population.

The other elementary school, School Two, is located in the interior of British Columbia and serves 300 students in Grades K to 7. The school is located on the outskirts of a small city (population 23,500). Forestry, tourism and service industries are the main occupations of local residents. The school services families with an economic range of middle to lower incomes. The students are primarily Caucasian or of First Nation ancestry.

An inclusive approach to education is practiced in both school districts in order to meet the diverse needs of all learners. Special needs students are integrated into classrooms at both schools, although some special needs students at each school spend time out of the general education classroom for some activities. Both schools have a room used by special education staff and students for group work, crafts, or cooking. At School Two, two staff members provide support to teachers and students as Learning Resource Teachers. In addition, several Student Support Workers provide direct support to students with special needs. A First Nations Support Worker supports several students for some classroom periods twice a week. At School One, an Integration Support Teacher provides direct support to special needs students as well as to special education staff and classroom teachers. A Learning Assistant is also on staff. Two First Nations Support Staff work full time at the school and support students in their classrooms, on the playground and in specific out-of-class lessons.

Three classroom teachers volunteered as participants for this study. At School One, two teachers who shared a Grade Three class agreed to participate in the research and at School Two, the teacher of a split Grade six/seven class volunteered. The former classroom was also the site of the final practicum for a student teacher.

Vancouver Island school and students. At School One, classroom instruction was delivered in a variety of ways. The regular classroom teachers both taught two or three complete days each week. They taught Math to the whole group using lectures, games, manipulatives and independent written work. The main unit taught by these teachers during the study was multiplication and division, and most of this unit was delivered to the children as they sat at their grouped desks.

The student teacher taught a unit on measurement. She moved the children to a central area for instruction, then gave them measuring jobs around the classroom working in pairs, followed by written work at their seats.

There were two pairs of students who participated at School One. Each will be described in turn.

Rebecca and Rita. Rebecca and Rita (all names used in this study are pseudonyms) were paired in a Grade 3 Mathematics class composed of 24 students. Students' desks were arranged in groups of two to five and these groupings were changed weekly. A student with severe intellectual disabilities and hearing and vision loss was situated at the back of the room several meters from the rest of the class; the other special needs student was grouped with the other children.

Rebecca and Rita were paired during Math instruction. Rebecca was an 8-year-old First Nation's girl without disabilities. Her teachers identified Rebecca as having problems paying attention to class instructions and completing classroom assignments. She was described as frequently passive or inattentive. Rita was a 9-year-old girl with severe intellectual disabilities, as well as vision and hearing impairments. Rita was medicated while in school. Rita communicated using one-to-three-word expressions. Rita occasionally kicked other adults or children, and if left unattended she roamed throughout the classroom. Rita was partially supported in the classroom during math lessons by a Student Support Worker who supervised the other special needs student in the class at the same time. Rita's academic programming was the responsibility of the Integration Support Teacher, took place in the Resource Room, and consisted of practical

lessons in the use of language, the development of social language, and the discouragement of physical aggression.

Dan and Debby. Dan and Debby were students in the same class as Rebecca and Rita. Dan was a 9-year-old boy without disabilities. His teachers nominated him as a student with some learning difficulties. He demonstrated very low self-esteem. Some of Dan's learning difficulties included disorganization of his workspace and supplies, ease of distraction, and reversals of many numbers and letters. Dan was easily frustrated if he wasn't meeting success during class lessons. Debby was an 8-year-old girl enrolled in grade 3. Although not verified, school staff described her as having 'mitochondrial encephalo myopathy', which is a rare neurological condition with the associated expectation of a short life span. One observed consequence of her impaired health was poor attendance at school. Debby was a sociable child who communicated well with others and participated in most classroom activities with modifications and assistance from the Student Support Worker. Debby left her classroom for a 30-minute period of learning assistance each morning and participated in a horseback riding program one day a week. She required specific instruction for the acquisition of gross and fine motor skills, and assistance with the development of social skills such as personal independence and appropriate interaction with others. A classroom behavioural management plan was in place to discourage her habit of answering out of turn.

Interior of BC school and students. At School Two, students' desks were arranged in groups of four to six (in same grade groupings). These were changed frequently. The desks of students with moderate to severe disabilities were part of these groupings, but were generally situated near the perimeter of the room. Social studies and

science were taught using lectures, projects, media presentations, internet investigations and literature research. Large blocks of time in both subjects were allocated for project work. Projects were done in the classroom, in the computer lab, and at home. Some project work was done by students in groups.

There were three pairs of students who participated at School Two. Each will be described in turn.

Mark and Mike. Mark and Mike were paired in a grade 6/7 class of 24 students during social studies and science. Mark was a 14-year-old boy without disabilities who transferred into the school district at the beginning of the study. His teacher described Mark as an active, friendly and popular boy who contributed well in class discussions when he was able to share his knowledge but was also at times disruptive. Mark had difficulty attending to classroom activities for long periods of time, disrupted lessons by calling out answers, and had experienced discipline problems on the playground. Within a short period of time after his arrival at the school his teacher began daily communication with his parents to support positive behavioural change and homework completion. Also instituted was a behavioural modification plan which required Mark to self-monitor his behaviour and attitude three times a day.

Mike was a 12-year-old boy with moderate to severe intellectual disabilities. Mike had good oral and reading skills but extremely poor comprehension. He needed assistance following directions, staying on task, and completing assignments. He was sociable, but his behaviour had consistently been inappropriate and he had poor peer relationships. He was on medication for attentional problems and was living in foster care. If left unattended, Mike would be disruptive and wander around the classroom.

Mike's modified program was designed by his classroom teacher and the Learning Resource Teacher and supervised by the classroom teacher and a Student Support Worker. It included math skills deemed necessary for living in the community, a cooking program, and some general school responsibilities. In social studies and science, Mike generally participated with the class and with assistance from the Student Support Worker participated in projects such as making posters or building structures. One of Mike's IEP goals was to allow him slightly increased independence within a structured school situation. Mike required supervision at all times at school.

Anita, Amy and Adelle. Anita and Amy were paired alternately with Adelle during social studies and science. Anita was a 14-year-old girl without disabilities. Her teacher described Anita as a popular student who was unfocused and whose behaviour at school was deteriorating due to her home situation. Although she was an active participant in oral work, Anita had difficulty keeping her attention focused during independent classroom activities.

Amy was a 14-year-old First Nation's girl without disabilities. Amy was on a modified program for all academic subjects and received daily assistance from the Learning Assistant and the First Nations Support Worker. The Student Support Worker also supported her when time permitted. Amy was described as a student who had difficulty organizing her assignments, difficulty following directions, a record of poor attendance and a history of low self-esteem.

Adelle was a thirteen-year-old girl with severe intellectual disabilities, poor fine and gross motor skills, and limited communication skills. Adelle communicated with others using one or two words, smiling, gesturing, pointing and touching. She walked

with assistance or used a walker. She was a sociable girl with poor articulation and limited communication abilities. She required assistance with all activities. Adelle's IEP focused on communication and daily living skills. She generally joined the class for art, reading workshop, PE and journal, and was paired with a classmate for a weekly cooking program. She spent two afternoons each week in recreation programs in the community. Adelle's classroom teacher was looking for increased opportunities to include Adelle in classroom activities, especially if those activities included participation with classmates.

Dependent Measures

Three measurements were recorded during the study. These were academic engagement (time on task), homework assignment completion, and semi-structured interviews.

Academic engagement. In order to quantify the degree of academic engagement of non-disabled peers under different conditions, time on-task was recorded for Dan, Rebecca, Mark, Anita and Amy. Academic engagement was defined as "a student attending to ongoing classroom activities or engaging in work-related assignments" (Cushing & Kennedy, 1997, p. 141). During classroom periods, which ranged from 30 to 55 minutes, a one-minute time-sampling strategy was used. Observers viewed the peer tutor for one second at the end of each one-minute interval and recorded the presence or absence of academic engagement (see Appendixes A and B for details of the Classroom Observation Code and a sample Data Recording Sheet). Based on a criterion of 80 percent on-task, which is considered satisfactory for students (Crealock & Bachor, 1995), students who fell below this level during baseline conditions were selected for the study.

There were four observers in total, two for each school. Observers were adults trained to criterion by the researcher in the use of this measurement system.

Homework completion. In addition, for Mark, Anita and Amy, homework assignment completion scores for social studies and science were collected by the classroom teacher and compared before and during the study. Homework assignment completion scores were defined as students turning in homework on time and completed as required by the classroom teacher. Details of homework assignments for Rebecca and Dan were not collected as none were assigned in Grade 3.

Semi-structured interviews. The classroom teachers and one First Nations Support Worker were interviewed before and after the intervention. These semistructured interviews (see Appendices C and D) probed for changes in the self-esteem of the participants. Teachers were asked about the strengths, contributions, popularity, social status, interpersonal relations and attitude towards self of the peer tutors. General comments and observations that shed light on the effect of the intervention on each participant were also recorded by the researcher in a chronologue.

Experimental Design and Procedure

Single-case design, whereby "the effects of the intervention were examined by observing the influence of treatment and no treatment on the performance of the same person" (Kazdin, 1982, p. 104) was used to determine the effects of the intervention on performance over time. Initially there were five participants who agreed to take part in the study. One participant withdrew after completing the baseline (A) phase. As a result, evidence was collected on four participants, who completed the first baseline, both

intervention (B) phases, and the second baseline following an ABAB single-case design (Kazdin).

For each student, academic engagement data were collected for one period each school day over the course of the study. The classroom teacher collected homework completion scores for Mark, Anita and Amy, and for all students, interviews with their teachers were carried out in order to probe for changes in self-esteem.

Prior to initiation of baseline observations, letters of permission were sent home to the parents of teacher-nominated tutors and tutees, explaining the purpose and intent of the study and asking for parental consent.

Baseline. During baseline, Dan, Rebecca, Mark, Anita and Amy participated in regular classroom activities. During this time, typical class performance of these students was established. To establish a stable baseline, observations were taken for a minimum of five school days to a maximum of eight. For Dan and Rebecca, teachers provided instruction in multiplication and assigned practice activities for students to complete at their desks. For Mark, Anita and Amy, the teacher provided lecture-based instruction, media review and evaluation, or the students worked on small group learning projects. No extra interactions occurred between Dan, Rebecca, Mark, Anita or Amy and special education staff or students. Students with disabilities were given support by Student Support Workers or the Learning Resource Teacher. The goal of baseline was to assess the typical classroom performance of Dan, Rebecca, Mark, Anita and Amy under routine classroom conditions.

Peer recruitment. After the establishment of a baseline, I described some details of the study to each class. Students participated in a brainstorming activity concerning

students with disabilities in general, and the students with disabilities in their class in particular. Emphasis was placed on the abilities of the students with disabilities, that is, what they could do. All students were invited to participate in the study; many students in both classrooms volunteered, including four targeted students. One student, Dan, did not express any interest in becoming a peer support for a student with disabilities. He cited incidents of physical aggression from one disabled student as one reason, and reluctance to leave his newly established group of friends (a cluster of four desks established by the teacher that was proving very successful for Dan) as another. As informed consent was required for participation in the study, data collection for Dan did not continue beyond baseline. Four volunteers were given letters of permission to read and sign.

Peer training. During the training period, it was explained to the tutors that their jobs would be threefold: to adapt assignments, to provide instruction, and to facilitate participation in classroom activities. The completed peer training varied slightly in each school. At School One, I taught lessons on friendship and cooperative learning to the whole class (Appendices E & F) before selecting Rebecca to work with Rita. As in Cushing and Kennedy (1997), Rebecca was moved so that she sat next to Rita, and I worked with the students for a few days, teaching and modeling communication and relevant behaviour management strategies, and how to adapt the assignments to meet Rita's individual education needs. At School Two, selected peer tutors previewed the upcoming Social Studies unit with me, keeping in mind the abilities of their tutees, and discussed ways to adapt and modify one part of the unit so they could work on it together with their tutee. Tutors were asked to pick one project that they thought their tutee would

be able to undertake with assistance. They were then asked to break the assignment into smaller steps, draw up a materials list and decide who would be responsible for gathering those materials. At both schools, I maintained ongoing individual discussions about successful interaction with peer tutees. This aspect of peer training took place in daily review discussions that also included discussions of how to model correct behaviour, work habits, or task completion, and reminders of the importance of praise for correct behaviour or performance. Peer training was more complex at the Grade 6 and 7 level than at the Grade 3 level.

As in the Staub et al. (1996) study, students were not expected to handle any difficult behaviour of their peer tutees beyond general encouragement. Student Support Workers, the classroom teacher, or other adult staff were available to provide consequences and remind or reinforce existing classroom behaviour expectations.

Intervention. The intervention was based on Rebecca, Mark, Anita and Amy serving as peer supports for students with severe disabilities. As in Cushing and Kennedy (1997), "peer support was a multicomponent intervention based on three primary elements: (a) the peer's participation with a student with disabilities, (b) training and supervision by the special education teacher …[in this case, myself]… and (c) supervision by the general education teacher" (p. 142).

At the beginning of the intervention, student pairs were formed and peer tutors moved so that they sat next to their tutees. I worked closely with each student pair for a few periods to model assignment adaptation, interaction with the student with disabilities including praise for correct performance, communication and relevant behaviour management strategies. During the training period, I incorporated the roles defined for

peer tutors by Staub et al. (1996). Those were monitor (keeping a student on task, reminding a student about appropriate behaviour), helper (providing assistance with routines or work), friend (offering praise, encouragement and companionship), and teacher (modifying or adapting curriculum or activities to facilitate participation by special needs students). Following this initial period of training, peers without disabilities were asked to facilitate participation of the student with disabilities in classroom activities including provision of instruction, guidance, and adaptation of assignments.

Both the classroom teachers and myself were continuously present in the classroom and provided assistance when necessary. In addition to formal peer training, I provided support during the intervention. Approximately once every 10 minutes I visited the pair to comment on their work, and the classroom teacher offered similar constructive feedback approximately once every 30 minutes. Student Support Workers were also available in the classrooms, engaged in a variety of other tasks, but were able to give guidance and support as necessary.

In addition, I met informally with peer tutors at the beginning and end of each class period to provide feedback, review goals, and adjust plans as necessary. Incorporated into these short discussions was ongoing discourse regarding how to adapt the assignments, model correct behaviour and praise correct performance. In an endeavor to focus on developing the strength and confidence of peer tutors, an effort was made to celebrate positive interaction and communication between peer tutors and peer tutees, and praise specific appropriate behaviours exhibited by the peer tutors.

In the Grade 3 classroom, the peer tutor moved her desk to the back of the classroom to sit beside Rita. She was asked to do her work along side Rita, involving Rita in the class lesson as much as possible. Rebecca scribed for Rita (for example, Rebecca prompted Rita to describe an incident, Rita offered a few words, Rebecca put these ideas together into sentence format and wrote and illustrated Rita's journal as well as her own), measured parts of Rita's body and helped Rita measure other children.

In the Grade 6/7 classroom, Mark and Mike chose to make a miniature mummy and its painted sarcophagus. Anita chose to make an Egyptian headdress with Adelle. This involved research and planning by Anita and hand-over-hand fabric painting with Adelle. Amy helped Adelle make an Egyptian canopic jar with self-hardening clay that they together painted. Peer tutors in both classes were expected to complete their own work as well as support their tutee, although in some instances the classroom teacher reduced the tutor's work load in consideration of extra time spent supporting a tutee.

Return to baseline. During this phase, the original baseline conditions were reinstated. That is, Rebecca, Mark, Anita and Amy worked without peer tutees in their home classrooms. In School One, other children who had volunteered to work as peer tutors were given an opportunity to support the student with disabilities, while in School Two, two peer tutors alternated intervention phases. That is, when Anita was working with Adelle, Amy worked alone, and when Amy was supporting Adelle, Anita worked alone. Mark worked alone during the return to baseline.

Reinstating intervention. A resumption of the peer support intervention occurred after baseline data had been collected. Peer tutors were asked to again partner with their

tutees, and assignments were discussed. These procedures were consistent with the original intervention.

Follow-up. Although the intervention was no longer formally in place, classroom teachers were given the opportunity to continue peer support interventions. At ten days to two weeks after the study, follow-up observations took place to collect academic engagement information.

Interobserver Agreement

In order to establish the degree of reliability of the observers, independent observations were completed on a minimum of 14 percent of the academic engagement sessions of each peer tutor. Two volunteers, a university student and school staff member, simultaneously but independently observed and recorded academic engagement for the peer tutors. As in Kazdin (1982), a frequency-ratio formula was used to calculate interobserver agreement: The smaller total was divided by the larger total and multiplied by 100 to arrive at a percentage. Agreement measures were collected during 14% of observations for Rebecca, and 18% of observations for the other peer tutors. Mean agreement for Rebecca was 96%, (range, 93% to 100%). Measures for Mark yielded a mean agreement of 92% (range, 84% to 99%), mean agreement for Anita was 87% (range, 87% to 92%), and mean agreement for Amy was 85% (range, 75% to 93%).

Social Validity Assessment

Additional observations were made of the classroom performance of the targeted students. Approximately once per week, education personnel naïve to the experimental question observed targeted students for a class period and completed a checklist (adapted from Cushing & Kennedy, 1997, see page 48 of this document) at the end of the period to

assess social validity. The checklist contained five questions relating to involvement in classroom activities (listening to instructions, following directions, bringing supplies, following classroom rules, and participating in class activities) that were rated using a five point Likert scale.

Summary

In summary, four student pairs in two elementary schools participated in the study. The intervention, supporting a disabled student's participation in classroom work through adapting the assignment, instructing the disabled student in the task, and modeling or praising correct behaviour, was carried out after a period of training and followed an ABAB single-case design. There were three dependent measures for the non-disabled peers: academic engagement, homework completion, and a semi-structured staff interview. Academic engagement data were collected for one period each school day. Additional observations were made to assess social validity. Follow-up observations took place ten days to two weeks after the study.

Chapter Four – Results

Overview

All four students exhibited higher levels of academic engagement while supporting disabled students in the classroom. Interviews with staff revealed very positive change for one student, positive or no change in self-esteem for another, and no change in self-esteem for the remaining two peers. Data on homework completion were available for two students, one of whom had a higher completion rate and the other, a lower.

Dan and Debby

In Figure 1, the percentage of academic engagement within the Math period during baseline observations for Dan is shown. These data demonstrate low to high levels of academic engagement when Dan worked alone. During the baseline phase, Dan had a mean percentage engagement of 72% (range, 44% to 82%). Dan then withdrew from further participation; thus, only baseline data are given.

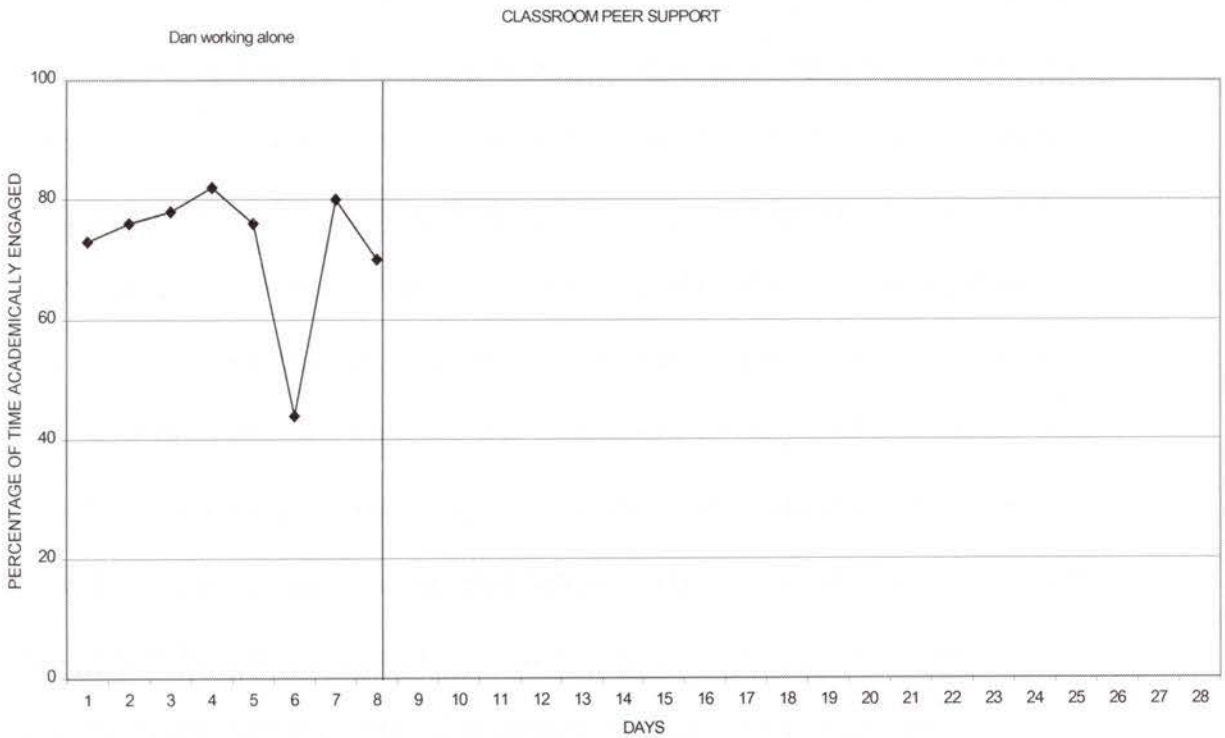

Figure 1. Percentage of observations in which Dan was academically engaged. Data are presented for baseline phase only.

Rebecca and Rita

The effects of the intervention on Rebecca's academic engagement are shown in Figure 2. Visual inspection of Figure 2 indicates a systematic change in behaviour during each phase, including changes in means across phases, changes in level, and the presence of nonoverlapping data. These data demonstrate higher levels of academic engagement when Rebecca served as a peer support for Rita compared to when she worked alone. Rebecca's mean percentage of time engaged in Math was 59% when she worked alone (range, 42% to 76%) and 91% when she was supporting Rita (range, 82% to 100%). At a ten-day follow-up, her average percentage engagement when working as a peer support was 97%. The social validity assessment of Rebecca's classroom participation indicated that she was seen by others as being more involved in classroom activities while supporting a student with disabilities than while working alone (see Table 1).

Interviews with Rebecca's teachers suggested either positive change or no change in self-esteem during intervention periods (see Appendix G). They stated that she enjoyed being helpful, and she seemed positive, responsible, and willing to help Rita. One staff member commented that although her participation had increased, her completion of assignments had not increased. She was described before the intervention as "non-compliant, sad, sometimes defiant". After the interventions it was reported that she was "getting her work done more" and "attitude in general [is] a little more positive". One description of Rebecca while supporting Rita stated that she was "very focused, kind, in general, more on-task and focused". Another description was "cooperative, vocal, assertive, confident".

Table 1

Mean (Range) Across Conditions for Classroom Participation for Rebecca, Mark, Anita and Amy

	Rebecca		Mark		Anita		Amy
Variable	Working alone	Supporting Rita	Working alone	Supporting Mike	Working alone	Supporting Adelle	Supporting Adelle
Listens to instructions	1.7 (1-2)	2.5 (2-3)	2.7 (2-4)	3 (2-4)	4 (3-5)	4 (3-5)	4 (3-5)
Follows directions	1.7 (1-2)	2.5 (2-3)	3 (2-4)	3 (2-4)	3 (2-4)	4 (3-5)	4.3 (4-5)
Participates in class activities	1.3 (1-2)	3.5 (3-4)	2.3 (2-3)	3.5 (3-7)	3.3 (3-4)	4 (3-5)	4
Brings supplies	3	3	2.3 (2-3)	3	4 (3-5)	4 (3-5)	4.3 (4-5)
Follows classroom rules	2.3 (1-4)	3	3 (2-4)	3.5 (3-4)	2.7 (2-3)	4 (3-5)	4 (3-5)

*Based on a 5-point Likert –type scale (1 = never, 2 = seldom, 3 = often, 4 = most often, 5 = always)

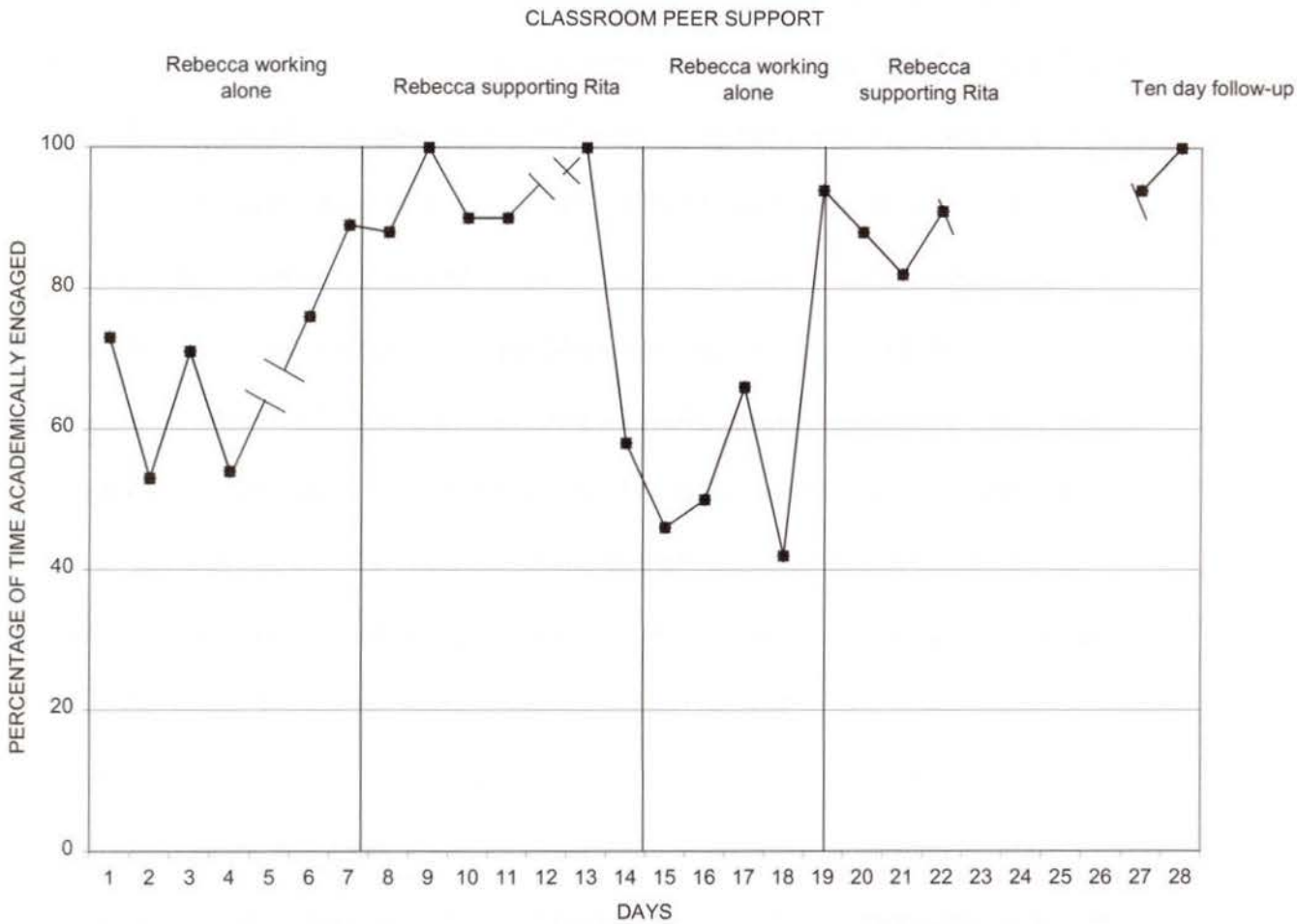

Figure 2. Percentage of observations in which Rebecca was academically engaged. Data are presented across conditions when Rebecca worked alone compared to when she worked as a peer support for Rita.

Mark and Mike

The percentage of academic engagement for Mark during Social Studies and Science is presented in Figure 3. As can be seen by examining the data, Mark displayed higher levels of academic engagement while supporting Mike than while working alone. Mark's average percentage of time engaged in Social Studies or Science was 61% when he worked alone (range, 27% to 82%) and 87% when he supported Mike (range, 67% to 98%). Measured at a ten-day follow-up, Mark's average percentage of classroom engagement while working as a peer support was 80%. In support of these observations, information on classroom participation revealed small, consistent improvements for Mark in task involvement with the exception of the area of following directions which remained constant (see Table 1). Mark's homework completion rate was not assessable before the study. During the study he completed and handed in 76% of assigned homework.

Interviews with Mark's teacher suggested that there was no change in Mark's self esteem during intervention periods (see Appendix G). Before the interventions, he was described as "Comes on as confident, but trying to be boastful". Following the two intervention periods, his teacher stated that Mark was "unsure of himself, insecure, has developed ways to get attention". Mark's teacher did make one positive comment about Mark's behaviour while supporting Mike, noting that Mark demonstrated "an ability to communicate goals and expectations" to Mike, and this was seen as a strength by his teacher. In another interview segment, his teacher described Mark as "patient, able to describe what Mike needed to do in concrete terms" while supporting Mike.

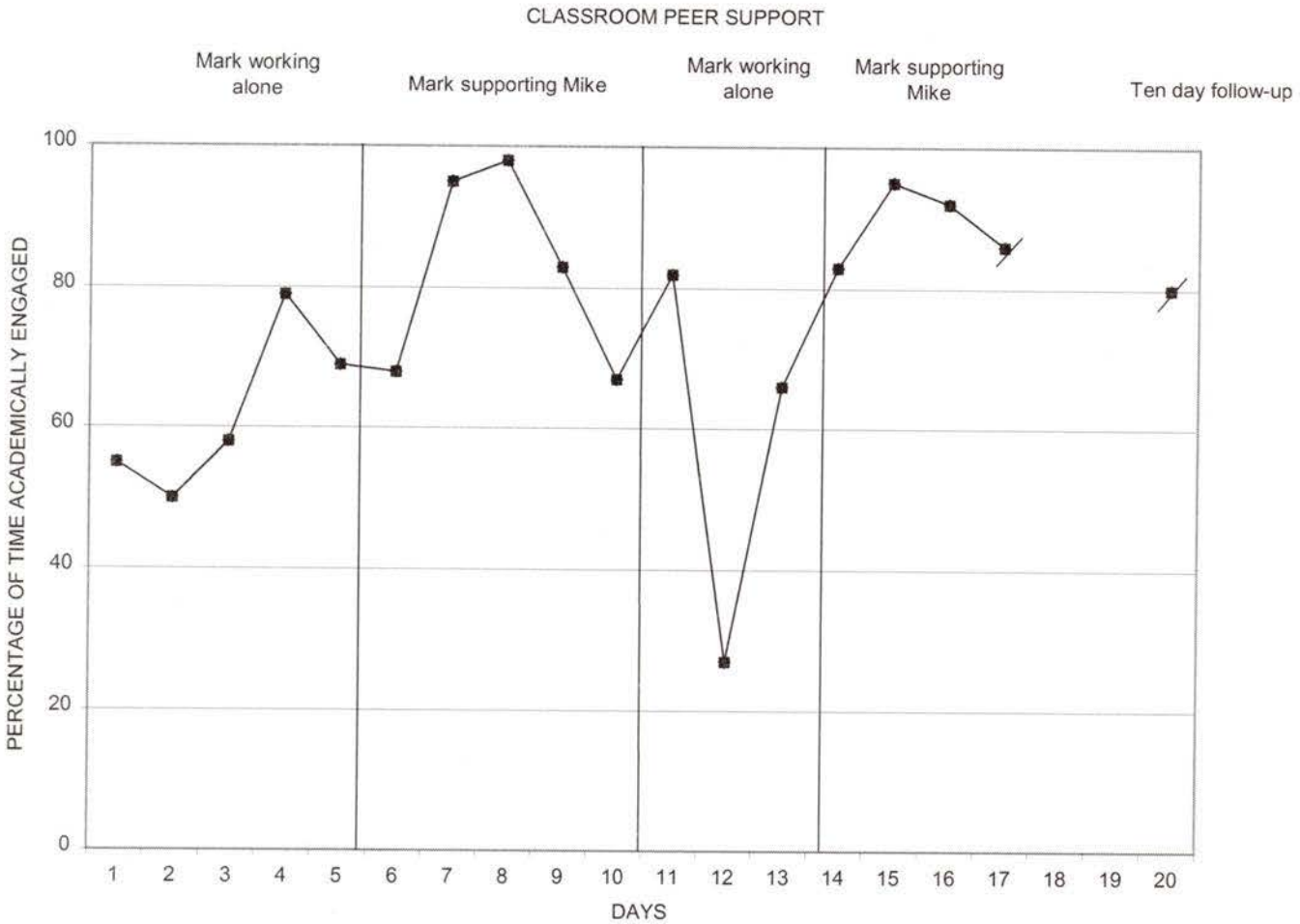

Figure 3. Percentage of observations in which Mark was academically engaged. Data are presented across conditions when Mark worked alone compared to when he worked as a peer support for Mike.

Anita and Adelle

The outcomes of the intervention measuring Anita's academic engagement while supporting Adelle during Social Studies and Science periods are presented in Figure 4. These data demonstrate higher levels of academic engagement for Anita when she served as a peer support to Adelle in comparison to when she worked alone. In particular, Anita's average percent of time engaged was 76% (range, 58% to 100%) when she worked on her own, and 98% (range, 92% to 100%) when she supported Adelle. The observation of Anita during a ten-day follow-up found her average percentage of classroom engagement while working as a peer support to be 94%. Observations of her classroom participation showed improvements in three of five measures when Anita was supporting Adelle (see Table 1). Anita completed and handed in 64% of her homework assignments before the study, compared to 57% of her work during the six-week period of the study.

Before and after interviews with Anita's teacher suggested there had been no changes in Anita's self-esteem as a result of the intervention (see Appendix G). During an interview with her teacher before the interventions, Anna's self-esteem was described as "good, although nervous". Following the two intervention phases, Anita's teacher commented that "she feels good about herself. She lacks confidence academically, but has confidence socially". Regarding the six-week period in which Anita participated in the study, the interview revealed "her behaviour has deteriorated, due to other factors. For example, her home situation. Her mother is sick, and the coming transition to high school". While supporting Adelle, Anita was described by her teacher as "gentle, patient,

sometimes hesitant. Sometimes she is not sure of what to do next. She does not have a lot of verbal communication (with Adelle)."

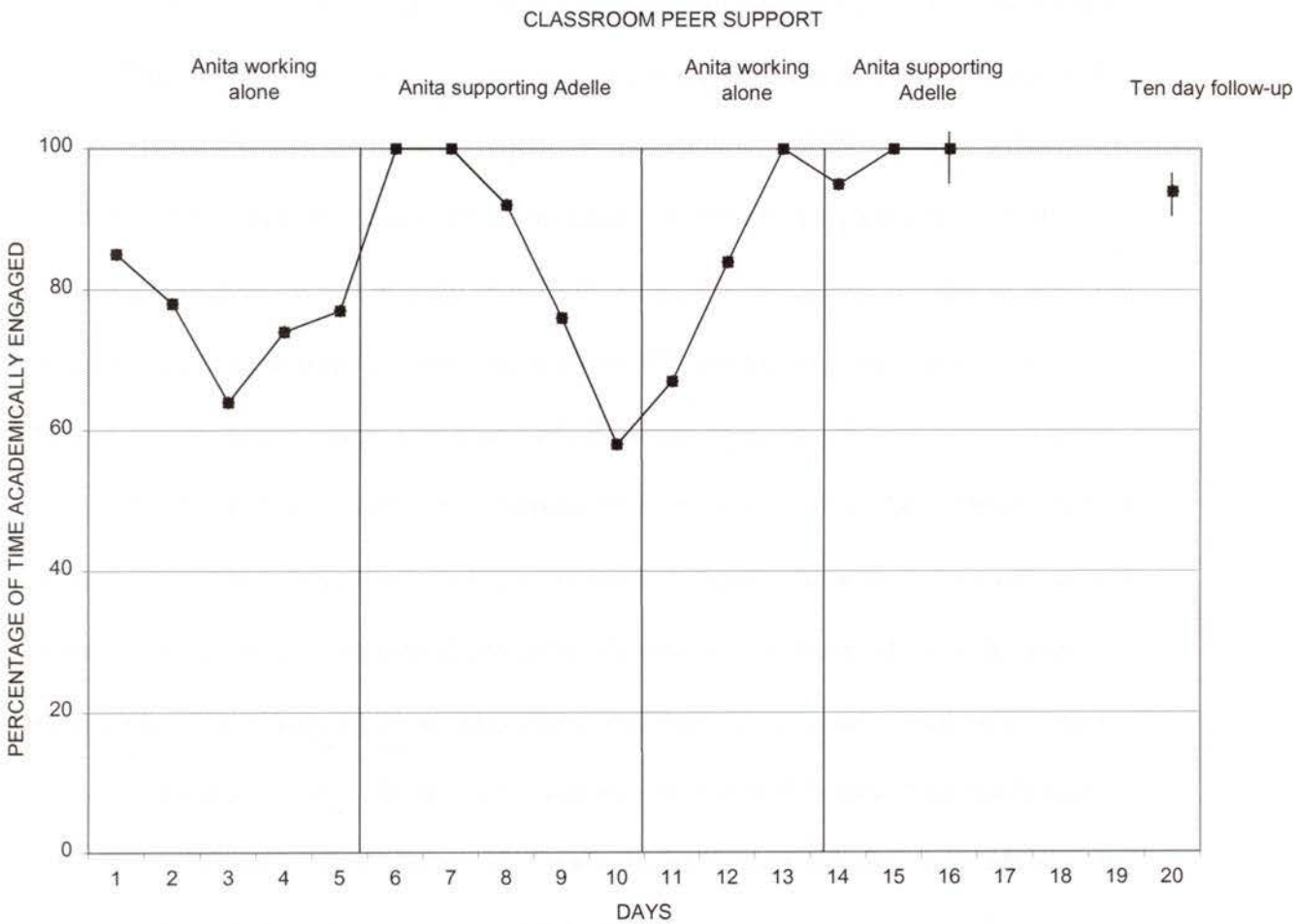

Figure 4. Percentage of observations in which Anita was academically engaged. Data are presented across conditions when Anita worked alone compared to when she worked as a peer support for Adelle.

Amy and Adelle

Amy's academic engagement during Social Studies and Science classes is represented as a percentage in Figure 5. These data indicate a higher level of academic engagement when Amy served as a peer support for Adelle relative to when she worked alone. During the study, Amy's levels of academic engagement were 84% (range, 67% to 93%) when she was not participating in the intervention, and 98% (range, 92% to 100%) while serving as a peer support for Adelle. Although Amy's mean level of academic engagement was already above 80% when working alone, changes in level and trend are apparent during the intervention phase. Observations of Amy at a ten-day follow-up found her average percentage of classroom engagement while working as a peer support to be 69%. Sufficient observations of Amy supporting Adelle were made in order to calculate a mean level of classroom participation while serving as a peer support, however due to absence and situations in the classroom, insufficient data of this type were collected for Amy while working alone, and therefore a social validity assessment could not be made. Amy's homework completion rate was 50% before the study and 74% during the study. Interviews with Amy's teacher before and after the study suggest that the intervention was very positive for Amy. While supporting Adelle, Amy was found to be "kind and friendly, talkative" (see Appendix G). She was observed enjoying the special status, responsibility and fun activities of being a peer support (my observations). Her teacher suggested that Amy had benefited the most from being a peer support.

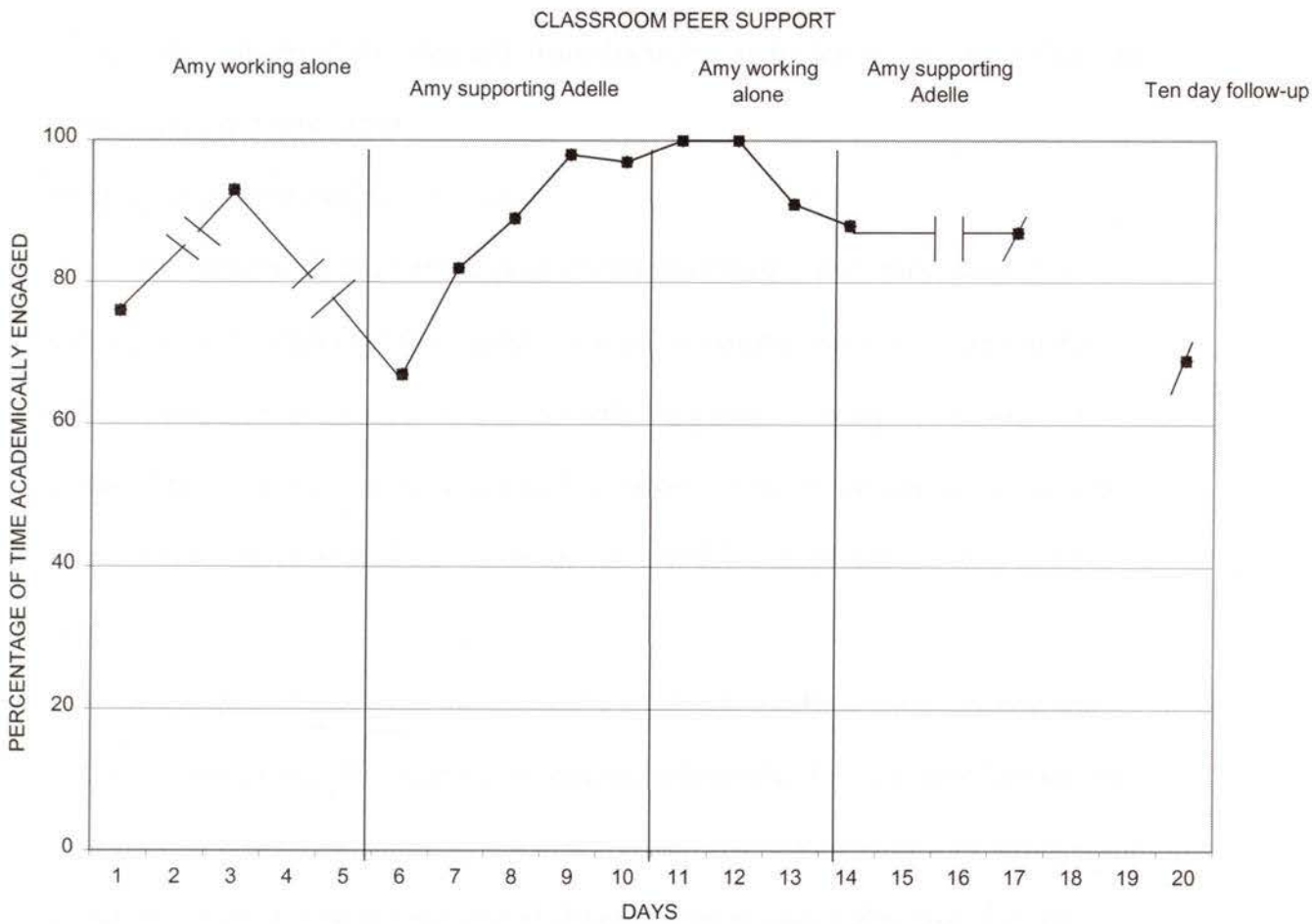

Figure 5. Percentage of observations in which Amy was academically engaged. Data are presented across conditions when Amy worked alone compared to when she worked as a peer support for Adelle.

Chapter Five – Discussion

Overview

This chapter provides a summary and an interpretation of the results of the study. In addition, it integrates these results with past literature. Furthermore, implications and practical applications of the intervention are discussed, as are unexpected side effects and future directions for research.

Summary and Interpretation of Results

Two general findings are supported from this investigation. First, serving as a peer support for a student with moderate to severe disabilities positively affected the academic engagement of inattentive or low achieving students compared to when they worked alone. Second, some indication of improvement in self-esteem and homework completion for the same students occurred, however this change was not clear in all cases.

More specifically, there was a positive relationship between peer tutoring and academic engagement. The support of a positive relationship between peer tutoring and self-esteem or homework completion was less clear. The relationships were stronger for measurements of immediate behavioural change (time-on-task) and weaker for more indirect or later measurements of behavioural change such as self-esteem or homework completion. The relationships may have been positively influenced by adult support and negatively influenced by absenteeism.

In addition, positive results were achieved for peer tutors, even when those tutors were themselves students with mild disabilities or poor achievement. Tutors benefited by becoming more engaged in positive behaviours during class time, even when they

worked in pairs, and in some cases experienced gains in self-esteem and homework completion.

Limitations

The positive results for the four participating peer support students need to be interpreted with caution. For example, all changes were moderated by adult support, and must be considered within this context. Although one phase required each peer to work alone, the classroom teacher and the researcher were monitoring both behaviour and academic progress throughout. Cushing and Kennedy (1997) previously noted that adult support provides at least three changes: increased social interaction with others, increased assistance with academic tasks, and increased positive reinforcement. In the present study, adults offered structure, positive reinforcement, and social interaction on a daily basis. The magnitude of significance for this support remains unknown. The practical applications of this aspect of peer support will be discussed further.

In the case of Amy's results, a caution relating to the context of data collection limits the interpretation of the data. One of the projects that Amy chose for her Social Studies assignments was a cooperative group activity. As such, she worked with a group of girls and was often not working "alone". Also, due to the fact that the Student Support Workers were not always needed to directly support moderate or severely disabled students during the study, the classroom teacher reassigned the Student Support Workers to assist some student groups in project completion. These strategies, initiated by the classroom teacher, were in keeping with Amy's IEP, and offered her the support and scaffolding she needed to be successful in the classroom. They allowed her to function in the classroom with her peers, offered structure and organizational aid in an inclusive

setting, and increased her task completion. Thus one tutor's educational goals and the classroom environment were often mediated by adult staff, even during intervention phases. This would explain her relatively high baseline and withdrawal levels of attentiveness to classroom work. As noted previously, this tutor's results were nevertheless characterized by increases in level, trend, homework completion and attendance during the intervention. Furthermore, interviews with her classroom teacher supported positive gains for Amy's self-esteem as a result of the intervention.

Of course, the results of this study must be considered in the context of their experimental circumstances. As informed consent was a requirement of the experimental protocol, all participants were aware of their status in a study. There may have been reactive effects to the experimental arrangements.

An additional consideration and possible limitation is a maturation effect that may have been realized. Particularly important in those participants who were approaching a transition to high school in the final days of the study, maturation may have influenced the follow-up conditions for the two grade seven students. At the same time, consideration must be made for the timing of the study, which took place in the final term of the school year for some students. This timing had both positive and negative consequences. An advantage was that routines and expectation for work and behaviour were firmly established and supported by the classroom teacher. Also, many modifications had been made to student programs and several students were following individualized educational programs. A negative effect was that follow-up data was difficult to collect. Students were involved in field trips and end-of-year activities that varied from normal procedures. As follow-up data collection fell very near the end of

term, caution must be used in assuming that follow-up data represents a true picture of the long-term effects of the intervention.

An important consideration in interpreting these results is the influence of absenteeism and its effect on participating students. During the study, one tutor and two tutees experienced absences. When a tutor was absent, data collection was interrupted. Other students were able to support the tutee but the continuity of the intervention was broken. Interestingly, tutors had consistently good attendance during the peer support phase, raising the question of whether or not serving as a peer support was an encouragement to attend school. In the case of the tutees, health issues often interfered with attendance and this delayed data collection. These absences demonstrate the sporadic attendance of some special needs students and the precarious nature of an intervention that requires their presence.

The interpretation of one tutor's results merits additional consideration. This student moved to the school as data collection began. The classroom teacher implemented several strategies within the first few weeks of the study to encourage him to modify his behaviour and work habits to comply with classroom expectations. These modifications may have had an effect on the results. At the same time, staff recognized in the intervention a very positive strategy for him, one that capitalized on his knowledge, empathy, and friendliness, yet offered him a specific responsibility monitored at regular intervals by an adult. He proved to be a very capable peer tutor, one who demonstrated initiative and creativity in engaging his tutee in positive activity. His data demonstrate positive results that remained stable during two intervention phases. These results illustrate an effective way to institute indirect support for a student at risk in the

classroom. What is not apparent in the results of the study but was apparent to observers were the characteristics of his attention when working alone. He was generally on task for the first 20 minutes of a lesson, but in the absence of the intervention became disruptive, failed to wait his turn to speak, or wandered within the classroom for the remainder of the lesson. During the times when he supported his tutee, he characteristically kept his tutee on task and at the same time was on-task himself for long periods of time. Clearly, certain aspects of the intervention offered the support he needed to remain on task.

A further caution involves the interpretation of the results of one tutor. Although Anita's homework completion during the intervention did not show positive gains, and interviews with her teacher indicated that her behaviour had deteriorated, observations made during the work with her tutee showed Anita to have sustained intense focus and concentration as well as patience and interest in her peer tutee. Two suggestions are offered for these positive outcomes for Anita. In the first place, she chose a project for herself and for her tutee in the area of her own considerable artistic talents, thus providing an area of interest to herself. Second, as described in Staub et al. (1996), being a student aide taps into the best part of adolescents at an age when they don't have many places to express their loving, caring, giving side, and being a student aide allows these characteristics to be expressed in an acceptable manner. It is suggested that the events in Anita's life, such as worries at home and the transition to high school, were troubling her and influencing school performance in broad ways, yet during the times when she supported a student with severe disabilities, Anita was able to focus her energy in a positive direction.

Finally, when examining Rebecca's results, clarification is needed to interpret her positive behaviour during the intervention phase. Observations of Rebecca working alone (daydreaming, avoiding task initiation or completion, or leaving her desk repeatedly) are in contrast to her behaviour while supporting Rita (increased attention to classroom instruction and assignments, interaction with her tutee, keeping her tutee's attention on activities). While Rebecca's classroom work might be interpreted as less intellectually demanding when modifying assignments for Rita, Rebecca was able many times to successfully listen (for the purpose of adapting classroom work) as well as be involved in Rita's activities to a greater degree than when left to work on her own. It cannot be denied that Rebecca enjoyed both the adult attention and the change of pace. As evidence of this, she objected strenuously when other children took her place during the withdrawal phase. It is suggested that Rebecca's activities comprise the essence of partner learning and peer tutoring, in which students learn by teaching and being involved with others (Williams & Fox, 1996). Was Rebecca "working" while she supported Rita? As seen by her results, Rebecca was more engaged in classroom work, expressed satisfaction with her role in the classroom, and was seen by others as more positively engaged in classroom activity. What may not seem to be successful may indeed be a better way for Rebecca to work.

Integration of Results with Past Literature

Previously, positive outcomes for peer tutoring in whole class (Fuchs et al., 1997, Mortweet et al., 1999), and small group situations (Elbaum et al., 1999, Cushing & Kennedy, 1997, Staub et al., 1996, Yasutake et al, 1996), with regular students (Kreuger & Braun, 1999) and students with special needs (Cushing & Kennedy, 1997; Mortweet et

al., 1999) have been demonstrated. Such positive results have been validated by the present study. Specifically, the increased feelings of self-worth and esteem that were noted by Staub et al. were replicated in some participants, although inconsistent evidence of improved self-worth, as mentioned by Brown (1993) was also noted. The higher rates of academic engagement mentioned by Mortweet et al. and Cushing and Kennedy were consistent with the results of the present investigation. While enhanced academic performance has been noted in many recent studies (Longwill & Kleinert, 1998, Mortweet et al., Fuchs et al.), only one other piece of research (Cushing & Kennedy) measured this variable in terms of homework completion. As such, this study found inconclusive results in the area of homework completion. Of the two students whose homework completion could be compared before and during the study, only one student's homework completion improved during the intervention.

The results of this study extended the findings of Cushing and Kennedy (1997) and Mortweet et al. (1999). In doing so, some of the components that would allow inattentive students to show improvements in academic engagement, such as adult support (training, reward, and feedback), division of jobs into manageable portions, and intense focus on another individual's learning needs are highlighted.

The relationship that was found by Cushing and Kennedy (1997) between peer tutoring and academic engagement endured over different grade levels, two classrooms, four classroom teachers and four participants in the present study. The relationship between peer tutoring and rates of academic engagement while tutoring MMR students, as found by Mortweet et al. (1999) was also supported in the current study.

The results of this study also serve to illustrate that this model of peer tutoring can be implemented in inclusive settings. According to Allsopp (1997), "The verification of effective instructional strategies in heterogeneous classes is critical if students who are at risk of failure, including students with and without disabilities, are going to be successfully included in general education classes" (p. 367). The current investigation adds information about specific aspects of peer tutoring such as within-class peer support dyads and same-age peer mediation. It confirms that there are advantages to the students who serve as peer supports to disabled students. These students may become more attentive, show improvements in self-esteem and academic measures.

Implications, and Practical Applications

Extending self-regulation models. There are implications that can be drawn from this investigation in the areas of theory and practice. In terms of theory, existing theories on self-regulation imply that organization, goal setting, and self-monitoring are characteristics of self-regulation that can be mediated within the classroom. The findings from the current study lead to the suggestion that there is benefit to using peer tutoring as a teaching medium for these strategies, whereby these skills can be taught and practiced in the context of planning and executing a program for another student. For students who are underachieving or noticeably inattentive, this offers a less intimidating situation that focuses attention on the tutee but requires self-regulation on the part of the tutor to achieve success. The role of the adult in the triad, supporting the tutor towards achieving small, self-regulatory steps, is extremely important.

Practical implications. The discussion of these findings is not complete without the application of this research to classroom practice. While inclusion in the general

education classroom has had academic and social benefits for students with disabilities and offers them equal access and opportunity to the educational experience (Piper, 1993), the process of teaching in an inclusive classroom requires continued education, monitoring and evaluation. In reality, classroom teachers must reeducate themselves each school year to prepare and implement the best classroom practices for each new group. Classroom teachers are struggling to meet the needs of such diverse groups, especially when classes include students with moderate to severe disabilities. The implemented peer-tutoring program provides a useable classroom application involving learners with moderate to severe disabilities or learners with less severe learning difficulties. As a result, inattentive or low achieving learners can become positively engaged and part of a triad of service (student with disabilities, student without disabilities, and supporting adult) which benefits both students. The intervention can be adapted to different subject matter and individual students by special education staff. An added application is that the model requires students with moderate to severe disabilities to become less dependent on support staff and more reliant on peers for assistance (Giangreco, Edelman, Luiselli & MacFarland, 1997; Marks, Schrader, & Levine, 1999).

It must be emphasized, however, that the success of a support system for peers with moderate to severe disabilities by students with attentional or achievement difficulties depends to a great extent on the involvement of an adult. Observations from this study confirm that, in addition to attention to peer recruitment and training, the continuous monitoring and involvement by an adult are necessary for the intervention to be successful.

Unanticipated Side Effects and Future Directions

As a final point of discussion, there were unanticipated side effects of this research, two of which may serve as a caution to future researchers and to those who wish to apply such an intervention in the classroom. The first caution concerns the unanticipated reaction of one student to being asked to work with a student with severe disabilities. Such a reaction must be anticipated in the future, and researchers must be sensitive to individual perceptions of special needs students and established social networks. Working with special needs students is a unique and special role, and future research might explore the characteristics of tutor and tutee to shed light on the dynamics of effective dyads. At the same time, teachers who wish to implement peer support programs should begin the development of support networks in advance of peer support programs. The second caution relates to the overuse of the intervention. Although maturation may have influenced the internal validity of the experiment in its final days, a similar caution must be raised regarding the overuse the intervention. There were some students who may have benefited from a continuation of the intervention, while others whose enthusiasm may have ebbed. A maturation effect would take place if students grew bored of the intervention. Alternation of peer tutors and the use of intervals are suggested to avoid a maturation effect and maintain intervention integrity.

The degree to which all peer tutors were able to adapt assignments varied with age and ability. As discussed above, grade, ability level (conceptual understanding and language ability) impacted upon the success of adaptations. Sometimes the tutor's most effective and powerful roles were as role model and facilitator. As an example, Rita responded well to Rebecca's proximity and interaction (she often imitated Rebecca's

body posture and motions) and cooperated with Rebecca's instructions. At times, however, Rita was not able to hold her attention on an activity for long periods and at other times Rebecca was not able to adapt the lesson to Rita's level. At the Grade 6 and 7 level, students who were supporting peers generally found the adaptation of assignments an interesting challenge, and were able to use modeling, praise, and other verbal techniques to facilitate the intervention. However one tutor found adaptation difficult. What proved successful in this instance was to have the adaptation designed by the researcher and have the tutor provide the modeling and praise. In doing so, both peers were participating in social interaction, a function described by Haring and Ryndak (1994) as critical in the integration of students with disabilities: "Social interaction is the basis for integration and the raw material from which friendships are built" (p. 290). Seen as such, it is suggested that students have different abilities to adapt and synthesize within the classroom setting and supervision of any peer support work must be sensitive and responsive to individual abilities.

A suggested area for further study is an analysis of individual differences and their resultant effect on the process of adaptation within the parameters of the peer support model. Differences such as learning style, cognitive ability, age and home situation may influence students' abilities to adapt curriculum and provide in-class instruction. A question within the current investigation is the place cognitive ability played in the success of the peer support process. While one student was able to "describe what Mike needed to do in concrete terms" and had "an ability to communicate goals and expectations" (Appendix G), another student was not able to adapt assignments on her own. As noted above, she required more adult assistance (verbal description,

modeling, and praise from adults) than the other tutors in her class. Rebecca, by way of her age, needed frequent assistance in her role as a peer support, either for behavioural support for her tutee or for assistance in adapting assignments. These observations underscore the need for more research in the area of peer support to define which characteristics in peer tutors relate to the most successful outcomes.

Summary

This investigation supported two general findings. Serving as a peer support had positive outcomes on the academic engagement of peer tutors who themselves were inattentive or had poor academic achievement. Serving as a peer support had positive effects on the homework completion behaviour of one student and negative effects on that of the other. Some positive changes in measurements of self-esteem were seen in two of the four students who served as peer supports. An important limitation to the results is the mediating influence of adult support during the intervention. The results of this study confirm and validate the results of previous work (Cushing & Kennedy, 1997; Mortweet et al., 1999; Staub et al., 1996). The current investigation adds information concerning specific aspects of peer tutoring that can be applied in inclusive settings. Suggestions for further study include the need to define which characteristics in peer tutors relate to the most successful outcomes.

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Appendix A: Codes to Train Classroom Observers

Classroom Observation Code

Observers were adults trained by the researcher in the use of the Classroom Observation Code. These observers practiced observing and noting the behaviour of target students (and several non-target students for comparison) for several classroom periods. Following each observation period during training, the observers discussed, clarified results, and compared scores with the researcher. Training continued until the observers and researcher agreed on 80% of their observations. Guidelines for the selection of On- and Off-Task Behaviour were as follows:

Examples of On-Task Behaviour

- listening while teacher is talking
- working quietly at desk
- putting hand up when he or she wants to say something
- asking teacher for permission to leave desk
- answering questions
- raising hand for help
- acquiring or passing out materials
- interacting with peers about academic materials
- attending: looking at the teacher when the teacher is talking, looking at materials that have to do with the lesson
- working: working on academic materials without any overt verbal components, group or individual

- volunteering: by verbal or non-verbal means, the student responds to teacher requests
- reading aloud: either individually or as part of a group

Examples of Off-Task Behaviour

1) Passive Off-Task Behaviour (passive behaviour that is inappropriate but does not disrupt others) such as

- staring into space
- daydreaming, sleeping
- showing lack of interest
- exhibiting short attention span, poor concentration, lack of perseverance
- sulking
- engaging in other than assigned work
- failing to follow teacher's instructions
- interacting with peers in a way that is inappropriate for the period
- manipulating and/or attending to objects, people, or parts of the body to the total exclusion of the task, for example, the child playing with a pencil
- engaging in extended conversation when he or she is supposed to be working
- doing a task other than the assigned one (reading a different book)
- doing something under the desk or where the observer can't see, not attending to the task
- not looking at the teacher and/or the board while the teacher is conducting a lesson at the blackboard, a task which requires the child to look at the teacher or the board.

- if the teacher or another student is lecturing, reading out loud, issuing instructions, etc, such that the child's task is to listen to the speaker, code a (-) if the child by his or her behaviour indicates he or she is not listening (head down, doodling in book, looking in book, etc.). Do not code a (-) if the child looks at the speaker at any time during the interval.

2) Disruptive Off-Task Behaviour (inappropriate, disruptive behaviour), for example

- making noises, talking out
- hitting, teasing, fighting, stealing
- throwing objects
- banging
- playing with objects
- being out of seat without permission
- physical destructiveness
- threatening others

Classroom rules to clarify before an observation period

1. Must a child raise his or her hand before asking or answering a question?
2. May a child engage in conversation with other children?

    -during teacher-conducted lessons?

    -during independent seatwork?
3. Must a child work after completion of assigned work? On what?
4. May a child leave the room without permission?
5. May a child leave his or her seat without permission to

    -sharpen a pencil?

    -get materials?

    -throw garbage away?

    -stand while working?

    -get a drink?

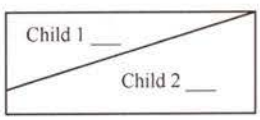
    -speak to the teacher?

Appendix B: Sample Data Recording Sheet

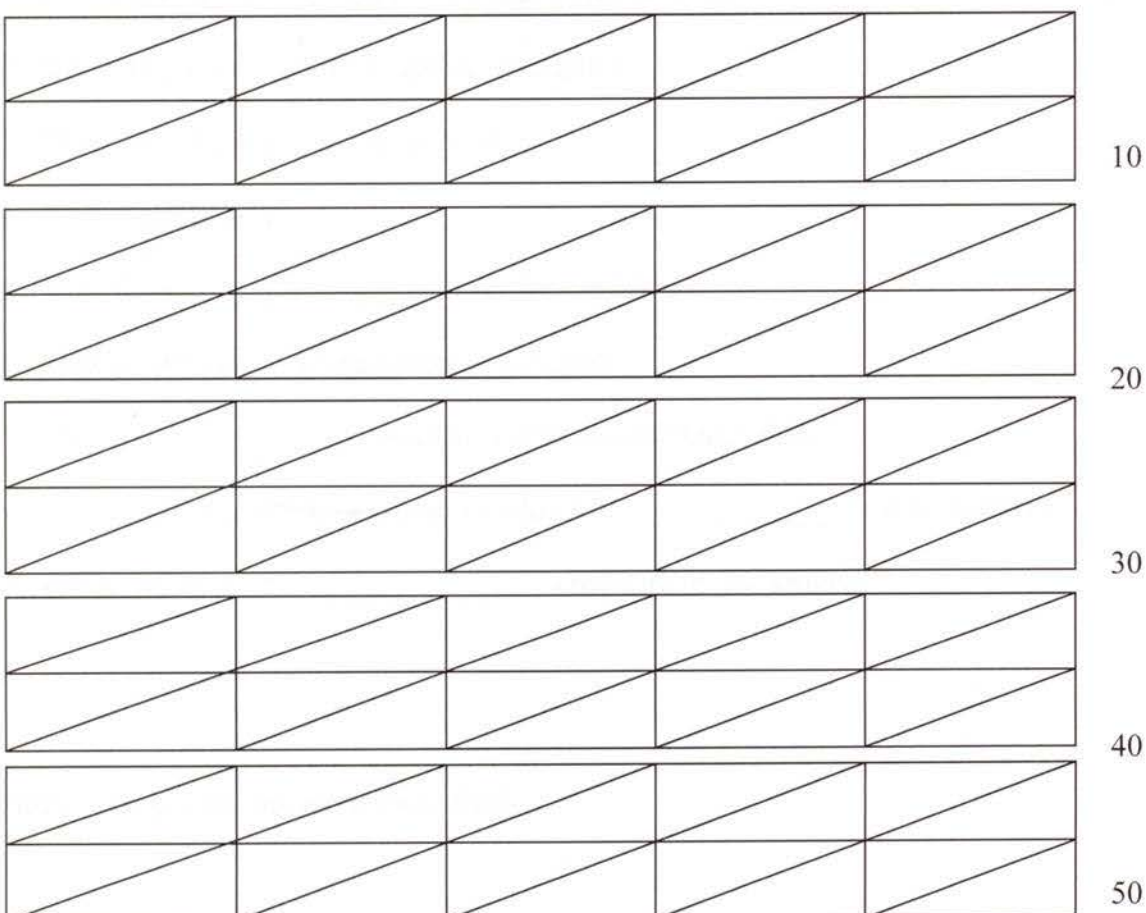
Classroom Observation Scoring Sheet

Observer _____ Date_____ Teacher _____

On Task + Off Task – Each box represents one minute



Start Time _____



End Time _____

	Child 1	Child 2
Raw Score		
Percentage		

Appendix C: Semistructured Interview Before Data Collection

This is an interview to get acquainted with _____. It is not an evaluation of you, the school, or the school program. The information will, of course, be confidential and will not bear reference to you in any way. I would like to get a picture of _____. My main question is how _____ sees him/herself. I have a number of specific questions to ask.

1. Can you give me 3 or 4 adjectives that would describe _____?
2. What do you see as his/her special strengths?
3. Who does she play and interact with?
4. Is she well liked?
5. How does _____ contribute to his/her class?
6. How would you describe his/her popularity?
7. How does _____ spend his/her recess and lunch time?
8. Generally speaking, how would you describe _____'s self-concept?
9. Could you describe _____'s network of friendships?

Probe: Can you tell me more about that?

Appendix D: Semistructured Interview After Data Collection

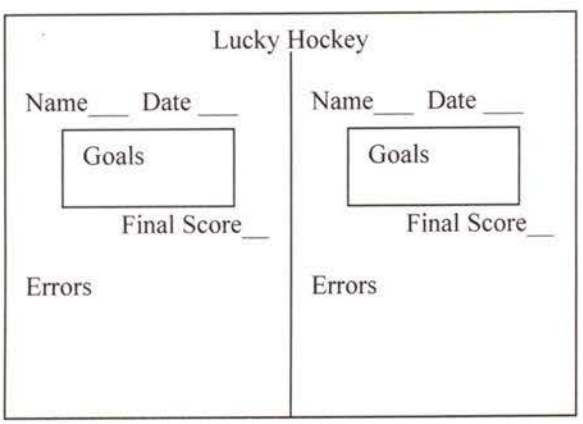
This is a follow-up interview to get a picture of _____ after he/she has been helping _____. Thank you in advance for your participation.

1. Can you list 3 or 4 adjectives to describe _____?
2. What do you see as her special strengths?
3. Who does she play and interact with?
4. Is she well liked?
5. How does _____ contribute to her class?
6. Would you say there had been any changes in _____'s popularity, friendships, or school status?
7. How does _____ usually spend her time at recess and lunch?
8. Generally speaking, how would you describe _____'s self-concept?
9. Can you give me a few adjectives to describe _____'s interactions with _____ during the Peer Support Study?
10. Do you see any special strengths that _____ showed when he/she was supporting _____?
11. Have you seen any changes in _____ over the past six weeks during this project? If so can you describe them?

Probe: Tell me more about that.

Appendix E: Guidelines for Cooperative Learning Activity

The whole class was trained in a partner learning activity reinforcing multiplication and cooperation skills. This took place over four days and consisted of two half-hour training periods and two game periods. In order to teach and practice the rules of cooperation, the students were paired for a math game called Lucky Hockey (Liedtke, 1991) in which basic multiplication facts are practiced in student pairs in a game format. Modifications for different abilities included fewer questions for students getting less that 50% on quizzes, individualized question ranges, division questions for students who knew all the basic multiplication facts, and a simple matching activity for a student who was not able to count. Students were taught the rules of the game using an overhead projector and a sample scoring sheet (see below). Students were then paired for practice. Three adult staff members circulated among students and handed out coupons for "Working hard and trying your best" and "Behaving cooperatively". Children were shown examples of these two behaviours before the game began. During the game, children kept score of their basic fact "goals" and "errors", while adults quietly rewarded appropriate cooperative behaviour. After the game, coupons were placed in a jar for a draw. Several names were drawn and small prizes were handed out.



Appendix F: Friendship Unit

Peer training began with a unit on friendship. This took place during two class periods. During these lessons, the whole class listed the characteristics of a friend, recognized the value of a friend, and participated in the activity of making "Friendship Pie" (Adams, 1994) recipe booklets. Students also discussed the unique learning needs of the two special needs students in their class. The value of helping others was seen as a positive quality.

Lesson Plan Ask each child to think about a very good friend. Ask, "What is a true friend like?" Share the children's thoughts on chart paper. Continue asking for oral responses to the following questions: How do friends share? How does sharing help friendship? How do friends help each other?

Once the list is fairly long, show the children how to make up a recipe for "Friendship Pie" (Adams, 1994). Each child decides on the five qualities that are most important to him or her, and uses these to make a recipe. Sentence frames are available on the chalkboard. Each child puts the pie recipe into an individual pie-shaped booklet made of construction paper and decorates the cover.

Appendix G: Interview Data

Rebecca All names used in this study are pseudonyms. Responses in regular script were made by Rebecca's classroom teacher. Responses in italic script were made by the First Nations Student Support Worker.	
Before	After
Adjectives: Non-compliant. Sad. Sometimes defiant.	Adjectives: Inconsistent, hot and cold, happy and sad, reserved, up & down, manipulative with peers, shy. Leads Shawnee astray. *Emotional, stubborn, helpful.*
Strengths: Reading.	Strengths that Rebecca showed when she was supporting Rita: Very focused, kind. In general, more on task and focused. I really feel she hasn't balked at working with Rita. Not completely independent, but.... *Feels proud about accomplished assignments. Cares about friends or people when they've been hurt. Likes to be the one to initiate ie "we are going to play". Has friends in grade 3, 2 & 5 all First Nations. Is liked by these individuals. Has conflict with other First Nations girls She does not seem to associate with non Native students very well, without encouragement. Positive, responsible, willing to help Rita start her jobs ie play card game. Academic work however is not completed by Rebecca (math). Task of getting Rita situated becomes a distraction.*
Friends: She is defensive. She pairs with Shawnee, whose parents have asked that this not be encouraged because Rebecca is a bad influence on Shawnee. She doesn't relate well to others. No network of friendships.	Friends: Plays alone, doesn't interact. Comes on bus on her own. Wanders. At recess and lunch she is alone, doesn't interact, wanders. Comes on the bus on her own.
Liked: She is not unliked. She is a non-entity. Kids work well with her. She is hard to read.	Liked: *Yes. By these individuals. She has had conflict with other First Nations girls. She does not seem to associate with non-native students very well, without encouragement.*
Self-concept: Poor	Self-concept: Low. Very happy when Victoria would let her use her markers. *She sets herself apart from her classmates and finds reassurance from her teachers. She finds ways to avoid starting her tasks ie pencil sharpener, doesn't listen to instructions.*

Contributions to class: Rebecca is on the edge of the circle. She doesn't contribute. She is a reluctant participant. She rarely volunteers a role.	Contributions to class: There are not many other connections in class. She had a bad time early in the year. Better now. *She does not voluntarily contribute or participate without a lot of encouragement. Is willing to do jobs for her teacher without being asked, ie passing out paper, tidy up jobs.*
Other: Low in math, works with Rose (First Nations Support Worker) on math skills three times a week.	Strengths while supporting Rita: Getting her work done a lot more. Attitude in general a little more positive. Very focused, kind. In general, more on task and focused, I really feel she hasn't balked at working with Rita. Not completely independent but.... *cooperative, vocal, assertive, confident. Positive, responsible, willing to help Rita start her jobs ie playing card games. Academic work however is not completed by Rebecca ie math. Task of getting Rita situated becomes a distraction – priority.*
	Changes in the last six weeks: Getting her work done a lot more. Attitude in general a little more positive. Could be her new home situation (removed from mom's home, placed in dad's).

Mark All names used in this study are pseudonyms. All comments were made by Mark's classroom teacher.	
Before	After
Adjectives: Friendly one-on-one, active, seeking acceptance.	Adjectives to describe Mark's interactions with Mike: Patient, could describe what Mike needed to do in concrete terms.
Strengths: Athletic doesn't hesitate to contribute.	Strengths: An ability to communicate goals and expectations.
Friends: Friends with Jay in another classroom.	Friends: Hard to say if there were changes in friendship patterns as Mark came to the school at the beginning of the intervention. At breaks, often spends time outside, walking in groups.
Liked: Popular, not as much in academic settings, in free time, desire to be friendly. At breaks, often plays tag, chase in the field in a group.	
Self Concept: Comes on as confident, but trying to be boastful (and thus not really confident).	Self Concept: Unsure of himself, insecure, has developed ways (not positive) to get attention.
Contributions to class: Contributes orally, negatively, disruptions, calling out.	Contributions to class: Likes to share knowledge of what he knows, his opinions. He does not buy into cooperation.
	Strengths while supporting peer: An ability to communicate goals and expectations.
	Changes in the past six weeks: No changes in Mark in past six weeks.

Anita All names used in this study are pseudonyms. All comments were made by Anita's classroom teacher.	
Before	After
Adjectives: Unfocused, artistic, random, good ideas – good contributions in class.	Adjectives: Sometimes hesitant. Sometimes she is not sure of what to do next. She does not have a lot of verbal communication.
Strengths: Very artistic.	Strengths: Gentle, patient.
Friends: Has a good group of friends. Is seen as desirable to be with. Kids seek her out. Spends recess and lunch hour with friends. Will stay in for art.	
Liked: Same as above.	Liked: Spends time at recess and lunch outside, talking in groups.
Self Concept: Good, although nervous.	Self Concept: She feels good about herself. She lacks confidence academically, but has confidence socially.
Contributions to class: Contributes on oral discussions. Sometimes nervously. Can be silly. Always volunteers to read.	Contributions: She loves to read out loud, she is artistic, she is an active participant, having many ideas for discussion
	Strengths while supporting peer: This is hard. Her behaviour deteriorated, due to other factors. For example, her home situation, mother is sick, and the coming transition to high school.
	Changes in last six weeks: Anita is always popular, always entertaining.

Amy All names used in this study are pseudonyms. All comments were made by Amy's classroom teacher.	
Before	After
Adjectives: Bubbly, smiley, sensitive and caring.	Adjectives to describe Amy's interactions with Adelle: Hesitant, lacking in direction, kind, friendly.
Strengths: Her singing is a talent, and her caring.	Strengths that Amy showed when supporting Adelle: Kind and friendly, talkative.
Friends: Amy has a close group of friends in class. She sticks to them.	Friends: No changes in the last six weeks, always has close friends.
Liked: Well regarded by others. At recess and lunch hour she walks outside with friends, and will also stay inside to sing and practice for an airband.	Liked: Spends time at recess and lunch outside talking, or rehearsing airbands.
Self Concept: Low, but not as low as it was. Size and body image are an issue. Terry (First Nations Support Worker) has worked on healthy living habits, food choices, exercise and obtaining government lunches.	Self Concept: It has improved over the year, less negative self-talk, starting to feel good about herself.
Contributions to class: Amy is not an active participant. She rarely has her hand up. During math (now in class, before was in LA room), she puts her hand up if she is very sure of the answer.	Contributions: She contributes laughter and her smile.
	Strengths while supporting peer: Kind and friendly, talkative.
	Changes in last six weeks: She's happy, less chronic absence, better organization.

VITA

Surname: Bensted Given Names: Elizabeth Amy

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University of Victoria	1997-2000

Degrees Awarded:

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Author 

Elizabeth A. Bensted

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