THE USE OF CONSEQUENCE CHOICE TO ADDRESS ACADEMIC ENGAGEMENT AND PERFORMANCE OF STUDENTS WITH EMOTIONAL AND BEHAVIORAL DISABILITIES IN INCLUSIVE SETTINGS

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The difficulties students identified with emotional and behavior disabilities present sometimes strain an inclusive setting. General education teachers often find themselves ill equipped to provide effective support for both students with and without disabilities. An effective intervention that may hold promise for included students with academic and behavior problems involves the use of choice; more specifically consequence choice which provides students with the ability to select their own reinforcement. The current study examined the effects of choice of reinforcement via a single-subject multielement design with baseline for four students with emotional disturbance or behavior disabilities educated in an inclusion setting. With an increase in task difficulty, the behavior of two students indicated a functional relation between engagement and choice and two additional students demonstrated a functional relation between the presence and absence of reinforcement. Students did not distinguish academic behavior across the course of the study. The difficulty level of the instructional material, as well as the perceived preference of the reinforcers may play a role in study outcomes. Future directions follow study limitations and implications for inclusion practitioners.

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PREFACE

Without the guidance of my committee members, the support of my friends, and the love of my family this dissertation—the capstone to my academic career—would not be possible.

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1.0 INTRODUCTION

In 1975 PL 94-142 (The Education for All Handicapped Children Act) called for the movement of students with disabilities to students' least restrictive environment (LRE) laying the groundwork for inclusion. Since 1975 the inclusion of students with disabilities has increased considerably. As of 2008, 95% of students with disabilities participated in inclusion for at least some part of the school day (National Center for Educational Statistics, 2011). While increasing for most, not all students with disabilities participate in inclusion equally.

According to the National Center for Educational Statistics (2011), less than half of students with Emotional Disturbance (ED) spend 75% or more of their school day in inclusive settings as compared to 60% of students with Specific Learning Disabilities or Other Health Impairments. Wagner et al. (2006) found that only 70% of students with ED receive education within their neighborhood schools, 13% less then students within other disability categories. Data from 2010 indicates that approximately 18% of students with ED obtained their education, full-time, in segregated settings, in comparison to 5% of all students with disabilities (National Center for Education Statistics).

The disproportionate placement of students with ED in secluded environments seems troubling although outcomes fail to conclusively support inclusion as an alternative. Some researchers have found that students with disabilities in inclusive settings experienced increased academic and social opportunities (Lipsky & Gartner, 1997), increased social skills (Tapasak &

Walther-Thomas, 1999), and increased academic achievement (Waldron & McLesky, 1998). However, others found that students with disabilities educated in inclusive settings did not receive the required accommodations, adaptations, and supports (Kauffman & Hallahan, 1995; McIntosh, Vaughn, Schumm, Haager, & Lee, 1993); and others received the appropriate supports, but still received a high percentage of low grades (Zigmond, Levin & Laurie, 1985). Mixed outcomes aside, many equate LRE with inclusion as most students with disabilities receive the bulk of their education in inclusive environments (National Center for Education Statistics, 2011).

Even with inclusion as a goal for most students with disabilities, students with ED present multiple and diverse challenges which make providing effective educational opportunities difficult (Smith, Katsiyannis, & Ryan, 2011). Researchers describe ED as a complex disorder (Reddy & Richardson, 2006; Reid, Gonzalez, Nordness, Trout, & Epstein, 2004) due to the significant deficits in academic achievement, as well as social and emotional needs (Reid et al.). Current placement and outcome data do not present a promising picture for students with emotional and behavioral disabilities (Siperstein, Wiley, & Forness, 2011; Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005). However, researchers have identified a number of interventions that have promising effects across both academic and social behavior domains.

Successful academic interventions delivered by teachers for students with ED include mnemonic instruction (e.g., Cade & Gunter, 2002), story mapping (e.g., Babyak, Koorland, & Mathes, 2000), or sequential prompting (e.g., Schloss, Harriman, & Pfefier, 1985) with peers delivering instruction in cooperative learning (e.g., Salend & Sonnenschein, 1989), same-age peer tutoring (e.g., Falk & Wehby, 2001), or cross-age tutoring (e.g., Cochran, Feng, Cartledge, & Hamilton, 1993) situations. Researchers have also had success using self-mediated

interventions, such as self-monitoring (e.g., Carr & Punzo, 1993) and self-evaluation (e.g., Glomb & West, 1990) teaching individual students with ED to monitor their own instruction. Social behavior interventions have successfully decreased inappropriate social behaviors, while replacing negative behaviors with positive behaviors through the use of antecedent (e.g. increased opportunities to respond; Blood, 2010, behavioral momentum; Munk & Repp, 1994), type two punishment (e.g. time out; Salend & Gordon, 1987, response cost; Proctor & Morgan, 1991) or skill interventions (e.g. social problem-solving interventions; Coleman, Wheeler, & Webber, 1993, cognitive behavior interventions; Cobb, Sample, Alwell, & Johns, 2006). While successful, the majority of interventions have occurred in segregated settings (Scott, 2002; Sutherland & Singh, 2004). Thus, failing to properly inform a significant increase of inclusive opportunities; a move warranted by the unique academic and social/emotional deficits that define students with ED (Scott; Sutherland & Singh).

When investigating research-based interventions for students with ED to use in inclusive settings, ease of implementation plays a major role in teachers' willingness to implement said interventions (Scott, 2002). Scott suggests that general education teachers often worry about their effectiveness in educating students with ED in inclusive settings for a number of reasons; including training and the amount of time needed to implement interventions. Interventions that teachers can easily implement and target multiple domains (i.e., social and academic) should receive initial attention. The use of choice-making as an intervention meets both criteria and maintains a strong research base (Jolivette, Wehby, Canale, & Massey, 2001; Powell & Nelson, 1997).

As both an antecedent and consequence intervention, choice-making involves the active selection among two or more options (Guess, Benson, & Siegel-Causey, 1985). More

specifically, academic choice interventions provide students with opportunities to self select between various stimuli as either an antecedent or consequence, that directly or indirectly link to an academic activity (Von Mizener & Williams, 2009). Researchers have provided academic choice to students through opportunities to choose academic goals, assignments, instructional support, and earned rewards. Researchers have reported various student outcomes which include: (a) more academic assignments completed, (b) higher quality of academic work, (c) improved on-task behavior, and (d) reduced problem behavior (Von Mizener & Williams).

Researchers first investigated the use of choice-making for people with intellectual and developmental disabilities. In a 1996 review of research, Lancioni, O'Reilly, and Emerson found that initial choice research spread across three categories. One category, the effectiveness of choice as an intervention for performance and behavior, includes research that demonstrates the effectiveness of choice on decreasing inappropriate behaviors and increasing task engagement. Based on the positive outcomes, Dunlap, Kern-Dunlap, Clarke, and Robbins (1991) suggested that students with ED might benefit from choice-making. Research findings spanning the last 21 years indicate that choice making interventions do have a positive effect on the academic and social behavior of students with ED (Dunlap et al.; Skerbetz & Kostewicz, 2013).

To effectively facilitate a move for students with ED into more inclusive settings, researchers must examine effective yet plausible research-based interventions for inclusive settings. Choice interventions present inherent characteristics that make them favorable for students with ED in inclusive settings (Skerbetz & Kostewicz, 2013). However, only three studies (Powell & Nelson, 1997; Skerbetz & Kostewicz; Umbreit & Blair, 1996) investigated the use of choice, more specifically antecedent choice, for students with ED in inclusive settings. The use of consequence choice, examined only in segregated settings for students with

intellectual and developmental disabilities (Peterson, Caniglia, & Royster, 2001) and students with ED (Cosden, Gannon, & Haring, 1995), has shown positive outcomes leading one to question if the procedure would have similar effects with students with ED in inclusive settings. An educator in an inclusive setting who can effectively manipulate consequences through choice can provide students with ED the perception of control over acquired reinforcement. Consequence choice, or having students with ED choose what they work for, may improve both academic engagement and performance for students who otherwise struggle with both; the combination of efficiency and effectiveness.

2.0 LITERATURE REVIEW

Many educators strongly believe that all students, regardless of disability and to the maximum extent possible, should receive their education in a general education environment (Council for Exceptional Children, 2012). Similarly, the Individuals with Disabilities Education Act (IDEA; 2004) requires that children with disabilities receive their education in the least restrictive environment (LRE). While both may sound similar, neither educators nor IDEA specifically equate inclusion and LRE. In practice, however many consider LRE as education that occurs in the general education classroom. Inclusion, as a practice, has mixed research supporting the effectiveness for servicing students with disabilities.

2.1 POSITIVE OUTCOMES OF INCLUSION

An examination of inclusive placements has shown that both students with disabilities and their non-disabled peers benefit from an inclusive education. Tapasak and Walther-Thomas (1999) found that students with disabilities initially moving into inclusive settings not only coped with the social and academic demands of the general education classroom, but developed increased social skills. Due to important social lessons, Villa and Thousand (1995) suggest that society as a whole may benefit from students with disabilities participating in inclusive practices. In addition,

researchers have commented on the overall valuable academic and social learning opportunities experienced by students in inclusive settings (Lipsky & Gartner, 1997).

The positive or negative outcomes experienced by students who receive their education in inclusive settings depend heavily on the investment made by inclusive educators. Surveyed teachers presented a generally positive attitude about inclusion with over half expressing a willingness to participate in an inclusion model (Scruggs & Mastropieri, 1996). McIntosh et al. (1993) also note that general education teachers within fully included settings treated students with disabilities as other non-disabled peers. Not only vested and willing to instruct students with disabilities, inclusive educators benefit professionally from collaborative opportunities (Walther-Thomas, Bryant, & Land, 1996).

2.2 NEGATIVE OUTCOMES OF INCLUSION

In contrast, the nature of inclusion poses concerns. Included students with disabilities may receive less support and an inappropriate education (Kauffman & Hallahan, 1995); factors that potentially contribute to why students with disabilities in general education classes often receive a disproportionate percentage of lower grades (Tapasak & Walther-Thomas, 1999; Zigmond et al., 1985). Teachers also report struggling with the mere notion of inclusion and maintain negative perceptions of students with disabilities in the general education classroom (Zigmond et al., 1985). Others (Roberts & Mather, 1995; Scruggs & Mastropieri, 1996) note that teachers generally felt positive about the concept of inclusion, but less optimistic about successfully implementing inclusion. Several studies have found that general education teachers do not have the preparation and/or willingness to make the adaptations and accommodations necessary for

students with disabilities to succeed (Baker & Zigmond, 1995; McIntosh et al., 1993; Schumm & Vaughn, 1995; Ysseldyke, Thurlow, Wotruba, & Nania, 1990).

2.3 INCLUSTION OF STUDENTS WITH EMOTIONAL DISTURBANCES

While research has produced mixed data supporting inclusion and because of the top down belief that inclusion equates to LRE, most students with disabilities currently participate at least partially in inclusion. However, educators do not advocate inclusion as a least restrictive environment for all disability categories equally (Wagner et al., 2006). Students with ED more than any other disability category receive their education segregated from the general education population (Maggin, Wehby, Partin, Robertson, & Oliver, 2011). Students with ED receive instruction in a variety of segregated settings, including alternative schools and a growing array of other alternative options (e.g., detention centers, hospital programs, survival camps; Simpson, 1999).

2.3.1 Current outcomes of students with emotional disturbances

Even in segregated settings, the magnitude and intensity of both academic and behavioral deficits makes it difficult to educate students with ED (Maggin et al., 2011). Research examining the academic and social functioning consistently shows that students with ED demonstrate little to no improvement over time (Siperstein et al., 2011). Specifically investigating segregated settings, Lane, Wehby, Little, and Cooley (2005) found that students with ED over the course of an academic year demonstrated limited progress in some academic areas and regressed in others.

Often students with ED have limited access to highly qualified teachers (Henderson, Klein, Gonzalez, & Bradley, 2005) and maintain high rates of suspension and expulsion (Bradley, Doolittle, & Bartolotta, 2008).

Not only do students with ED struggle while in school, they also face bleak outcomes after exiting the educational system (Smith et al., 2011). Wagner, Kutash, Duchnowski, Epstein, and Sumi (2005) found that students with ED have low rates of post school employment; an outcome compounded by an estimated 55% of students with ED dropping out of school (Bradley et al., 2008). In addition, students with ED represent the highest number of students with disabilities incarcerated (Gagnon & Richards, 2008) and make up over half of all incarcerated juvenile inmates (Gagnon, Barber, Van Loan, & Leone, 2009).

2.3.2 Placement and educational needs of students with emotional disturbances

Researchers (Maggin et al., 2011) note the combination of high levels of academic and behavioral needs often signal a move to segregated settings. Lane et al. (2005) suggest the rationale for more restrictive placements for students with ED allows for the implementation of intensive social and academic supports not available in the general education classroom. Effective self-contained classrooms have both individualized structural and curricular modifications (Maggin et al., 2011). However, when educated in segregated settings, students with ED have less positive social interactions and role models (Wagner et al., 2006). Educational programs should provide opportunities for students to experience meaningful and appropriate contact with typically developing and achieving peers; something missing in segregated settings (Simpson, 1999). Segregated special education settings offer minimal supports for social

integration and development, which students with ED need as a component of their educational program (Madden & Slavin, 1983).

In addition to appropriate peer interactions students with ED require appropriate interactions with teachers. Students with ED and teachers within emotional support settings can experience the classroom as an aversive environment (Gunter & Coutinho, 1997; Wehby, Symons, Canale, & Go, 1998). Teacher praise, a best practice for students with and without disabilities, may exist only minimally in special education classrooms (Wehby et al., 1998). Gunter and Coutinho (1997) describe the interactions of teachers and students with ED within segregated settings as negatively reinforcing. For example, a student may call out in class to avoid academic instruction. The teacher stops the academic instruction to address the student calling out and the student escapes/avoids the academic instruction, therefore reinforcing the calling out behavior (Sutherland & Morgan, 2003). The negative interactions in turn reinforce the inappropriate behaviors of the student by allowing the student to escape or avoid perceived aversive stimuli, thus the cycle continues (Sutherland & Singh, 2004). Teachers in segregated emotional support settings present as reactive rather than proactive, which leads students in these classrooms to behave more reactively (Nelson, Rutherford, Center, & Walker, 1991). Segregated emotional support settings do not always provide the structure and classroom management necessary for students with ED to have academic and behavioral success (Kostewicz, Ruhl, & Kubina, 2008).

In addition to lacking the social and emotional components necessary, segregated settings present less positive learning opportunities (Steinberg & Knitzer, 1992). Often educational programs in emotional support settings focus more on behavioral and social skills interventions, rather than academic interventions (Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008).

Teachers frequently ignore or have not received training in best practices and research based methods, as well as the general education curriculum (Walker et al., 1998). For example, teachers in classrooms that serve students with ED often do not provide opportunities to respond to academic requests; a best practice for all students (Sutherland & Singh, 2004). Meadows, Neel, Scott, and Parker (1994) found that students with ED educated in inclusive settings outperformed their segregated peers. Specifically the students with ED in inclusive settings had higher reading and writing scores, better work habits, and higher grade point averages (Meadows et al., 1994).

2.3.3 Difficulty of including students with emotional disturbances

Minimal academic achievement paired with significant aggressive and disruptive behavior make it difficult to provide effective instruction to students with ED (Sutherland et al., 2008). Often, students with ED struggle to learn in general education classrooms due to their own interfering inappropriate and disruptive behaviors (Sutherland & Singh, 2004). Students with ED spend less time attending and complying with group directions (Walker, Colvin, & Ramsey, 1995) and present high rates of aggressive and disruptive behaviors (Walker et al., 1995) making it difficult for untrained professionals to meet their needs. Research has shown that educating students with ED in segregated settings and curriculums can fall short on meeting all of their needs (e.g., Gunter & Coutinho, 1997; Kostewicz et al., 2008); however, providing appropriate supports in inclusive settings can prove difficult (Sutherland et al., 2008).

Educators' perceptions and lack of skills complicate the arduous endeavor of educating students with ED in inclusive settings and curriculums. General education teachers view students with ED as the least desirable students to have in their classrooms (Guetzloe, 1999; Lago-

Delello, 1998; Safran & Safran, 1985; Soodak, Podell, & Lehman, 1998). Specifically, teachers' negative perceptions occur most often with students who exhibit physical aggression (Parkhurst & Asher, 1992). General education teachers have minimal preparation and a limited skill set to intervene and support students with ED in general education classrooms alone (Cook, 2002). Kauffman, Bantz, and McCullough (2002) suggest that general education teachers cannot deliver, monitor, and adapt instruction for students with ED within the general education classroom. Programs and settings need to address both social and academic growth in a positive, research-based manner, in order for students with ED to experience success.

2.4 INTERVENTIONS

Researchers have investigated a number of interventions effective for remediating academic and behavioral needs presented by students with ED. While a plethora of research exists investigating interventions for students with ED, the majority of the research has taken place in segregated settings. Reviews of research regarding interventions for students with ED have identified evidence in support of a number of interventions in remediating the behavioral and academic deficits (Dunlap & Childs, 1996; Shinn, Walker, & Stoner, 2002). An initial review of previous research mostly occurring in segregated settings provides strong groundwork for a move into supporting inclusive environments.

2.4.1 Academic behavior interventions

Ryan, Reid, and Epstein (2004) suggest that three categories of academic interventions for students with ED exist; (a) child or self-mediated, (b) peer-mediated, or (c) teacher-mediated. While self-mediated interventions have proven effective with students with ED, the ultimate responsibility for implementation of the interventions lies with the students (Ryan et al., 2004). Peers rather than teachers deliver instruction during peer-mediated interventions (Ryan et al., 2004). Teacher-mediated interventions involve the teacher manipulating either the antecedents or consequences directly with the students (Pierce, Reid, & Epstein, 2004).

Self-mediated. Mooney, Ryan, Uhing, Reid, and Epstein (2005) found positive outcomes for a number of different types of self-mediated interventions for students with ED. Self-monitoring (e.g. Carr & Punzo, 1993; Levendoski & Cartledge, 2000), self-evaluation (e.g., Glomb & West, 1990; Sweeney, Salva, Cooper, & Talbert-Johnson, 1993), self-instruction (e.g., Fish & Mendola, 1986; Prater, Hogan, & Miller, 1992), and strategy instruction (e.g., Hughes, Deshler, Ruhl, & Schumaker, 1993; Skinner, Belfiore, & Pierce, 1992) all showed large effect sizes. Specifically, self-monitoring interventions have shown the most success with students with ED (Mooney et al., 2005). Self-monitoring consists of a two-step process where students must identify the target behavior and then record their own behavior in order to actively monitor their behavior during the learning process (Lloyd, Bateman, Landrum, & Hallahan, 1989). Students with ED who use self-monitoring have demonstrated an increase in academic productivity and achievement (e.g., Carr & Punzo, 1993; Levendoski & Cartledge, 2000).

Peer-mediated. Ryan et al. (2004) reported positive results for the use of peer-mediated interventions (e.g., Hawkins, 1988; Penno, Frank, & Wacker, 2000) to increase the academic achievement of students with ED. Interestingly; researchers found that regardless of their role,

students benefit from being either the tutor or tutee (Osguthorpe & Scruggs, 1986; Ryan, Pierce, & Mooney, 2008). Multiple studies (e.g., Gardner & Frazier-Trotman, 2001; Sutherland & Snyder, 2007) have found peer tutoring, where students provide each other with instruction in pairs, increased the academic achievement of students with ED. In addition to academic growth, Sutherland and Snyder found that peer-tutoring decreased behavioral disruptions and increased time actively responding for students with ED in a self-contained classroom.

Teacher-mediated. After examining teacher-mediated interventions for students with ED, Pierce et al. (2004) noted the majority displayed positive outcomes. For example, text and story maps when used in segregated settings increased the reading comprehension skills of students with ED (Babyak et al., 2000; Stone, Boon, Fore, Bender, & Spencer, 2008). Another successful teacher-mediated intervention, mnemonic instruction and strategies, increased the science achievement (Mastropieri, Emerick, & Scruggs, 1988) and math achievement (Cade & Gunter, 2002) of students with ED in segregated settings. While multiple teacher-mediated interventions have shown success addressing reading and math deficits with students with ED, no clear specific intervention has emerged (Pierce et al., 2004).

2.4.2 Social behavior interventions

Students with ED present deficits in academic achievement as great as 3.5 grade levels below their peers (Coutinho, 1986), however addressing emotional and behavioral needs often rate as the priority for educators (Oliver & Reschly, 2010). Behavior interventions can occur at one of three levels (antecedent, skill, consequence) or in combination. Antecedent interventions refer to interventions that target situations that occur prior to problem behavior (Landrum, Tankersley, & Kauffman, 2003). Skill interventions involve teaching a specific skill or addressing a skill deficit

(Maag, 2006). Consequence interventions manipulate stimuli that occur after the behavior by adding a new stimulus or avoiding or removing a present stimulus (Landrum et al., 2003).

Antecedent interventions. Antecedent interventions occur prior to behavior in time reducing the likelihood that problem behavior will occur (Kern & State, 2009). Sutherland and Wehby (2001) found that increased rates of opportunities to respond, an antecedent intervention, improved the task engagement and inappropriate behaviors of students with ED. Providing many opportunities to respond increase response rates (Blood, 2010; Heward et al., 1996), improves on-task behaviors (George, 2010), and increase task engagement (Gardner & Frazier-Trotman, 2001). Munk and Repp (1994) summarized the literature on behavioral momentum noting increased compliance. Singer, Singer, and Horner (1987) describe behavioral momentum as an antecedent intervention where the teacher provides students with a set of high-probability directives (instructions that the student will most likely comply with) before delivering a low-probability directive (instruction that the student will most likely not comply with). Additional antecedent interventions include surface counseling (Maag, 2001), precision requests (Montgomery & Ayllon, 1993; Neville & Jenson, 1984), and cognitive behavior interventions (Cobb et al., 2006).

Social skills interventions. Kauffman (2005) notes students with ED struggle with social skills and social competence. While other interventions often interfere with socially unacceptable behaviors, social skills training focuses on acquiring missing skill sets (Maag, 2006). The use of social skills training for students with ED has received mixed reviews. Initially, students experience success in instruction/intervention settings but increases do not maintain in generalization settings (Forness, Kavale, Blum, & Lloyd, 1997; Gresham, 1998) Teaching social skills involves various techniques that incorporate both behavioral and cognitive strategies

(Maag, 2006). Maag and Swearer (2005) found positive outcomes for the use of cognitive-behavioral interventions, a type of social skills training for students with ED. Research investigating social-problem solving, another social skills intervention, demonstrates effectiveness with increasing positive social behaviors with students with ED (Coleman et al., 1993).

Consequence interventions. Consequence interventions may have the effect to either increase or decrease the likelihood of the target behavior occurring again in the future (Landrum et al., 2003). Consequence interventions can either act as; (a) reinforcement, which increases future rates of the behavior or (b) punishment, which decreases future rates of the behavior (Landrum et al., 2003). Reinforcement-based interventions manipulate consequences with the focus of building appropriate behaviors (Landrum et al., 2003). For example, Swain and McLaughlin (1998) implemented a token economy with subsequent increases in both behavioral and academic outcomes for students with ED. Simply increasing praise as a consequence also improved the behavior of students with ED (Sutherland, Wehby, & Copeland, 2000).

The consequence intervention, time-out or denying access to reinforcement for a certain period of time, can function as positive punishment (Landrum et al., 2003). Salend & Gordon (1987) used time-out procedures with students in a self-contained room and recorded a reduction in inappropriate behaviors. Additionally, Proctor and Morgan (1991) used response cost, a potentially negative punishment procedure involving the removal of a privilege or reinforcer in response to an inappropriate behavior (Landrum et al., 2003), to reduce inappropriate behaviors of students with ED.

Academic deficits, significant disruptive behaviors and inappropriate social skills combined with the lack of teacher skills and poor teacher perceptions make inclusion for students

with ED difficult. However, researchers (Lewis & Sugai, 1999; Nelson, 1996, Scott & Nelson, 1999) suggest that the majority of students with ED can receive effective education in general education settings in the presence of individualized interventions. Scott (2002) suggests that numerous reasons exist that cause general education teachers to often worry about their effectiveness in educating students with ED in inclusive settings. General education teachers cite a need for training in implementing effective interventions for students with ED, as well as time to implement effective interventions within inclusive settings (Scott, 2002). Therefore, research is needed that focuses first on interventions that require little to no training, as well as little to no time to implement. Choice-making as an intervention addresses both academic and behavioral needs (Jolivette et al., 2001; Powell & Nelson, 1997), as well as implementation concerns (Skerbetz & Kostewicz, 2013).

2.5 CHOICE-MAKING AS AN INTERVENTION

Choice interventions provide students with opportunities to self-select between various stimuli either in an antecedent or consequence position, that directly or indirectly link to an academic activity (Von Mizener & Williams, 2009) or between various behaviors to complete tasks (Harding, Wacker, Cooper, Millard, & Jensen-Kovolan, 1994). Therefore, choice-making interventions can occur at all three parts of the behavior cycle (ABC) or in combination (Guess et al., 1985). As designed, choice-making affects student behavior by providing a different degree of reinforcement than present without choice (Romaniuk & Miltenberger, 2001). In other words, prompting students to make a choice differentially influences student behavior by allowing the student to access different amounts of reinforcement (Morgan, 2006). Choice research has

included providing students with opportunities to choose assignments (e.g. Bambara, Ager, & Koger, 1994; Cole, Davenport, Bambara, & Ager, 1997), materials (e.g., Dibley & Lim, 1999; Harding et al., 1994), and earned rewards (e.g., Dyer, Dunlap, & Winterling, 1990; Smith, Iwata, & Shore, 1995). Various positive effects have been reported by researchers investigating the use of choice: (a) greater quantity of completed academic assignments (e.g., Moes, 1998), (b) higher quality of academic work (e.g., Carson & Eckert, 2003), (c) improved on-task behavior (e.g., Kern, Bambara, & Fogt, 2002) and (d) reduced problem behaviors (e.g., Powell & Nelson, 1997).

2.5.1 Choice-making as an intervention for adults and children with intellectual and developmental disabilities

Initially, researchers used choice-making interventions for adults with intellectual and developmental disabilities falling into three main categories: (a) the ability of people with intellectual and developmental disabilities to choose between different options and express preferences, (b) embedding choice into the daily lives of people with intellectual and developmental disabilities, and (c) evaluating the effectiveness of choice as an intervention for performance and behavior (Lancioni et al., 1996). The literature search noted seventeen studies (Bambara et al., 1994; Bambara, Koger, Katzer, & Davenport, 1995; Carr & Carlson, 1993; Cole & Levinson, 2002; Dibley & Lim, 1999; Dyer et al., 1990; Ip & Szymanski, 1994; Kern, Mantegna, Vorndran, Bailin, & Hilt, 2001; Killu, Clare, & Im, 1999; Moes, 1998; Parsons, Reid, Reynolds, & Bumgarner, 1990; Peterson et al., 2001; Realon, Favell, & Lowerre, 1990; Romaniuk et al., 2002; Seybert, Dunlap, & Ferro, 1996; Vaughn & Horner, 1997) investigating the use of choice as an intervention for problem behaviors and task engagement with adults and

students with intellectual and/or developmental disabilities. Published between 1990 and 2002, all studies took place in segregated settings.

Adults with intellectual and developmental disabilities. Six studies reported investigating the effect of choice of activities or tasks (Bambara et al., 1994; Ip & Szymanski, 1994; Parsons et al., 1990; Realon et al., 1990), or the choice of materials to complete various tasks (Bambara et al., 1995). Task engagement levels increased in several studies (Parsons et al., 1990; Realon et al., 1990) following opportunities to choose tasks to complete. Three adults with severe intellectual disabilities in an institution increased task engagement levels following choice of leisure activities (videotape, audiotape, and battery powered toy; Realon et al., 1990). Parsons et al. (1990) investigated the use of choice of work tasks versus the assignment of high preference and low preference work tasks with adults with moderate to severe intellectual disabilities in a sheltered vocational workshop. Results indicated that all participants had increases in task engagement levels when either provided a choice or when assigned a preferred work task; only an overall one percent difference was measured between choice of task and assignment of high preference task (Parsons et al., 1990).

In a two part study, Bambara et al. (1994) found results similar to the results found by Parsons and colleagues (1990). When provided either a choice of tasks or high preference tasks engagement levels of adults with severe to profound intellectual disabilities were highest; an overall one percent difference was measured between choice of task and assignment of high preference task. In the second phase of the study, the same participants were provided either a choice or no choice of tasks to complete; all of the tasks were measured as low to moderate preference tasks (Bambara et al., 1994). Results indicated a minimal difference (two percentage

points) between the mean percentages of task engagement levels for all participants during the conditions (Bambara et al., 1994).

Studies investigating choice and task engagement were unclear with their results; however three studies consistently demonstrated decreases in problem behaviors when participants were provided a choice of tasks (Bambara et al., 1995; Ip & Szymanski, 1994; Parsons et al., 1990). In addition to the task engagement results found by Parsons and colleagues, they did determine that disruptive behaviors were lowest during choice phases regardless of the preference associated with the tasks. In a group study, within group homes for adults with intellectual and developmental disabilities, the frequency, as well as the severity of problem behaviors decreased when participants chose tasks throughout their day (i.e., recreation time, meal time; Ip & Szymanski, 1994). During three daily routines (dusting, vacuuming, and dessert preparation), Bambara et al. (1995) provided an adult with a severe intellectual disability in a group home the choice of materials to complete the routines. When provided with a choice of materials to complete the daily routines protests, including severe aggression, reached levels near zero (Bambara et al., 1995).

Students with intellectual and developmental disabilities. Studies investigating the use of choice with students with intellectual and developmental disabilities included antecedent choice (choice of activities/tasks, materials, and sequence of completion; Cole & Levinson, 2002; Dibley & Lim, 1999; Kern et al., 2001; Killu et al., 1999; Moes, 1998; Romaniuk et al., 2002; Seybert et al., 1996; Vaughn & Horner, 1997), consequence choice (rewards/reinforcement; Peterson et al., 2001) and a combination of both antecedent and consequence choice (Carr & Carlson, 1993; Dyer et al., 1990).

Three studies investigated the use of antecedent choice and the effects on the task engagement of students with intellectual and developmental disabilities (Kern et al., 2001; Killu et al., 1999; Seybert et al., 1996). Killu et al. (1999) investigated not only choice, but the role that preference played in the task engagement levels of middle school students with intellectual and developmental disabilities. Results indicated increases in task engagement during conditions involving preferred spelling tasks, regardless if they were provided as a choice or assigned (Killu et al., 1999). Seybert et al. (1996) provided students with severe intellectual disabilities, in a vocational setting with a choice of randomized vocational tasks and found that all students demonstrated an increase in task engagement levels. Instead of providing students with a choice of tasks to complete, Kern et al. (2001) provided students with a choice of the order in which they completed the tasks and found that both students involved in the study increased their rates of task engagement.

The use of antecedent choice and the effect on the disruptive behaviors of students with intellectual and developmental disabilities has been investigated by six studies (Cole & Levinson, 2002; Dibley & Lim, 1999; Kern et al., 2001; Moes, 1998; Romaniuk et al., 2002; Vaughn & Horner, 1997). Like the consistent increases in task engagement demonstrated by the students in the study completed by Seybert and colleagues (1996), all of the students in the study also demonstrated decreases in inappropriate behaviors when provided randomized vocational tasks. Moes (1998) provided students with autism at a research center the choice of homework assignments to complete and found that all students had less disruptive behaviors when provided choice. Unlike the results discovered by Moes (1998) and Seybert et al. (1996), not all students in studies completed by Romaniuk et al. (2002) or Vaughn and Horner (1997) demonstrated consistent decreases in problem behaviors. In the third phase of a three phase study, Vaughn and

Horner (1997) found a decrease in the problem behaviors of two out of four students and Romaniuk et al. (2002) discovered a reduction in problem behaviors for students whose behavior functioned as a means of escape. Providing an antecedent choice by allowing two students with developmental disabilities a choice in the sequence in which they complete daily instructional routines, Cole and Levinson (2002) found that both students demonstrated a decrease in challenging behaviors. A final study investigating the use of antecedent choice demonstrated a decrease in the number of disruptive behaviors (verbal protests) by a student with a severe intellectual disability when he was provided a choice in the materials he used for daily tasks (Dibley & Lim, 1999).

In contrast to providing students with an antecedent choice, Peterson et al. (2001) found that by providing students with intellectual disabilities a choice of reinforcers (consequence choice) their problem behaviors decreased. Studies investigating the use of multi-component interventions, including both antecedent and consequence choices, resulted in decreased problem behaviors for students with intellectual and developmental disabilities (Carr & Carlson, 1993; Dyer et al., 1990). Dyer et al. (1990) included the choice of tasks, as well as the choice of rewards, in a choice making package intervention for three young adults in a residential treatment center, while Carr and Carlson (1993) provided three young adults with autism in a group home with a choice making package intervention that included both the choice of activities to complete, as well as the choice of reinforcers. Results from both studies demonstrated overall decreases in problem behaviors (Carr & Carlson, 1993; Dyer et al., 1990).

2.5.2 Choice-making as an intervention for students with emotional disturbances

The success of choice-making interventions for increasing the task engagement and decreasing the problem behaviors of students with intellectual and developmental disabilities led researchers to examine choice for students with ED (Cole et al., 1997; Dunlap et al., 1994; Dunlap et al., 1991; Jolivette et al., 2001; Kern et al., 2002). A review of research found 11 studies in 10 articles (Cole et al.; Cosden et al., 1995; Dunlap et al., 1994; Dunlap et al., 1991; Harding et al., 1994; Jolivette et al.; Kern et al.; Powell & Nelson, 1997; Skerbetz & Kostewicz, 2013; Umbreit & Blair, 1996) investigating the use of choice as an intervention for increasing the task engagement and decreasing problem behaviors with school-aged students with ED.

Students with emotional disturbances in segregated settings. Researchers from eight (Cole et al., 1997; Cosden et al., 1995; Dunlap et al., 1994; Dunlap et al., 1991; Harding et al., 1994; Jolivette et al., 2001; Kern et al., 2002) of the 11 studies conducted choice-making interventions for students with ED in segregated settings (i.e., self-contained classrooms, segregated schools, residential, or outpatient programs). Studies within three articles (Cole et al., 1997; Dunlap et al., 1994; Dunlap et al., 1991) investigated the effect choice of task, an antecedent choice intervention, had on the task engagement levels of students with ED. All but one (Cole et al., 1997) of the four studies also investigated the effect choice of task had on the problem behaviors of students with ED. Two studies completed by Dunlap and colleagues in 1994 found that all participants decreased problem behaviors and increased task engagement when provided a choice of literacy tasks to complete. Similarly, a student with ED had a decrease in disruptive behaviors to zero and an increase in task engagement when provided a choice of academic assignments to complete (Dunlap et al., 1991). Cole et al. (1997) only

investigated the effect choice of task on the task engagement levels noting limited difference in effects between choice and assignment of a preferred task.

Unlike the previous group of studies, three (Harding et al., 1994; Jolivette et al., 2001; Kern et al., 2002) examined the use of antecedent choice by providing a choice of the sequencing of tasks (Jolivette et al., 2001), the use of choice of materials to complete assigned tasks (Harding et al., 1994), and the use of a multi-component choice intervention including the choice of tasks, materials, and the sequencing of completion (Kern et al., 2002). Both Jolivette et al. (2001) and Harding et al. (1994) reported participating students increased task engagement and decreased problem behavior as a result of choice of sequencing behaviors or materials, respectively. Using multi-component choice interventions, both Kern et al. (2002) and Cosden et al. (1995) found combining different choices resulted in positive effects which included increased task engagement and decreased destructive behaviors (Kern et al., 2002) and increased and more accurate academic output (Cosden et al., 1995).

Students with emotional disturbances in inclusive settings. Three (Powell & Nelson, 1997; Skerbetz & Kostewicz, 2013; Umbreit & Blair, 1996) studies demonstrated positive results with the use of choice-making interventions for students with ED in inclusive settings. Two (Powell & Nelson, 1997; Umbreit & Blair, 1996) of the studies investigated the use of antecedent choice (choice of tasks) solely on the problem behaviors of students with ED. Powell and Nelson (1997) found that when provided a choice of language arts assignments to complete, the study participant decreased problem behaviors, as opposed to when the teacher provided the student with assignments to complete. When a multi-component intervention, including the choice of tasks to complete was implemented with a student with ED Umbreit and Blair (1996) found that the student's problem behaviors decreased to near zero.

The two (Powell & Nelson, 1997; Umbreit & Blair, 1996) previous studies included only one student per study and investigated the use of antecedent choice (choice of tasks) on the problem behaviors of those students. Unlike the previous studies, Skerbetz and Kostewicz (2013) investigated the use of antecedent choice (choice of tasks) on the task engagement, task accuracy, and time to completion of five students with ED. When provided a choice of tasks to complete the majority of the students demonstrated an increase in task engagement and task accuracy, as well as a decrease in time to completion (Skerbetz & Kostewicz, 2013).

2.5.3 Summary of choice research

The use of choice as both an academic and behavioral intervention presents a favorable intervention for general educators responsible for the instruction of students with ED. While the majority of research investigating the use of choice with students with ED has taken place in segregated settings it has shown consistent results with reducing problem behaviors and increasing task engagement; specifically when used as an antecedent intervention. Both antecedent choice and consequence choice interventions should be further researched with students with ED in inclusive settings to further investigate the effectiveness of such interventions. Studies could vary in the age of participants, subject areas, and the type of choices provided to participants. Currently, only one study exists that investigates the effects of academic or antecedent choice on task engagement and academic performance with students with ED in inclusive settings (Skerbetz & Kostewicz, 2013). Therefore, consequence choice should be further researched to determine the effectiveness of implementing such intervention with students with ED in inclusive settings.

2.6 CONCLUSIONS AND RESEARCH QUESTIONS

Over half of all students with disabilities participate in inclusion for a majority of their school day (National Center for Educational Statistics, 2011), suggesting that many educators equate least restrictive environment (LRE) to placement in the general education classroom. Unlike their peers and due in part to behavioral concerns, students with ED spend a disproportionate amount of time in segregated settings (Sutherland & Singh, 2004). With consistently poor outcomes, one may suggest that the current high levels of segregated placements for students with ED need to be further investigated and that additional inclusive opportunities should be investigated as an educational placement option (Landrum et al., 2003). As with the previous choice research with both students with ID (e.g., Kern et al., 2001; Seybert et. al., 1996) and ED (e.g., Dunlap et al., 1994; Jolivette et al., 2001), Skerbetz and Kostewicz (2013) found choice as a favorable intervention for students with ED and general education teachers in inclusive settings because of the characteristics (e.g., minimal training necessary, minimal time for implementation) of the intervention. To assist the transition however, educators must have available effective and efficient research-based interventions. Therefore, the purpose of the current study investigated the effects of consequence choice for students with ED educated in inclusive environments. The specific research questions included: What effect will consequence choice in the form of a choice of reinforcement during independent math activities have on the (1) task engagement and (2) academic performance of students with ED served in an inclusive setting?

3.0 METHODOLOGY

3.1 PARTICIPANTS AND SETTING

The experimenter recruited four, fifth grade students with ED or a DSM – IV behavioral diagnosis. Recruiting and study implementation took place at a charter school within a large urban area. The school serves approximately 300 students in kindergarten through sixth grade. The special education teacher from the school supported the experimenter in student recruitment basing nominations on students 1) struggling with low level engagement, 2) maintaining a positive behavior support plan, and 3) receiving math instruction in an inclusive setting. Four students with Emotional and Behavioral Disabilities (E/BD) participated in the study; two students (Desmond and Eli) had ED special education label as defined by IDEA and received support from an individualized education plan. The other two students (Anna and Jay) had a DSM – IV diagnosis of Attention Deficit Hyperactive Disorder (ADHD) and received support through a Section 504 plan. Table 1 contains study participant details. Procedures to gather informed consent followed IRB approval (see Appendix A).

Table 1. Participants

Student	*Age*	*Gender*	*Classification*	*Math Level*	*Behavior Data*
Anna	10	Female	ADHD	RIT Score: 189 (5^{th} Percentile)	8 ODRs (4-Dress Code Violations, 2-Defiance/Disrespect, 1-Physical Aggression, 1-Verbal Altercation)
Desmond	11	Female	ED	RIT Score: 195 (10^{th} Percentile)	7 ODRs (3- Physical Aggression, 2-Defiance/Disrespect, 1-Theft, 1-Technology Violation)
Eli	10	Male	ED	RIT Score: 192 (7^{th} Percentile)	6 ODRs (3-Physical Aggression, 2-Defiance/Disrespect, 1-Weapons Violation)
Jay	10	Male	ADHD	RIT Score: 211 (45^{th} Percentile)	1 ODR (1-Physical Aggression)

Note. RIT Score = Rasch UnIT is a measurement scale developed to simplify the interpretation of Northwest Evaluation Association test scores (available at http://www.nwea.org/), ODR = Office Discipline Referral.

The study occurred in a fifth grade, general education classroom. The classroom had a total of 23 students. Implementation occurred daily at the beginning of the class period during independent math review activities while students sat in groups of four to five. The participating students sat together to form one group allowing the experimenter to video record only the students in the study, as well as have the special education teacher provide them with different instruction from the rest of the class.

3.2 MATERIALS

The experimenter used Blackline master probes from The Monitoring Basic Skills Progress (MBSP): Basic Math Computation (Fuchs, Hamlett, & Fuchs, 1999) as the daily math assignments (see Appendices B, C, and D for examples). The MBSP: Basic Math Computation includes numerical operation problems including: addition, subtraction, multiplication, and

division of whole numbers, fractions, and decimals. All of the probes within each level contained equivalent forms.

Scores on two subtests of the KeyMath 3 Diagnostic Assessment (KeyMath 3 DA; Connolly, 2007) provided an assessment score to determine each student's skill level. The KeyMath 3 DA has three general math content areas: Basic Computation, Operations, and Applications (Connolly, 2007). For the purposes of this study, the students completed two subtests of Operations: Written Computation (addition and subtraction) and Written Computation (multiplication and division).

Additional materials included sheets of paper with pictures of the possible reinforcement items, as well as the actual reinforcement items. The reinforcement items used throughout the study consisted of tangible items (e.g., pens, bracelets; Fantuzzo, Rohrbeck, Hightower, & Work, 1991), as well as certificates for privileges (e.g., no homework passes, no uniform passes, lunch with preferred adult passes). Colored cue cards (Appendices E, F, and G) acted as place holders for the reinforcers in between the daily math computation assignment and lunch time (distribution of reinforcers). The experimenter used MOOSES software (Tapp, Wehby, & Ellis, 1995) to collect behavioral data on Hewlett Packard iPAQs. Other materials used during the study included: pencils or pens, a countdown timer, and a Sony digital video camera and tripod.

3.3 DEPENDENT VARIABLES

The measurement of four dependent variables showed the effect of the independent variable. The first and second dependent variables dealt with duration (number of seconds) and frequency (number of instances) of academic engagement. Engagement was defined as eyes on the paper.

Non-engagement was defined as the student not having eyes on the paper. Focusing on one student for each five minute video, the experimenter tallied each instance the student had “eyes on paper” and “eyes off paper” on the iPAQ. The MOOSES software then totaled the amount of time in seconds between each consecutive eyes on/eyes off. The program returned total instances of “eyes on paper” and the total duration of “eyes on paper” per day for engagement frequency and duration. The experimenter repeated the data collection process for each student per day for the entirety of the session.

The third and fourth dependent variables, digits correct and incorrect, resulted from daily math probes. Fuchs et al. (1999) defined digits correct as any written numeral from 0 to 9 appearing in the correct placement in the solution of a computation problem. Incorrect digits or digits which appear in the wrong place value, counted as incorrect (Fuchs et al., 1999). Reversed or rotated numerals counted as correct, unless the change in appearance of the numeral made them appear as another numeral (e.g., 9 and 6). Individual numeral omissions counted towards the overall incorrect digits, however fully skipped or omitted problems did not count towards incorrect digits.

3.4 INDEPENDENT VARIABLES

The independent variable used throughout the study involved consequence choice. In different conditions of the study students received no choice and no reinforcement; no choice of reinforcement; or choice of reinforcement.

3.4.1 No choice and no reinforcement

During the no choice and no reinforcement condition, students had to work on independent math computation probes, but did not receive reinforcement regardless of their task engagement. To start no choice and no reinforcement days, participating students received a math computation probe and a pink cue card with the words, “Try your best on today’s assignment. You will have five minutes to complete as many problems as you can. Your goal is to work hard. There will be no rewards available today. Good luck.” The experimenter then set a timer for five minutes. Once the special education teacher told the students to begin working, the experimenter started the timer. While observing the students work the experimenter completed a momentary time sampling procedure (see general session procedures below). Once five minutes had elapsed, the special education teacher directed the students to “Stop”, collected the completed assignments, and silently provided each student with one of two cue cards based on the results of the time sampling procedure ignoring all protests. If the student met the criterion they received a pink cue card that stated, “Good job! You worked really hard today and met your goal.” Students that did not meet criterion received a pink cue card stating, “You were not always working hard on your assignment today. Unfortunately, you did not meet your goal today. ”

3.4.2 No choice of reinforcement

During the no choice of reinforcement condition, students received a predetermined potential reinforcer from their own preference assessment (see below) for meeting an academic engagement criterion during independent math computation probes completion. To start no choice of reinforcement days, participating students received a math computation probe and a

blue cue card with the words, “Try your best on today’s assignment. You will have five minutes to complete as many problems as you can. Your goal is to work hard. If you meet your goal, you will receive (specifically named, individualized preferred item) today at lunch from the guidance counselor. Good luck.” The experimenter set a timer for five minutes and once the special education teacher told the students to begin working, the experimenter started the timer. While observing the students work the experimenter completed a momentary time sampling procedure (see general session procedures below). Once five minutes had elapsed, the special education teacher said “Stop”, collected the completed assignments, and silently provided each student one of two cue cards based on the results of the time sampling procedure ignoring all protests. If the student met the criterion they received a blue cue card that stated, “Good job! You worked really hard today and met your goal. You will receive (specifically named, individualized preferred item) today at lunch from the guidance counselor.” Students that did not meet criterion received a blue cue card stating, “You were not always working hard on your assignment today. Unfortunately, you did not meet your goal today.”

3.4.3 Choice of reinforcement

Upon completing independent math computation probe assignments and meeting the task engagement criterion (see below), students had a choice between two of their preferred items as noted on their preference assessments (see below). To start choice of reinforcement days, participating students received a math computation probe and a yellow cue card with the words “Try your best on today’s assignment. You will have five minutes to complete as many problems as you can. Your goal is to work hard. If you meet your goal, you will receive a choice of either (specifically named, individualized preferred item) or (specifically named, individualized

preferred item) today at lunch from the guidance counselor. Good luck." The experimenter set a timer for five minutes and once the special education teacher told the students to begin working, the experimenter started the timer. While observing the students work the experimenter completed a momentary time sampling procedure (see general session procedures below). Once five minutes elapsed, the special education said "Stop", collected the completed assignments, and silently provided each student one of two cue cards based on the results of the time sampling procedure ignoring all protests. If the student met the criterion they received a yellow cue card that stated, "Good job! You worked really hard today and met your goal. You will receive a choice of either (specifically named, individualized preferred item) or (specifically named, individualized preferred item) today at lunch from the guidance counselor." Students that did not meet criterion received a yellow cue card stating, "You were not always working hard on your assignment today. Unfortunately, you did not meet your goal today."

3.5 EXPERIMENTAL DESIGN

A single-subject multielement experimental design with a baseline evaluated the research question (Kennedy, 2005). Following a baseline of successive no choice and no reinforcement condition days, the condition for each day's math assignment alternated between no choice and no reinforcement (A), no choice reinforcement (B), or choice reinforcement (C). Prior to the beginning of the study, the experimenter counterbalanced the order of the conditions every three days in an attempt to control for sequence effects (Cooper, Heron, & Heward, 2007). Thus students experienced all three conditions every three days in every possible order (i.e., A, B, C, B, C, A, B, A, C, etc.). The initial baseline of condition A provided data to indicate each

student's performance prior to treatment. Including condition A along with B and C allowed for within-subject comparisons across all three conditions. Based on visual analysis of graphed data, stratification or response differentiation in the three conditions determined the presence or absence of a functional relation(s) between the dependent and independent variable(s).

3.6 PROCEDURES

3.6.1 Math assessment

Prior to the start of the study, the experimenter had each participating student individually complete two subtests of the KeyMath 3 DA (Written Computation-addition and subtraction and Written Computation-multiplication and division). The experimenter followed the instructions and testing protocol provided by Key Math 3 (Connolly, 2007). The KeyMath 3 DA provided a grade equivalent score for each of the subtests the students completed. Based on the two subtest scores the experimenter estimated the most appropriate independent and instructional math computation level for each student. Table 2 displays assessment results.

Table 2. Participants' math levels

Student	*Written Computation (addition and subtraction) Subtest Score*	*Written Computation (multiplication and division) Subtest Score*	*Estimated Independent Grade Level*	*Estimated Instructional Grade Level*
Anna	2.4	4.2	3rd	4th
Desmond	4.8	4.4	4th	5th
Eli	3.5	3.6	3rd	4th
Jay	4.2	4.9	4th	5th

Note. As determined by the Key Math 3 DA (Connolly, 2007).

3.6.2 Preference Surveys

Also prior to the beginning of the study, each participating student individually completed a two-part preference survey with the experimenter based on procedures noted by Fantuzzo, et al. (1991). The first part of the survey asked students to circle or identify 10 items that they would like to earn (see Appendix H). Based on responses from the first part of the survey, the experimenter created individualized surveys listing the 10 items that the student identified as preferred (see Appendices I, J, K, and L). The experimenter then had each student rank the 10 items in preferred order (see Table 3). The top five ranked items were randomized for use throughout the study; the bottom five ranked items were not used. Each of the five top ranked items was used at least twice during the study's no choice reinforcement conditions. All possible two item combinations of the five ranked items were used at least once during the study's choice reinforcement conditions.

Table 3. Preference survey results

Rank	*Anna*	*Desmond*	*Eli*	*Jay*
First	No Uniform Pass	No Uniform Pass	Stress Ball	Lunch with an Adult
Second	No Homework Pass	Necklace	No Uniform Pass	No Uniform Pass
Third	Lunch with an Adult	Colored Pencil	Notepad	IPad/Computer Pass
Fourth	Pencil Grip	Bracelet	Pencil Top Eraser	Baseball Card
Fifth	Bracelet	Pen	Sticky Animal	Plane
Sixth	IPad/Computer Pass	Pencil Grip	Baseball Card	Pencil Grip
Seventh	Marker	Notepad	Pen	Pen

Eighth	Colored Pencil	IPad/Computer Pass	Animal Fidget	No Homework Pass
Ninth	Bookmark	No Homework Pass	Colored Pencil	Pencil
Tenth	Porcupine Fidget	Ring	IPad/Computer Pass	Pencil Sharpener

3.6.3 General session procedures

Independent math computation probes occurred during the first class, every school day, as the warm-up for the math class. The classroom teacher provided the typical independent math assignment (i.e., anchor boards) to non-participating students. Instead of the typical assignment, the students in the study received math computation probes from the special education teacher who also co-taught the class. During the independent math computation probes, all students had the ability to use scratch paper, but not calculators or manipulatives. The special education teacher provided directions to participating students following an experimenter-created script (Appendix M) which remained consistent throughout the study. The experimenter-created script included distributing participating students' independent math computation probes and corresponding cue cards depending on the experimental condition. The special education teacher and experimenter minimized attention given to all participating students and responded to questions or requests for help with "You can skip that problem and move onto the next problem. Keep working." At the conclusion of five minutes, the special education teacher would direct the students to "Stop" and collected the probes from all of the participating students. At the direction of the experimenter, the special education teacher distributed appropriate cue cards pending the condition and the results of the engagement/non-engagement sampling procedure.

During all conditions, the experimenter conducted the engagement/non-engagement sampling procedure to determine if each student met the engagement criterion. Following the

start of the countdown timer, the experimenter conducted a momentary time sampling procedure for each participating student. Twice each minute (for a total of 10 observations), the experimenter judged the academic engagement (eyes on paper) or non-engagement (eyes removed from paper) for each student. The scoring occurred in the same order at each observation point (student 1, 2, 3, and 4). Set observation times occurred at a pre-determined, randomized time every 30 seconds on a premade data sheet (Appendix N). In order to meet the daily engagement goal, the experimenter needed to judge the student as engaged in 8 out of the 10 observations.

3.6.4 Baseline

During baseline (following general session procedures) students engaged in the no choice and no reinforcement condition. The special education teacher provided independent math computation probes at the students' independent math computation level. During baseline, the experimenter conducted the engagement/non-engagement sampling procedure (see general session procedures above). Once five minutes elapsed, the experimenter provided the special education teacher with the appropriate cue cards to provide to the students pending the results of the engagement/non-engagement sampling procedure. Baseline continued for two school weeks (a total of eight days). The experimenter used baseline to ensure consistent procedures and examine students' pre-reinforcement engagement and academic performance.

3.6.5 Experimental sessions

Following the completion of the pre-study assessments (math assessment and preference

surveys) and baseline, students entered the experimental sessions. Following general session procedures, students experienced one of three conditions (no choice and no reinforcement, no choice of reinforcement and choice of reinforcement (as noted in the experimental design section). During Phase 1, students completed math computation probes at their independent math level. During Phase 2, the experimenter provided students with math computation probes at their instructional math level. All participating students entered the same condition each day. Experimental sessions continued until students demonstrated a clear functional relationship(s) between the dependent and independent variable(s).

3.7 INTER-OBSERVER AGREEMENT, ACCURACY, TREATMENT INTEGRITY, AND SOCIAL VALIDITY

The experimenter video recorded all sessions to collect engagement data and inter-observer agreement data for engagement (seconds and frequency), as well as treatment integrity. The experimenter trained a colleague to aid in the collection of inter-observer agreement for engagement (duration and frequency), as well as treatment integrity data.

A total of 54% of the sessions were scored for inter-observer agreement for seconds of engagement and frequency of engagement. Using a total agreement approach (dividing the larger number of seconds by the smaller number of seconds; Kennedy, 2005), agreement for seconds of engagement averaged 96% (r. 94%-98%) and frequency of engagement averaged 87% (r. 86%-87%). See Table 4 for inter-observer agreement averages per student, per condition.

The MBSP: Basic Math Computation probes (Fuchs et al., 1999) are accompanied by a Blackline master answer key. The answer key was used to gather digits correct and incorrect

scoring accuracy (Johnson & Pennypacker, 2009) for 100% of probes. Accuracy of scoring math probes equaled 100%.

To calculate treatment integrity, the experimenter reviewed 100% of the video-taped sessions. Scored using an experimenter created checklist (Appendix O), the special education teacher and experimenter followed 100% of the general procedures.

In order to measure social validity the experimenter provided the special education teacher and the students in the study with surveys to complete at the completion of the study. Questions on the special education teacher's survey (see Appendix P) addressed the teacher's perception of using consequence choice as an intervention, their beliefs of the effectiveness of consequence choice, and the likelihood of them using consequence choice in the future. The participating students were interviewed by the experimenter using a Likert scale questionnaire (see Appendix Q). Questions on the student survey addressed whether the students believed they get off-task, how they felt about having consequence choice, and whether they thought that consequence choice helped them with classroom and work performance.

Table 4. Inter-observer agreement for seconds and frequency of engagement

70%
(r. 64%-79%)
63%
(r. 56%-69%) (r. 5
72%
= No choice, No Reinforce

f Engagement

Baseline
NCNR
88%
(r. 84%-92%) (r. 9
96%
(r. 96%-97%) (r. 9
92%
(r. 87%-98%)
88%
(r. 87%-89%) (r. 9
91%
= No choice, No Reinforce

of Engagement

Baseline
NCNR
68%
(r. 60%-75%) (r. 5
87%
(r. 80%-93%) (r. 8

[redacted]

NCNR *NC*
73% 95
2%-94%) (r. 89%-
92% 82
3%-100%)
80% 90
(r. 86%
81% 88
3%-96%) (r. 86%
82% 89
ment, NCOR = No choice of

Phas
NCNR *NC*
94% 99
2%-95%) (r. 98%
98% 100
7%-99%)
98% 99
(r. 98%
99% 97
8%-99%) (r. 94%
97% 99
ment, NCOR = No choice of

Phas

[redacted]

e 1
OR *COR*
% 86%
100%) (r. 81%-94%
% 79%
% 83%
-94%)
% 88%
-89%) (r. 82%-93%
% 84%
reinforcement, COR = Choi

e 1
OR *COR*
% 100%
-99%) (r. 99%-100%)
% 98%
% 89%
-99%)
% 98%
-99%) (r. 98%-98%
% 96%
reinforcement, COR = Choi

[redacted]

(r. 78%-97%) (r.
97%
) (r. 94%-99%) (r
92%
ce of reinforcement

NCNR
92%
) (r. 95%-99%) (r.
88%
(r. 81%-94%) (r.
91%
(r. 85%-100%) (r.
91%
) (r. 79%-97%) (r.
91%
ce of reinforcement

NCNR
85%
(r. 76%-94%) (r
96%
(r. 96%-96%) (r.
88%

[redacted]

97% 9
. 95%-99%) (r. 95
99% 10
97%-100%) (r. 99%
98% 9
95%-100%) (r. 97%
99% 9
. 99%-99%) (r. 98%
98% 9

Phase 2
NCOR *C*
96% 97
91%-100%) (r. 94%
87% 97
75%-100%) (r. 86%
98% 92
92%-100%) (r. 79%
96% 96
93%-100%) (r. 90%
94% 96

Phase 2
NCOR *C*

[redacted]

OR	*Ave*
3% -99%)	94%
0% -100%)	98%
3% -100%)	95%
0% -100%)	97%
0%	96%

OR	*Ave*
7% -100%)	87%
7% -100%)	87%
2% -100%)	86%
5% -100%)	86%
5%	87%

4.0 RESULTS

The results section contains data collected throughout the study on Anna, Desmond, Eli, and Jay. Engagement data for individual students included seconds and instances of engagement. Student data also involved examining the number of digits correct and incorrect on math probes. Social validity data from both participating students and teachers complete the results section.

4.1 SECONDS OF ENGAGEMENT

Figure 1 contains the graphs for total seconds of engagement per day for Anna, Desmond, Eli, and Jay during independent math computation probes. Consecutive days occur along the x axis and the y axis indicates number of seconds. Filled dots with a solid data path indicate no choice and no reinforcement condition days, filled diamonds with a dotted data path indicate no choice of reinforcement condition days, and filled triangles with a dashed data path indicate choice of reinforcement condition days. Circled dots, diamonds, and triangles indicate that the student met criterion of 80% or more on the daily engagement and non-engagement sampling. The first phase change line denotes a phase transition from baseline to the implementation of all three conditions at an independent level (Phase 1). The second phase change line demarcates a transition to students completing math computation probes at an instructional grade level (Phase 2).

Figure 1. Seconds of engagement by students

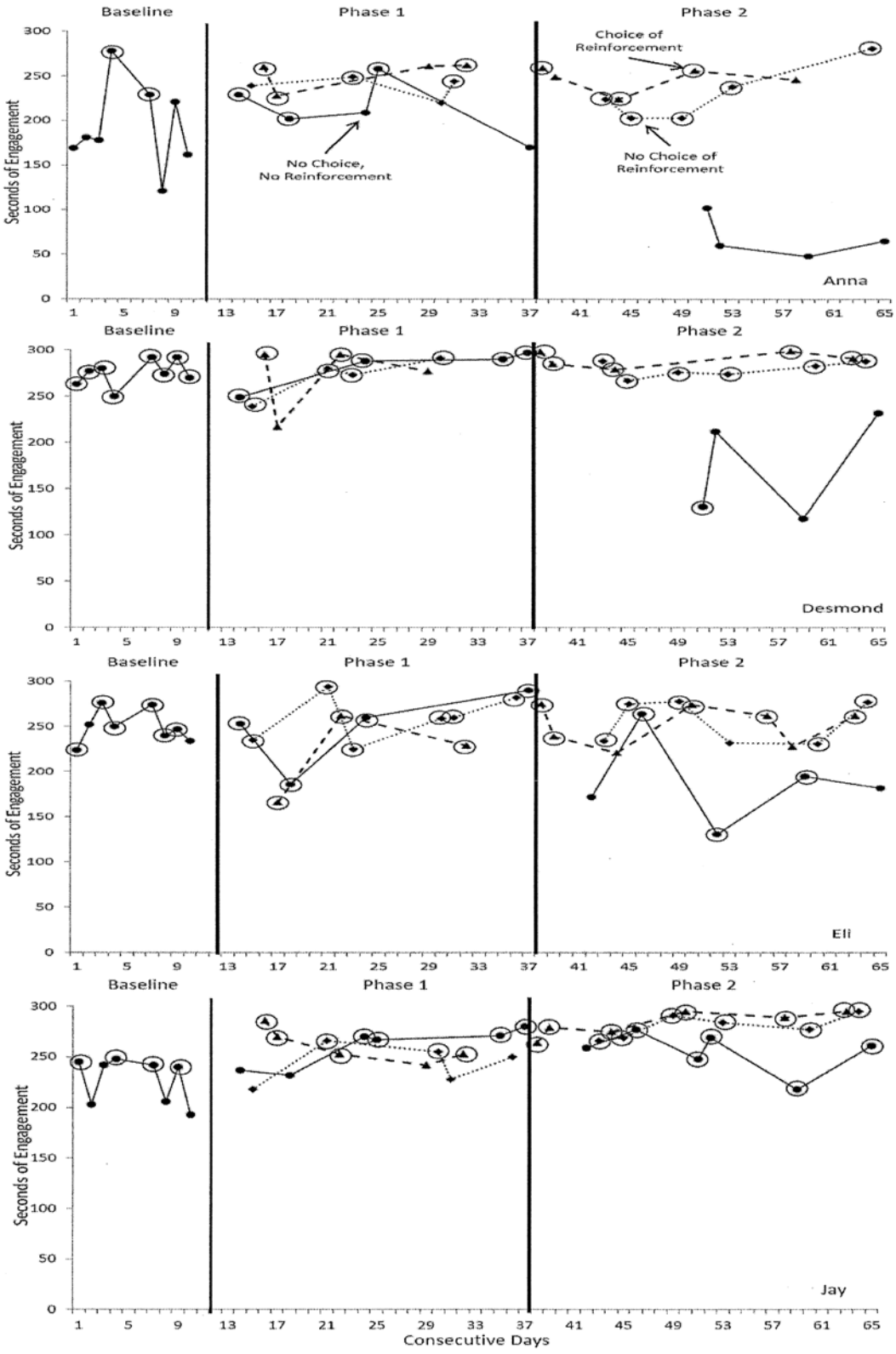


Table 5. Percentage of days students met engagement/non-engagement criterion

Student	*Baseline*	*Phase 1*			*Phase 2*		
	NCNR	*NCNR*	*NCOR*	*COR*	*NCNR*	*NCOR*	*COR*
Anna	25% (2/8)	60% 3/5	50% (2/4)	75% (3/4)	0% (0/4)	100% (5/5)	60% (3/5)
Desmond	100% (8/8)	100% (4/4)	100% (4/4)	50% (2/4)	25% (1/4)	100% (6/6)	100% (5/5)
Eli	75% (6/8)	75% (2/4)	100% (6/6)	100% (3/3)	60% (3/5)	83% (5/6)	71% (5/7)
Jay	50% (4/8)	67% (4/6)	40% (2/5)	80% (4/5)	83% (5/6)	100% (6/6)	100% (7/7)

Note. NCNR = No choice, No Reinforcement, NCOR = No choice of reinforcement, COR = Choice of reinforcement

4.1.1 Seconds of engagement during baseline

The graphs in Figure 1 illustrate that during baseline three of the students' (Desmond, Eli, and Jay) engagement had low variability, with Desmond averaging 275 (r. 250-292) seconds, Eli averaging 250 (r. 224-276) seconds, and Jay averaging 227 (r. 193-248) seconds. Anna presented with variable engagement averaging 192 (r. 121-278) seconds. The engagement of two of the four students, Anna and Desmond trended slightly upward. Jay's engagement time had a slight downward trend with Eli maintaining an overall flat trend. Finally, during baseline the students met the engagement criterion at varying rates; Desmond met criterion 100%, Eli 75%, Jay 50%, and Anna 25% (Table 5).

4.1.2 Seconds of engagement during phase 1

After eight consecutive school days, participating students experienced all conditions with math computation probes at their independent math levels (Phase 1). Figure 1 illustrates that three students (Desmond, Eli, and Jay) had engagement levels that overlapped consistently during Phase 1. Desmond's seconds engaged trended upward during no choice and no reinforcement

condition (ave. 281, r. 249-297) and no choice of reinforcement condition (ave. 271, r. 239-391), while her choice of reinforcement condition (ave. 271, r. 217-295) data had a flat to slightly downward trend. Desmond met engagement criterion 100% in both no choice and no reinforcement and no choice of reinforcement conditions and 50% of choice of reinforcement sessions. Eli's engagement data had a slight upward trend in all three conditions; no choice and no reinforcement condition (ave. 247, r. 186-290 seconds), no choice of reinforcement condition (ave. 259, r. 225-294 seconds), and choice of reinforcement condition (ave. 219, r. 166-262 seconds). Eli met engagement the majority of the days during Phase 1, with 100% during no choice and no reinforcement and no choice of reinforcement conditions. Eli met engagement the least (75%) during choice of reinforcement days. Jay's total seconds engaged trended upward during no choice and no reinforcement condition (ave. 260, r. 232-280 seconds), downward during the choice of reinforcement condition (ave. 261, r. 242-286 seconds) and flat during no choice of reinforcement condition(ave. 243, r. 218-266 seconds). Jay reached criterion 67% during no choice and no reinforcement days, 40% during no choice of reinforcement days, and 80% during choice of reinforcement days.

Anna (Figure 1) had minimal overlap in conditions. Anna remained engaged the longest time (ave. 253, r. 228-262 seconds) and displayed an increasing trend when presented with a choice of reinforcement. Engagement in other conditions (no choice, no reinforcement and no choice of reinforcement) averaged fewer seconds, 214 (r. 170-258) and 238 (r. 220-249) respectively, and displayed slightly decreasing trends. During Phase 1 Anna met the engagement criterion 60%, 50%, and 75% in the no choice and no reinforcement days, no choice of reinforcement, and choice of reinforcement days respectively.

Engagement time for three students (Desmond, Eli, and Jay) in Phase 1 appeared to improve across all three conditions with multiple overlapping data paths suggesting no distinct behavior pattern in the presence or absence of choice and/or reinforcement. For Anna, however, initial differences appeared as Phase 1 progressed suggesting a potential relationship between engagement time and the presence or absence of the independent variables.

4.1.3 Seconds of engagement during phase 2

Due to the absence of stratification, the experimenter implemented a phase change (Phase 2). Instead of providing math assignments at each student's independent level, participating students received math probes at the instructional level (i.e., increase in task difficulty). Anna and Eli moved into grade 4 level probes and Desmond and Jay received grade 5. Other than a change in math task difficulty, all daily procedures remained the same.

During Phase 2 (Figure 1), Anna and Desmond remained engaged for different amounts of time during the three conditions with data paths displaying almost total stratification. During choice of reinforcement, Anna and Desmond engaged with math tasks for an average of 247 (r. 224-259) and 290 (r. 279-298) seconds with only slight variability and stable trends meeting criterion 60% and 100% of the time. When given no choice of reinforcement, the two students engaged slightly less often (ave. 230, r. 203-281; ave. 279, r. 267-288 seconds), but maintained stable trends with little variability and both met criterion 100% of days. Unlike the other two conditions, Anna (ave. 69 seconds, r. 48-102) and Desmond (ave. 173 seconds, r. 118-232) spent less time engaged with more variability and decreasing trends in the absence of any reinforcement. Anna failed to meet criterion once and Desmond only a quarter of the time.

Initially, Eli and Jay (Phase 2, Figure 1) had overlapping data paths in all three conditions. As the phase continued, data in the no choice and no reinforcement began to stratify (i.e., decrease) from the other two conditions. Meeting criterion 71% and 83%, Eli spent about the same average time engaged in the choice (252 seconds, r. 221-275) and no choice of reinforcement (255 seconds, r. 231-278) conditions and displayed stable, yet variable, trends. Dropping to 60%, Eli engaged for less time (ave. 189 seconds, r. 131-264) during no choice, no reinforcement and showed a highly variable decreasing trend. Jay displayed less variability than Eli across all three conditions. Although engagement under no choice (ave. 280 seconds, r. 266-295) and choice (ave. 283 seconds, r. 264-295) of reinforcement showed increasing trends, time of engagement (ave. 255 seconds, r. 131-264) decreased on no choice, no reinforcement days. Jay met engagement criteria the majority of the days during Phase 2, with 100% during no choice of reinforcement and choice of reinforcement conditions. Jay met engagement the least (83%) during no choice and no reinforcement days.

During Phase 2, time of engagement for Anna and Desmond stratified between all three conditions with both students spending the most time engaged during choice of reinforcement. For Eli and Jay, stratification appeared between conditions with both students spending less and less time engaged in the absence of reinforcement. The combination of findings suggests a relationship between time of engagement and the presence and absence of reinforcement and, additionally for two children (Anna and Desmond), the presence or absence of choice.

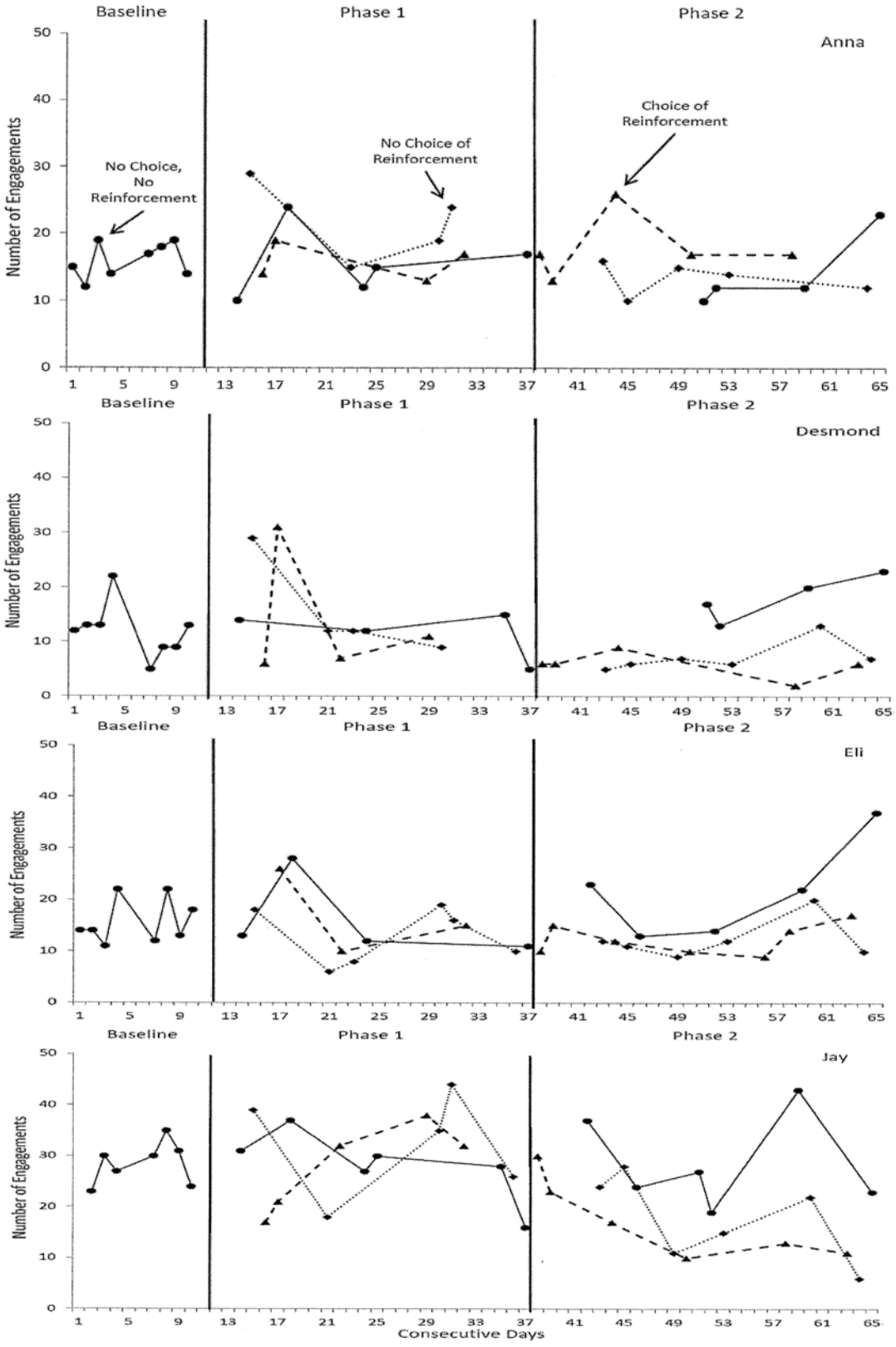
4.2 ENGAGEMENT FREQUENCY

Figure 2 contains the graphs for Anna, Desmond, Eli, and Jay displaying the frequency of engagement (eyes on paper) during the five minute math computation probes. Consecutive days occur along the x axes and the y axes indicate the number of engagements. Filled dots with a solid data path indicate no choice and no reinforcement condition days, filled diamonds with a dotted data path indicate no choice of reinforcement condition days, and filled triangles with a dashed data path indicate choice of reinforcement condition days. The first phase change line denotes a phase transition from baseline to the implementation of all three conditions at an independent level (Phase 1). The second phase change line demarcates a transition to students completing math computation probes at an instructional grade level (Phase 2).

4.2.1 Frequency of engagement during baseline

On Figure 2, three of the students' (Anna, Eli, and Jay) engaged with low variability averaging 16 (r. 12-19), 16 (r. 11-22), and 29 (r. 23-35) occurrences respectively. Desmond presented with the highest variation averaging 12 (r. 5-22) occurrences. The frequency of engagement for two of the four students, Anna and Jay, trended slightly upward. Desmond's frequency of engagement had a slight downward trend with Eli maintaining an overall flat trend.

Figure 2. Frequency of engagement by students



4.2.2 Frequency of engagement during phase 1

Figure 2 illustrates that all four students (Anna, Desmond, Eli, and Jay) had total number of engagements that overlapped consistently during Phase 1. Anna's total number of engagements had a flat trend line in both no choice and no reinforcement (ave. 16, r. 10-24) and choice of reinforcement (ave. 16, r. 13-19). However, her total number of engagements during no choice of reinforcement had a slightly decreasing trend (ave. 22, r. 15-29). Desmond engaged during no choice and no reinforcement condition (ave. 12, r. 5-15) and no choice of reinforcement condition (ave. 16, r 9-29) with a decreasing trend, while her choice condition data (ave. 14, r. 6-31) trended slightly upward. Eli presented inconsistent engagement in all conditions. Eli started Phase 1 with more engagements (across conditions) and decreased over time. Engagements in the no choice of reinforcement condition averaged the lowest (ave. 13, r. 6-19) occurrences and the highest (ave. 17, r. 10-26) in choice of reinforcement. Eli engaged an average of 16 times during no choice and no reinforcement condition days (r. 11-28). Jay engaged most often among all of the students in the study. Both no choice and no reinforcement (decreasing trend) and choice of reinforcement (increasing trend) conditions averaged 28 (range 16-37; range 17-38) occurrences of engagement, while his no choice of reinforcement (stable trend) condition averaged 32 (range 18-44) occurrences.

In Phase 1, three (Desmond, Eli, and Jay) of the four students had frequencies of engagement data paths that overlapped for all three conditions, with very little, to no, stratification across conditions. Anna also had overlapping data paths under no choice no reinforcement and choice of reinforcement. However as Phase 1 progressed, Anna displayed more instances of engagement when given no choice of reinforcement.

4.2.3 Frequency of engagement during phase 2

Phase 2 demarcates the introduction of instructional, rather than independent, level math probes. Desmond's and Eli's engagements completely stratified between no choice and no reinforcement and reinforcement condition (no choice and choice of). Engagements (Desmond, ave. 18, r. 13-23; Eli, ave. 22, r. 13-37) reached high stable levels. Desmond's relatively stable responding during no choice of reinforcement condition (ave. 7, r. 5-13 occurrences) and choice of reinforcement condition (ave. 6, r. 2-9 occurrences) crossed data paths once. Eli's stable responding averaged 12 engagements during both no choice of reinforcement (r. 9-20) and choice of reinforcement (r. 9-17) conditions.

Jay (Figure 2) continued to have highly variable data during Phase 2, as well as the highest number of engagements among all of the students in the study. Engagements during choice of reinforcement averaged the lowest (17, r. 10-30) and no choice and no reinforcement frequencies the highest (29, r. 19-43). Jay engaged an average of 18 times (r. 6-28) during no choice of reinforcement condition. Over time, Jay began to display stratification between no choice and no reinforcement condition and reinforcement conditions (no choice and choice).

Anna (Figure 2) had stratified engagement data paths during Phase 2. Unlike the other three students, Anna's averaged fewer engagements (14, r. 10-23) during no choice and no reinforcement then with a stable trend. While her no choice of reinforcement condition data had a slight decreasing trend (ave. 13, r. 10-16 occurrences). Her choice of reinforcement condition had the highest average number (18, r. 13-26) occurrences.

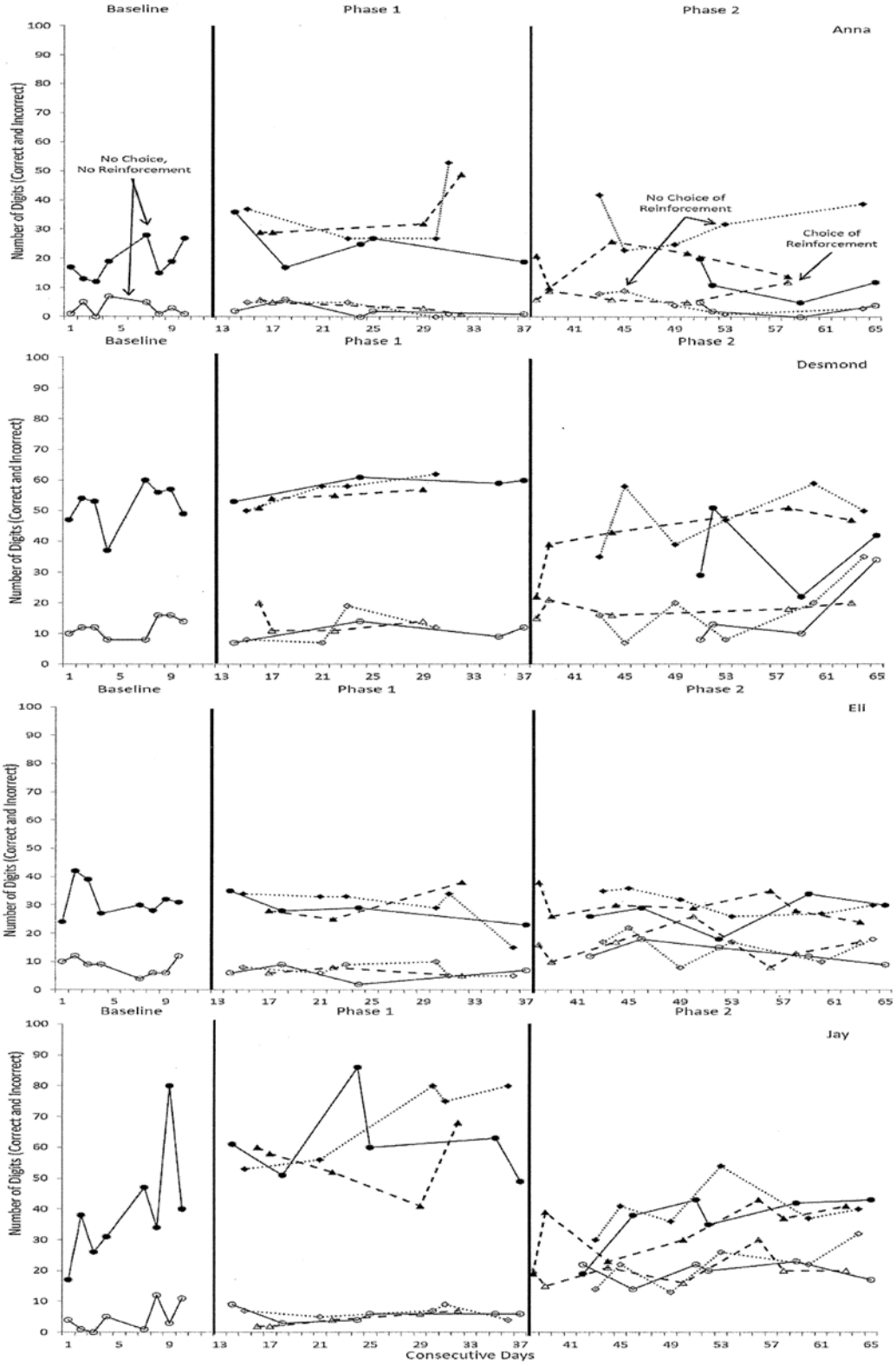
While students failed to distinguish engagement responding across conditions in Phase 1, all students did display differences during Phase 2. Desmond, Eli, and Jay engaged fewer times with Anna engaging more times in the presence of reinforcement (choice and no choice) rather

than the absence. When combined with engagement time (Figure 1), the differences in engagement become clearer. Desmond, Eli, and Jay spent more time engaged (Figure 1, Phase 2) becoming disengaged less often (i.e., fewer number of engagements) in the presence of reinforcement. Anna also spent the most time engaged in the presence of reinforcement, however displayed an interesting number of engagements in the absence of reinforcement. Although Anna disengaged less often (i.e., fewer number of engagements), she spent considerably less time engaged meaning she remained disengaged longer per instance. With reinforcement in place, Anna may have disengaged more often but returned to her academic work faster.

4.3 DIGITS CORRECT / DIGITS INCORRECT

Figure 3 contains the graphs for the total number of digits correct (DC) and incorrect (ID) per day for Anna, Desmond, Eli, and Jay during independent math computation probes. Consecutive days occur along the x axes and the y axis indicates the total number of digits. Filled dots with a solid data path indicate digits correct on no choice and no reinforcement condition days, filled diamonds with a dotted data path indicate digits correct received on no choice of reinforcement condition days, and filled triangles with a dashed data path indicate digits correct received choice of reinforcement condition days. Empty dots with a solid data path indicate digits incorrect on no choice and no reinforcement condition days, empty diamonds with a dotted data path indicate digits incorrect received on no choice of reinforcement condition days, and empty triangles with a dashed data path indicate digits incorrect received choice of reinforcement condition days. The first phase change line denotes a phase transition from baseline to the implementation of all three

Figure 3. Digits correct and incorrect by students



conditions at an independent level (Phase 1). The second phase change line demarcates a transition to students completing math computation probes at an instructional grade level (Phase 2).

4.3.1 Digits correct/incorrect during baseline

The graphs in Figure 3 illustrate that during baseline all four students maintained improving trends for correct digits (CD; Anna, ave. 19, r. 12-28; Desmond, ave. 52, r. 37-60, Eli, ave. 32, r. 24-42 ; Jay, ave. 39, r. 17-80 digits). For incorrect digits (ID) two students' (Desmond and Jay) had slightly upward trending data paths during baseline (ave.12, r. 8-16; ave. 5, r. 0-12 digits), while the other two students' (Anna and Eli) trended downward (ave. 3, r. 0-7; ave. 9, r. 4-12 digits).

4.3.2 Digits correct/incorrect during phase 1

Figure 3 displays that all four students (Anna, Desmond, Eli, and Jay, Figure 3) had CD data paths that overlapped consistently during Phase 1. Anna's CD trended downward for both no choice and no reinforcement condition (ave. 25, r. 17-36 digits) and no choice of reinforcement condition (ave. 36, r. 27-53 digits). The data path for Anna's CD during choice of reinforcement condition days had a slightly increasing trend with an average of 35 (r. 29-49) digits. Desmond's CD improved for all conditions: no choice and no reinforcement (ave. 58, r. 53-61 digits), no choice of reinforcement (ave. 57, r. 50-62 digits), and choice of reinforcement (ave. 54, r. 51-57 digits). Eli's CD had decreasing trend data paths for both no choice and no reinforcement condition (ave. 29, r. 23-35 digits) and no choice of reinforcement condition (ave. 30, r. 15-34

digits). The data path for Eli's CD during choice of reinforcement condition days had a slightly upward trend with an average of 30 (r. 25-38) digits. Jay's CD had upward trended data paths for both no choice of reinforcement condition (ave. 69, r. 53-80 digits) and choice of reinforcement condition (ave. 56, r. 41-68). The data path for Jay's CD during no choice and no reinforcement) condition days had an overall flat trend with an average of 62 (r. 49-86) digits.

While lower than CD, all four students (Anna, Desmond, Eli, and Jay) had ID data paths that overlapped consistently through Phase 1. Anna's ID had trended downward for both no choice of reinforcement condition (ave. 3, r. 0-5 digits) and choice of reinforcement condition (ave. 4, r. 1-6 digits). The data path for Anna's ID during no choice and no reinforcement condition days was flat with an average of 2 (r. 0-6) digits. Desmond's ID data paths had a slightly increasing trend for no choice and no reinforcement condition (ave. 11, r. 7-14) and no choice of reinforcement (ave. 12, r. 7-19 digits). The data path for Desmond's ID during choice of reinforcement condition days had a slightly decreasing trend with an average of 14 (r. 11-20) digits. Eli's ID data paths were flat for all conditions; no choice and no reinforcement (ave. 6, r. 2-9 digits), no choice of reinforcement (ave.7, r. 5-10 digits), and choice of reinforcement (ave. 6, r. 5-8 digits). Jay's ID had overall flat trend lines for both no choice and no reinforcement condition (ave. 6, r. 3-9 digits) and no choice of reinforcement condition (ave. 6, r. 4-9). The data path for Jay's ID during choice of reinforcement condition days had a slight upward trend with an average of 4 (r. 2-7) digits.

In summary, no stratification occurred for any student for either CD or ID. While all students displayed more CD than ID, students failed to demonstrate differences in math performance across conditions.

4.3.3 Digits correct/incorrect during phase 2

During Phase 2 all four students (Anna, Desmond, Eli, and Jay, Figure 3) had CD data paths that overlapped. Anna's CD digits correct had descending trends for both no choice and no reinforcement condition (ave.15, r. 5-20 digits) and choice of reinforcement condition (ave. 19, r. 10-26 digits). The data path for Anna's CD during no choice of reinforcement condition days had a slightly upward trend with an average of 31 (r. 23-42) digits. Desmond's CD trends were slightly ascending for all conditions; no choice and no reinforcement (ave. 36, r. 22-51 digits), no choice of reinforcement (ave. 48, r. 35-59 digits), and choice of reinforcement (ave. 40, r. 22-51 digits). Eli's CD during no choice and no reinforcement condition days had a slightly upward trend (ave. 27, r. 18-34 digits), while his CD during no choice of reinforcement condition days had a slightly downward trend (ave. 31, r. 26-36 digits). The data path for Eli's CD during choice of reinforcement condition days had an overall flat trend with an average of 30 (r. 34-38) digits. Jay's CD data paths had increasing trends for all conditions; no choice and no reinforcement (ave. 37, r. 19-43 digits), no choice of reinforcement (ave. 40, r. 30-54 digits), and choice of reinforcement (ave. 33, r. 19-43 digits).

All four students (Anna, Desmond, Eli, and Jay) had ID data paths that overlapped through Phase 2. Anna's ID had downward trends for both no choice and no reinforcement condition (ave. 13, r. 9-18 digits) and no choice of reinforcement condition (ave. 15, r. 8-22 digits). While Anna's ID during choice of reinforcement condition days had a slightly upward trend with an average of 15 (r. 8-26) digits. Desmond's ID had overall flat trends for all conditions; no choice and no reinforcement (ave. 16, r. 8-34 digits), no choice of reinforcement (ave.18, r. 7-35 digits), and choice of reinforcement (ave. 18, r. 15-21 digits). Eli's ID data paths were slightly descending for all conditions; no choice and no reinforcement (ave. 13, r. 9-18), no

choice of reinforcement (ave. 15, r. 8-22), and choice of reinforcement (ave. 15, r. 8-26) digits. Jay's ID had increasing trends for all conditions; no choice and no reinforcement (ave. 20, r. 14-23), no choice of reinforcement (ave. 22, r. 13-32), and choice of reinforcement (ave. 20, r. 15-30).

With a one full year instructional increase in difficulty three students, Anna, Desmond, and Jay, had overall decreases in CD across conditions; while all students (Anna, Desmond, Eli, and Jay) increased ID. Interestingly, Anna increased her CD as Phase 2 progressed when given no choice of reinforcement, but decreased in the other two conditions. Desmond had a stable increase in CD as Phase 2 continued during both no choice of reinforcement and choice of reinforcement conditions and a decrease in CD during no choice and no reinforcement conditions. Jay increased CD and ID across all conditions as Phase 2 progressed.

4.4 SOCIAL VALIDITY

The experimenter provided the special education teacher and the four students who participated in the study with surveys to assess social validity. Student survey results appear in Table 6, with 4 indicating Strongly Agree and 1 indicating Strongly Disagree. Overall, students agreed most strongly with the statements, "I liked having the ability to complete a survey to decide what rewards I would work for" and "I liked having a choice of the rewards that I worked for." While students disagreed most strongly with the statements, "Having choices did not help me complete my worksheets" and "I did not like having a choice of rewards."

The special education teacher reported that she believed that the use of consequence choice was "Highly effective" with increasing the task engagement of the participating students.

In addition, she reported that the use of consequence choice was “Effective” with increasing the students’ work performance. While the special education teacher reported that it was “Very likely” that she would incorporate a choice of rewords into her daily lesson routine for the participating students, she did report that it was “Minimally likely” that she had enough time to do so. The input collected on the special education teacher’s survey via the open-ended responses indicated that the special education teacher believed there was a strong connection between the preference of the reward items and the task engagement of the students. The special education teacher also reported in the open-ended response section that she believed choice was effective for increasing work performance, because she had noticed an increase in the students’ math performance on weekly progress monitoring probes.

Table 6. Student social validity results

Statement	*Anna*	*Desmond*	*Eli*	*Jay*	*Average*
1. I liked having the ability to complete a survey to decide what rewards I would work for.	3	4	4	4	3.8
2. I did not like having a choice of rewards.	1	1	2	2	1.5
3. Having a choice of rewards helped me with my math worksheets.	3	4	4	3	3.5
4. I liked having a choice of the rewards that I worked for.	3	4	4	4	3.8
5. Having choices did not help me complete my math worksheets.	1	1	1	2	1.3
6. If asked, I would like to have a choice of rewards to work for in math class.	4	4	3	2	3.3
7. I liked when I was told which reward I would receive.	2	4	4	4	3.5
8. If asked, I would like to have a choice of rewards to work for in other classes, like in science class.	3	4	3	4	3.5
9. I did better on my math assignments on the days that I did not receive a reward.	1	3	2	3	2.3
10. I liked when there were no rewards to work for.	1	1	3	4	2.3

5.0 DISCUSSION

General education teachers typically do not have knowledge of or experience with effective research based interventions for working with students with ED in inclusive settings (Kauffman et al., 2002; Scott, 2002). In order for students with ED to succeed within inclusive settings, general and special education teachers need effective behavior and academic interventions (Vansett, Harrison, Temple-Harvey, Ramsey, & Parker, 2011) such as implementing choice (e.g., Powell & Nelson, 1997; Skerbetz & Kostewicz, 2013; Umbreit & Blair, 1996).While authors (e.g. Dunlap et al., 1991; Dyer et al., 1990) have documented success, the majority of choice research for students with E/BD has occurred in segregated settings. Experimenters (Powell & Nelson, 1997; Skerbetz & Kostewicz, 2013; Umbreit & Blair, 1996) have limited inclusive choice research for students with ED to manipulating antecedents with examinations of consequence choice occurring in segregated settings (Cosden et al., 1995; Dyer et al., 1990). Therefore, the purpose of the current study addressed the effects of consequence choice during independent math activities for students with E/BD in inclusive environments. Questions that guided the experiment investigated: What effect will consequence choice in the form of a choice of reinforcement have on task engagement? And, what effect will consequence choice in the form of a choice of reinforcement have on academic performance (i.e., digits correct and incorrect)?

Results from the current study contribute and extend the use of choice as an intervention, for students with E/BD in inclusive settings. In a review of choice studies, Morgan (2006) found that choice-making as an intervention lead to decreases in students' problem behaviors and increases in task engagement and academic performance. Conversely, initial (i.e., Phase 1) student behaviors displayed no differentiation between the three conditions. Students remained engaged and performed similarly on math probes with and without reinforcement and with and without choice. After increasing task difficulty (i.e., Phase 2), stratification of engagement data paths occurred for all four students demonstrating a functional relation based on the visual inspection of both multi-element engagement graphs per student (Kennedy, 2005). Students engaged more often and for longer periods of time (i.e., fewer engagements) when provided choice (Anna and Desmond) and choice or reinforcement (Eli and Jay).While showing an overall decrease from Phase 1 to 2, correct digit levels did show a functional relation for three of the four students with and without choice of reinforcement with incorrect digits increasing, but not differentiating, across conditions. Taken together, students remained engaged longer on more difficult material.

Classroom teachers strive to set the stage for effective learning by promoting academic engagement (Heward et al., 1996). However, students with ED often display high levels of off-task behaviors that make academic gains difficult and potentially lead to more restrictive placements (Coleman, Webber, & Algozzine, 2000). With effective interventions often eluding teachers in inclusion settings (Simpson, Peterson, & Smith, 2011), increased student engagement under consequence choice and reinforcement potentially add to an array of inclusive interventions for students with ED.

5.1.1 Question 1: What effect will consequence choice in the form of a choice of reinforcement during independent math activities have on the task engagement of students with ED in an inclusive setting?

Within academic situations, students with ED have demonstrated difficulties with remaining engaged (Jolivette et al., 2001). Mooney, Epstein, Reid, and Nelson (2003) suggest that an increase in engagement contributes to diminishing academic deficits possibly improving overall outcomes. Previous choice research noted increased engagement in the presence of antecedent (e.g. Harding et al., 1994 Jolivette et al., Kern et al., 2002) and consequence choice (Cosden et al., 1995). Differing engagement results in Phase 1 and 2 and across engagement measures demand further attention.

Engagement duration. Students showed equal relatively high levels of engagement in all three conditions during Phase 1 suggesting little difference between the presence and absence of contrived reinforcement. In Phase 2, however students displayed a clear difference between conditions. A plausible explanation may lie in the academic task itself. In Phase 1, the experimenter matched each student with math probes at independent ability levels. Therefore, the reinforcing effects of successfully completing math problems may have interfered with the effects of contrived reinforcement and choice (Vannest, Harrison, Temple-Harvey, Ramsey, & Parker, 2011). For example, Desmond engaged an average of 281 seconds without and 271 with experimentally-delivered reinforcement. The data may suggest that simply matching instructional level decreases the need for back-up reinforces; an important notion for inclusive educators. Interestingly however, students performed as well in all conditions suggesting that effectively matching instructional level and using additional reinforcers or choice allows teachers to cover multiple outcomes.

Another reason for the lack of discrimination in Phase 1 may have resulted from the use of reinforcement place holders. Rather than receiving reinforcing stimuli or the choice of reinforcing stimuli immediately, students acquired a cue card; a time-delay potentially diminishing the reinforcing effects of the stimuli or interfering with students' ability to discriminate when to emit a target behavior in order to receive reinforcement (Cooper et al., 2007). Dyer et al. (1990) and Cosden et al. (1995) showed that consequence choice combined with immediate presentation of reinforcement produced fewer student problem behaviors. Perhaps the reinforcing effects of the contrived stimuli decreased to a point that made it equal to the reinforcing effects of completing problems at an independent level. Additionally with all math probes equivalent (i.e., alternate forms) throughout Phase 1, students continually had access to equal levels of reinforcement regardless of condition. Either situation plausibly explains the lack of discrimination between conditions.

In Phase 2, however, task difficulty increased with a dramatic effect on engagement. Students previously displaying high levels of engagement across conditions, spent less and less time engaged in the absence of reinforcement. In a review of the relationship between instructional variables and problem behavior, Munk and Repp (1994) suggested a decrease in task difficulty produced fewer problem behaviors. Conversely, an increase in task difficulty can set the stage for more problems. Students in the current study behaved in similar ways. For example in Phase 1, Eli displayed an increasing trend averaging 247 seconds engaged with no reinforcement. An increase in task difficulty during Phase 2 had Eli decreasing engaged time with an average of 189. Without reinforcement, students engaged less often providing support for the reasons noted above.

Struggling with more difficult work can produce fewer reinforcing effects especially when the student can earn more powerful, but delayed, reinforcers (i.e., no choice and choice of reinforcement. The combination of effects in Phase 1 and 2 supports the notion that teachers should strive to appropriately match task difficulty and student ability as often as possible (Vannest et al., 2011). However, teachers can use reinforcement and consequence choice as a back-up strategy to maintain engagement levels on matched tasks and improve engagement when tasks may prove too difficult for the student.

Frequency of engagement. With little precedent in previous research, the experimenter measured the frequency of engagement producing an additional analysis of engagement. In Phase 1, students generally had higher levels of engagement duration, but variable instances of engagement. During Phase 2, once seconds of engagement differentiated instances of engagement also stratified. Students not only spent more time engaged, but engaged less often with choice and reinforcement present. For example, Desmond became engaged minimal times (ave. 6, r. 2-9), but remained engaged practically the entire five minutes (ave. 290, r. 279-298). Ideally, students should remain engaged the longest amount of time with the fewest number of engagements. The data for Jay and Anna tell a different story and would have gone unnoticed without measuring engagement frequency.

Anna increased and Jay decreased instances of engagements in the presence of choice and reinforcement with time remaining roughly the same. When behavior differentiated in Phase 2, Anna became engaged the most often during choice of reinforcement condition (ave. 18, r. 13-26) and also had the highest average of seconds engaged (ave. 247, r. 224-259). Jay maintained higher instances of engagement with varying duration, but did decrease instances over the course of Phase 2. Unlike the other two students, an inverse relationship did not occur (i.e., decrease in

frequency, increase in duration). Both Anna and Jay displayed high frequencies of engagement, and engaged for longer amounts of time. Interestingly both students have a diagnosis of attention-deficit/hyperactivity disorder (ADHD); a disorder often characterized by impulsive behaviors (Sherman, Rasmussen, & Baydala, 2006). For Anna and Jay especially, the frequency measure of engagement provides a clearer picture of intervention effects than duration alone.

Measurement of engagement. Conclusions drawn from the current study differ from previous consequence choice research possibly resulting from the measurement of the engagement dependent variable. All previous researchers (Dunlap et al., 1991; Dunlap et al., 1994; Harding et al., 1994; Jolivette et al., 2001; Kern, et al., 2002; Skerbetz & Kostewicz, 2013) noting a functional relationship between engagement and choice employed an interval recording procedure. While interval recording procedures lessen the load on the researcher, potential problems can occur when using discontinuous procedures (Johnston & Pennypacker, 2009). Simply sampling behavior via interval recording introduces error into the measurement system (Johnston & Pennypacker, 2009). Partial interval recording (e.g., Dunlap et al., 1994) overestimates responding and whole interval recording (e.g., Jolivette et al., 2001) underestimates responding. On the other hand, total duration and frequency measures provide clearer representations of true behavior responding (Johnston & Pennypacker, 2009). Finally, interval recording produces a percent of intervals measure which does not directly relate to duration or frequency. The errors may have incorrectly inflated the effects of choice noted in previous research. Had the experimenter chosen to use an interval sampling measurement for engagement, results may have differed and fallen more in line with previous findings.

In addition to duration and frequency measures taken from videos the experimenter did employ a momentary time sampling procedure in the classroom. Originally, the experimenter

chose the interval sampling procedure for ease of measurement in the actual class setting mirroring the abilities of an inclusive teacher. However, as noted previously, the experimenter did not measure behavior continuously potentially introducing error (Cooper et al., 2007). Over five minutes, students had to appear engaged in 80% (8 out of 10) intervals based on two randomly chosen time points per minute. A direct comparison to actual total engagement (i.e., total seconds) presents problems, but hypothetically 80% engagement compares roughly with 240 out of 300 (80%) seconds engagement. When the experimenter compared the number of days students met/did not meet criterion under the sampling procedure with the number of days engagement totaled 240 or more/less than 240 seconds, 79% (121 out of 153) of sampling instances matched duration measures. The remaining 21% (32 out of 153) of instances students either met criterion with fewer than 240 seconds of engagement or did not meet criterion after engaging for more than 240 seconds. As an example, two egregious errors occurred for Desmond. He met criterion after engaging for only 131 seconds (44%) in Phase 2 and did not meet criterion after engaging for 277 (92%) seconds in Phase 1. The errors introduced via the sampling procedure weigh heavily against the implementation concerns and opportunity for immediate delivery of reinforcement. If a teacher has difficulties determining a criterion through frequency or duration, they cannot provide immediate reinforcement. Conversely, teachers can mistakenly provide reinforcement for the wrong behavior based on sampling errors. Data from the current study suggests raising the criterion of 80% of intervals, increasing the number of observations per minute, or moving to an academic permanent product criterion (see future directions) to decrease measurement error.

5.1.2 Question 2: What effect will consequence choice in the form of a choice of reinforcement during independent math activities have on the academic performance of students with ED in an inclusive setting?

Effective classroom interventions for students with ED should attend to both academic and behavior improvements (Ryan et al., 2008). By definition, students with ED struggle in academics and display below grade level academic abilities (Simpson et al., 2011). In a review of math instructional interventions for students with E/BD Hodge, Riccomini, Buford, and Herbst (2006) found a complex relationship between academic difficulty and problem behavior. Unlike engagement, academic performance did not differentiate in either Phase or across conditions.

Students met the daily criterion, and in turn reinforcement and consequence choice, based on sampling engagement behavior not on any specific academic performance. Additionally, students received no feedback or error correction on academic performance. Morgan (2006) asserts if students emit high levels of engagement, they also emit high levels of work output. Although an increase in task difficulty meshed with increased engagement does not necessarily produce more work (Munk & Repp, 1994). The findings by Munk and Repp (1994) somewhat mirrors student behavior in Phase 1 and Phase 2. Overall, work levels decreased (i.e., fewer correct digits and more incorrect digits) when difficulty level increased in spite of all students increasing engagement in all but no choice, no reinforcement conditions. Dyer et al. (1990) also found consequence choice, as part of a choice package, did not lead to task performance improvements.

Academic outcomes in the current study make some comparisons to previous research difficult. Often choice researchers (e.g., Cosden et al., 1995; Skerbetz & Kostewicz, 2013) have reported an accuracy ratio rather than actual behaviors. Looking more globally at math

performance, Shapiro, Keller, Lutz, Santoro and Hintze (2006) suggest, at the 50th percentile, fifth grade students should be able to complete 13-26 digits correct per minute or 65-130 in five minutes. Student math activities in the current study fall well below grade level standards. In Phase 1, only Desmond and Jay approached the lower end of the range on matched-ability probes. In Phase 2 with assignment difficulty and student engagement increasing in reinforcement and choice conditions, all students feel below the 50th percentile range on correct digits per minute as Munk and Repp (1994) suggested. With the charge of identifying interventions that attend to both academic and behavior concerns for students with ED, the current version of consequence choice slightly misses the mark. Simply changing the behavior of focus (i.e., what determines reinforcement and choice) from engagement to academics may more readily show concurrent gains.

5.1.3 Consequence choice versus preference

A critique of the choice literature revolves around the notion of choice vs. preference (Dunlap et al., 1994). To control for preference in the current study, the experimenter went to great lengths. Based on individual preference surveys, the experimenter employed only the top five stimuli counterbalanced across conditions and days. Unlike previous choice research in which students could choose the same antecedent (e.g., Powell & Nelson, 1997) or consequence (e.g., Dyer et al., 1990), students did not choose or experience the same stimuli more than a few times over the course of the study. Because the arrangement controlled for preference, the limited functional relation established between reinforcement and choice conditions links to choice not preference.

5.2 LIMITATIONS

The current study does present possible limitations. First, the experimenter had a truncated list of reinforcers available. Due to the nature of the setting a public school, the experimenter only had certain categories of consequences available to provide for student behavior (e.g., social, tangible, appropriate privileges). By excluding an entire category of primary reinforcers (e.g., edibles), students may not have had access to powerful enough reinforcement as primary reinforcers typically maintain a more reinforcing effect on behavior then secondary reinforcers (Ma, 2010). Also, students requested items on the preference assessment unrealistic to the situation or outside the ability of the experimenter to provide (e.g., X-Box games, money).Eliminating or ignoring potentially powerful consequences may have affected the results, especially in Phase 1. While unable to provide certain stimuli, including edibles in the consequence array may have changed student preference assessment results which in turn may have affected student behavior. Providing more powerful reinforcers may have sufficiently distinguished choice and no choice conditions from the no reinforcement condition in the instructional phase eliminating the need for an increase in task difficulty.

Second, students' preference may have changed throughout the study. The experimenter attempted to proactively address changing preferences and satiation by counterbalancing preferred stimuli throughout reinforcement conditions (choice and no choice). However, individual students may have still changed preference over the course of the study (i.e., three months). Instead of only at the beginning of the study, the experimenter could have rerun a preference assessment for each student multiple times throughout the study which may have better identified potential reinforcers.

Third, the seating arrangement of student may have presented a limitation. Due to videotaping restrictions, the experimenter could video tape only students with consent and assent. All participating students sat together. For optimal classroom management, Evertson and Emmer (2012) suggest students with behavior difficulties should sit away rather than near each other. The close proximity of participating students may have affected both engagement and academic behavior. A more heterogeneous seating arrangement may have changed the behavioral dynamics of the students in the study.

5.3 IMPLICATIONS FOR PRACTIONERS

The use of choice continues to hold promise for educators of students with E/BD in inclusive settings. While choice of reinforcement did not have a functional relation with engagement; reinforcement (with or without choice) did for activities at the instructional level, thus reconfirming prior research (i.e., Ma, 2010) suggesting the use of reinforcement beneficial for increasing task engagement.

Data from the current study suggests that presenting preferred stimuli, regardless of choice, increases engagement. However, teachers unable to determine preferred reinforcement items for individual students (i.e., implementing a preference survey) plausibly can provide a choice of potentially reinforcing stimuli to reinforce task engagement. However, if a teacher does have time to conduct a preference assessment providing choice may not prove necessary.

Instructional matching may outweigh the use of consequence choice given the current results. Vannest et al. (2011) suggest that teachers continually assess student knowledge via instructional or benchmark probes to ensure an ability match with academics. Teachers who

effectively match assignments to student ability may require fewer back-up reinforcers. However, students with E/BD can behave inconsistently even when provided work they can complete (Wehby, Falk, Barton-Arwood, Lane, & Cooley, 2003). Given behavioral variability and the potential mismatch of material and ability, teachers of students with E/BD can maintain the use of reinforcement and choice as a way to improve and maintain task engagement.

5.4 FUTURE DIRECTIONS FOR RESEARCHERS

Given the ease of implementation and generally positive results in Phase 2 of the study, choice as an intervention may find ready acceptability. However, questions regarding the intervention remain open. The current examination represents only the second examination of consequence in isolation for students with ED following Cosden et al. (1995). Examined in combination (Dyer et al., 1990) and with other populations (Carr & Carlson, 1993; Dyer et al., 1990; Peterson et al., 2001), direct or systematic replications of consequence choice seem paramount. Further examinations may solidify consequence choice as an effective intervention for students with ED in both math and other areas. Different subjects (i.e., reading, writing, etc.) and academic outputs (i.e., writing paragraphs, completing word maps, etc.) may produce varying levels of problem behavior efficiently testing the bounds of consequence choice.

Another direction for experimenters involves a shift in the consequence focus. Rather than tying consequence choice to engagement, researchers could provide or withhold choice based on an academic criterion. As demonstrated in the current study, an increase in engagement readies students for academic work but does not guarantee work productivity. Providing choice for certain academic outputs or specific gains may have the benefits of increasing both related

domains. The change may also decrease classroom implementation difficulties. Instead of building in the errors noted early from sampling engagement, teachers can quickly grade a paper to determine if students reached the goal.

In addition, questions remain on the parceling out of choice and preference. Experimenters should examine multiple conditions with preferred and non-preferred reinforcers in both the no choice and choice position possibly replicating the procedures employed by Cole et al. (1997). Counterbalancing the preferred and non-preferred items across conditions and days will allow for the direct study of choice without interference from preference.

One other area for future studies involves the timing of consequence presentation. Students received cue cards, rather than the item, at the conclusion of each session. As immediate consequences tend to affect behavior more than delayed, directly comparing the two would examine multiple dimensions of choice. Experimenters could examine not only the effects on student behavior, but other social validity concerns raised in inclusive settings.

5.5 CONCLUSIONS

Students with ED have the most dismal outcomes of any subgroup of students with disabilities (Ryan et al., 2008). The educational system has often segregated students with E/BD from positive peer role models placing them in aversive environments potentially hindering gains. As inclusion plays a greater role in the educational system, teachers responsible for educating students with and without E/BD require effective interventions. Struggling with both academic and behavior deficits (Vansett et al., 2011), students with E/BD have benefited from interventions that include choice (i.e. Cole et al., 1997; Dunlap et al., 1994; Dunlap et al., 1991;

Jolivette et al., 2001; Kern et al., 2002; Skerbetz & Kostewicz, 2013). The use of consequence choice in isolation for the academic and engagement behavior of students with E/BD produced varying outcomes. The effective matching of academic tasks to student ability produced little or no difference with choice, no choice, or no reinforcement in place. The presence of reinforcement regardless of choice produced more student engagement with increased task difficulty. While not entirely supporting the use of choice over the effective use of reinforcement, the results suggest teachers can implement either to promote student engagement. Given the constraints of a classroom setting consisting of both students with and without disabilities, teachers require as many interventions as possible to promote positive student outcomes. Thus, teachers within inclusive settings containing students with E/BD can reasonably add the appropriate use of consequence choice and the use of reinforcing stimuli to an ever growing tool box of effective behavior change interventions.

APPENDIX A

RESEARCH APPROVAL LETTER FROM THE UNIVERSITY OF PITTSBURGH INSTITUTIONAL REVIEW BOARD

University of Pittsburgh
Institutional Review Board

3500 Fifth Avenue
Pittsburgh, PA 15213
(412) 383-1480
(412) 383-1508 (fax)
http://www.irb.pitt.edu

Memorandum

To: Mandi Skerbetz

From: Christopher Ryan, PhD , Vice Chair

Date: 8/1/2012

IRB#: PRO12060237

Subject: The Use of Consequence Choice to Address Academic Engagement and Performance for Students with Emotional Disturbances in Inclusive Settings

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The University of Pittsburgh Institutional Review Board reviewed and approved the above referenced study by the expedited review procedure authorized under 45 CFR 46.110 and 21 CFR 56.110. Your research study was approved under:
45 CFR 46.110.(5)
45 CFR 46.110.(6)
45 CFR 46.110.(7)

Approval Date: 8/1/2012

Expiration Date: 7/31/2013

For studies being conducted in UPMC facilities, no clinical activities can be undertaken by investigators until they have received approval from the UPMC Fiscal Review Office.

Please note that it is the investigator's responsibility to report to the IRB any unanticipated problems involving risks to subjects or others [see 45 CFR 46.103(b)(5) and 21 CFR 56.108(b)]. Refer to the IRB Policy and Procedure Manual regarding the reporting requirements for unanticipated problems which include, but are not limited to, adverse events. If you have any questions about this process, please contact the Adverse Events Coordinator at 412-383-1480.

The protocol and consent forms, along with a brief progress report must be resubmitted at least one month prior to the renewal date noted above as required by FWA00006790 (University of Pittsburgh), FWA00006735 (University of Pittsburgh Medical Center), FWA00000600 (Children's Hospital of Pittsburgh), FWA00003567 (Magee-Womens Health Corporation), FWA00003338 (University of Pittsburgh Medical Center Cancer Institute).

Please be advised that your research study may be audited periodically by the University of Pittsburgh Research Conduct and Compliance Office.

APPENDIX B

THIRD GRADE SAMPLE MATH COMPUTATION PROBE

Sheet #1 Computation 3

Password: ALL

Name: _____ Date: _____

A $7\overline{)28}$	B $5\overline{)35}$	C 98 − 19	D $1\overline{)4}$	E 6 × 6
F 5 × 4	G 400 − 114	H 1 × 0	I 73 × 5	J 3 × 2
K 710 + 779	L $4\overline{)4}$	M 97 + 97	N 54 × 4	O $4\overline{)32}$
P 373 − 83	Q 8 × 2	R 0 × 2	S 596 + 53	T 9 × 8
U 8 × 3	V 1 × 4	W 44 − 37	X 308 − 141	Y $1\overline{)6}$

APPENDIX C

FOURTH GRADE SAMPLE MATH COMPUTATION PROBE

Sheet #1 Computation 4

Password: ARM

Name: _____ Date: _____

A $\frac{3}{7} - \frac{2}{7} =$	B $1\frac{6}{7} + 3 =$	C $4\overline{)6}$	D $6\overline{)78}$	E 875×7
F 6×3	G 9×0	H 244×7	I $6\overline{)48}$	J $5\overline{)20}$
K $2\overline{)50}$	L $6144 - 4420$	M 33×10	N 6×0	O $7\overline{)30}$
P $95225 + 75268$	Q $8\overline{)32}$	R $1156 + 2824 + 83$	S $7\frac{4}{7} - 2 =$	T 38×33
U $\frac{3}{5} + \frac{1}{5} =$	V $982 - 97$	W 9×5	X 4×1	Y $7\overline{)56}$

APPENDIX D

FIFTH GRADE SAMPLE MATH COMPUTATION PROBE

Sheet #1 Computation 5

Password: ANT

Name: _____ Date: _____

A $\frac{1}{3} - \frac{1}{5} =$	B $\frac{2}{3} + \frac{1}{3} =$	C $\begin{array}{r} 53355 \\ -\ 50568 \end{array}$	D Reduce: $\frac{3}{6} =$	E $6\frac{1}{3} - 2\frac{2}{3} =$
F $\begin{array}{r} 704 \\ \times\ 69 \end{array}$	G Rename as mixed: $\frac{33}{4} =$	H $6\frac{3}{5} + 3\frac{3}{5} =$	I Rename as improper: $8\frac{5}{7} =$	J $\begin{array}{r} 877 \\ \times\ 32 \end{array}$
K $6\overline{)840}$	L $9\overline{)634}$	M $\frac{1}{7} + \frac{8}{21} =$	N $\begin{array}{r} 58676 \\ 2444 \\ 5231 \\ +\ 257 \end{array}$	O $\begin{array}{r} 6.22 \\ +\ 7.7 \end{array}$
P $17\overline{)68}$	Q $\begin{array}{r} 58320 \\ -\ 7750 \end{array}$	R $\frac{11}{14} - \frac{5}{7} =$	S $\frac{1}{2} + \frac{1}{5} =$	T $80\overline{)83}$
U $\begin{array}{r} 2.8 \\ -\ 1.58 \end{array}$	V Rename as improper: $5\frac{1}{5} =$	W Reduce: $\frac{8}{24} =$	X $\begin{array}{r} 85865 \\ +\ 81296 \end{array}$	Y Rename as mixed: $\frac{11}{5} =$

APPENDIX E

CUE CARDS USED DURING NO CHOICE AND NO REINFORCEMENT (CONTROL) CONDITION

Try your best on today's assignment. You will have five minutes to complete as many problems as you can. Your goal is to work hard. If you meet your goal you will receive a choice of either (specifically named, individualized preferred item) or (specifically named, individualized preferred item) today at lunch from the guidance counselor. Good luck.

Good job! You worked really hard today and met your goal. You will receive a choice of either (specifically named, individualized preferred item) or (specifically named, individualized preferred item) today at lunch from the guidance counselor.

You were not always working hard on your assignment today. Unfortunately, you did not meet your goal today.

APPENDIX F

CUE CARDS USED DURING NO CHOICE OF REINFORCEMENT CONDITION

Try your best on today's assignment. You will have five minutes to complete as many problems as you can. Your goal is to work hard. If you meet your goal, you will receive (specifically named, individualized preferred item) today at lunch from the guidance counselor. Good luck.

Good job! You worked really hard today and met your goal. You will receive (specifically named, individualized preferred item) today at lunch from the guidance counselor.

You were not always working hard on your assignment today. Unfortunately, you did not meet your goal today.

APPENDIX G

CUE CARDS USED DURING CHOICE OF REINFORCEMENT CONDITION

Try your best on today's assignment. You will have five minutes to complete as many problems as you can. Your goal is to work hard. If you meet your goal, you will receive a choice of either (specifically named, individualized preferred item) or (specifically named, individualized preferred item) today at lunch from the guidance counselor. Good luck.

Good job! You worked really hard today and met your goal. You will receive a choice of either (specifically named, individualized preferred item) or (specifically named, individualized preferred item) today at lunch from the guidance counselor.

You were not always working hard on your assignment today. Unfortunately, you did not meet your goal today.

APPENDIX H

PREFERENCE SURVEY PART I

Name: _____

Directions: Please place a circle OR list up to 10 items item that you would like to earn as a reward:


Pencil


Marker

Eraser


Pencil Top Eraser


Pencil Grip


Book mark

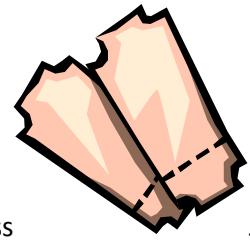

Colored Pencil


Sharpener

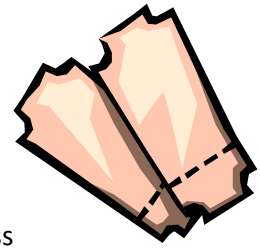

Pen


Sticker


Free Homework Pass


Jean Pass

Lunch with Adult Pass



IPad/Computer Pass

Porcupines

Sticky Animals

Stampers

Planes

Bracelets

Stress Balls

Tattoos

Animals

Cards

Directions: In the space below add any other rewards that you like:

APPENDIX I

PREFERNCE SURVEY PART II – ANNA

Name: _____Anna_____

Directions: Please rank the following items in the order that you would like to receive them as rewards. Place a 1 in front of the item you would like to receive the most and a 10 in front of the item you would like to receive the least.

_____  Marker_____  Colored Pencil

_____  Pencil Grip _____  Bookmark

_____  IPad/Computer Pass _____  Jean Pass

_____  Bracelet _____  Porcupine

_____  No Homework Pass _____  Lunch with Adult Pass

APPENDIX J

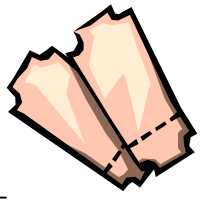
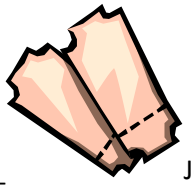
PREFERENCE SURVEY PART II – DESMOND

Name: _____Desmond_____

Directions: Please rank the following items in the order that you would like to receive them as rewards. Place a 1 in front of the item you would like to receive the most and a 10 in front of the item you would like to receive the least.

_____  Pencil Grip _____  Colored Pencil

_____  Pen _____  Bracelet

_____  Free Homework Pass_____  Jean Pass

_____  IPad/Computer Pass_____  Notepad

_____  Ring _____  Necklace

APPENDIX K

PREFERENCE SURVEY PART II – ELI

Name: _____Eli_____

Directions: Please rank the following items in the order that you would like to receive them as rewards. Place a 1 in front of the item you would like to receive the most and a 10 in front of the item you would like to receive the least.

_____  Pencil Top Eraser_____  Colored Pencil

_____  Pen _____  Baseball Card

_____  IPad/Computer Pass_____  Jean Pass

_____  Sticky Animal_____  Notepad

_____  Stress Ball _____  Animal

APPENDIX L

PREFERENCE SURVEY PART II – JAY

Name: _____Eli_____

Directions: Please rank the following items in the order that you would like to receive them as rewards. Place a 1 in front of the item you would like to receive the most and a 10 in front of the item you would like to receive the least.

_____  Pencil Top Eraser_____  Colored Pencil

_____  Pen _____  Baseball Card

_____  IPad/Computer Pass_____  Jean Pass

_____  Sticky Animal_____  Notepad

_____  Stress Ball _____  Animal

APPENDIX M

SPECIAL EDUCATION TEACHER SCRIPT

Special Education Teacher Script

As the classroom teacher provides the non-participating students with directions for their assignment the special education teacher will approach the participating students and provide them with a cue card (dependent on the condition).

The special education teacher will provide the students with the independent math computation worksheet.

Special Education Teacher: "Keep your worksheets turned over until I say start. You may use scratch paper, but no calculators. You will have five minutes to complete as many problems as you can."

The experimenter will set the timer for five minutes (which the special education teacher can also see).

The experimenter will start the timer (in sync with the special education teacher stating, "Start".

Special Education Teacher: "Start."

The timer will signal the completion of five minutes.

Special Education Teacher: "Stop."

The special education teacher will collect the independent math computation worksheets.

The experimenter will review the data collected on the engagement data collection sheet.

The experimenter will determine if the student met criterion *(eight out of ten checks).*

The experimenter will provide the special education teacher with the appropriate cue card for each student in accordance with the condition and if the student met criterion.

The special education teacher will give each student their appropriate cue card.
If necessary, the experimenter will provide the guidance counselor with the appropriate reinforcement items to distribute at lunch.

APPENDIX N

ENGAGEMENT / NON-ENGAGEMENT DATA COLLECTION SHEET

Date: _____

Student											Score/Reinforcement Earned

Definition – Eyes on paper

APPENDIX O

GENERAL PROCEDURES CHECKLIST

Step	Check if Occurred in Correct Order
The classroom teacher provides the non-participating students with directions for their assignment.	
The special education teacher approaches the participating students and provides them with a cue card (dependent on the condition).	
The special education teacher provides the participating students with the independent math computation worksheet.	
The special education teacher states, “Keep your worksheets turned over until I say start. You may use scratch paper, but no calculators. You will have five minutes to complete as many problems as you can.”	
The experimenter sets the timer for five minutes (which the special education teacher can also see).	
The experimenter will start the timer and simultaneously the special education teacher will say, “Start”.	
During the five minutes the experimenter completes the engagement data collection sheet.	
The timer signals the end of the five minutes and the special education teacher states, “Stop”.	
The special education teacher collects the independent math computation worksheets.	
The experimenter reviews the data collected on the engagement data collection sheet and determines if the student met criterion (eight of ten checks).	
The experimenter provides the special education teacher with the appropriate cue card for each student in accordance with the condition and if the student met criterion.	
The special education teacher gives each student their appropriate cue card.	
If necessary, the experimenter provides the guidance counselor with the appropriate reinforcement items to distribute at lunch.	

APPENDIX P

SPECIAL EDUCATION TEACHER SOCIAL VALIDITY SURVEY

Special Education Teacher Social Validity Survey

Part I.
Please rate the following questions using the Likert scale provided. Circle the most appropriate response.
How effective was this intervention on increasing task engagement for the targeted students?

4 – Highly Effective
3 – Effective
2 – Minimally Effective
1 – Not Effective

How effective was this intervention on increasing work performance of the targeted students?

4 – Highly Effective
3 – Effective
2 – Minimally Effective
1 – Not Effective

Part II.
Please rate the following questions using the Likert scale provided. Circle the most appropriate response.
How likely would you be to incorporate choice of rewards into your daily lesson routine for the targeted students?

4 – Very Likely
3 – Likely
2 – Minimally Likely
1 – Not Likely

How likely would you be to incorporate choice of rewards into your daily lesson routine for the students who were not targeted?

4 – Very Likely
3 – Likely
2 – Minimally Likely
1 – Not Likely

If you wanted to implement this intervention rate the likelihood that you have enough time?

4 – Very Likely
3 – Likely
2 – Minimally Likely
1 – Not Likely

If you wanted to implement this intervention rate the likelihood that you have enough materials?

4 – Very Likely
3 – Likely
2 – Minimally Likely
1 – Not Likely

If you wanted to implement this intervention rate the likelihood that you have enough training on the intervention?

4 – Very Likely
3 – Likely
2 – Minimally Likely
1 – Not Likely

Part III.

Please answer the following questions in the spaces provided.

1. Do you think the intervention was effective for increasing task engagement? Why or why not?

2. Do you think the intervention was effective for increasing task work performance in the area of independent math computation? Why or why not?

3. Please provide any additional comments about the intervention and the use of the intervention in your role as a co-teacher in a general education classroom.

APPENDIX Q

STUDENT SOCIAL VALIDITY INTERVIEW QUESTIONS

Circle the number that best represents how you *feel* about each question.

1. I liked having the ability to complete a survey to decide what rewards I would work for.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

2. I did not like having a choice of rewards.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

3. Having a choice of rewards helped me with my math worksheets.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

4. I liked having a choice of the rewards that I worked for.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

5. Having choices did not help me complete my math worksheets.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

6. If asked, I would like to have a choice of rewards to work for in math class.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

7. I liked when I was told which reward I would receive.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

8. If asked, I would like to have a choice of rewards to work for in other classes, like in science class.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

9. I did better on my math assignments on the days that I did not receive a reward.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

10. I liked when there were no rewards to work for.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

BIBLIOGRAPHY

Babyak, A. E., Koorland, M., & Mathes, P. G. (2000). The effects of story mapping instruction on the reading comprehension of students with behavioral disorders. *Behavioral Disorders*, 25, 239-258. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Baker, J. M. & Zigmond, N. (1995). The meaning and practice of inclusion for students with learning disabilities: Themes and implications from the five cases. Journal of Special Education, 29, 163-180. doi:10.1177/002246699502900207

Bambara, L. M., Ager, C., & Koger, F. (1994). The effects of choice and task preference on the work performance of adults with severe disabilities. *Journal of Applied Behavior Analysis*, 27, 555-556. doi:10.1901/jaba.1994.27-555

Bambara, L. M., Koger, F., Katzer, T., & Davenport, T. A. (1995). Embedding choice in the context of daily routines: An experimental case study. *Journal of the Association for Persons with Severe Handicaps*, 20, 185-195.

Blood, E. (2010). Effects of student response systems on participation and learning of students with emotional and behavioral disorders. *Behavioral Disorders*, 35, 214-228. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Bradley, R., Doolittle, J., & Bartolotta, R. (2008). Building on the data and adding to the discussion: The experiences and outcomes of students with emotional disturbance. *Journal of Behavioral Education*, 17, 4-23. doi:10.1007/s10864-007-9058-6

Cade, T. & Gunter, P. L. (2002). Teaching students with severe emotional and behavioral disorders to use a musical mnemonic technique to solve basic division calculations. *Behavioral Disorders*, 27, 208-214. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Carr, E. G. & Carlson, J. I. (1993). Reduction of severe behavior problems in the community using a multicomponent treatment approach. *Journal of Applied Behavior Analysis*, 26, 157-172. doi:10.1901/jaba.1993.26-157

Carr, S. C. & Punzo, R. P. (1993). The effects of self-monitoring of academic accuracy and productivity on the performance of students with behavioral disorders. *Behavioral*

Disorders, 18, 241-250. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Carson, P. M. & Eckert, T. L. (2003). An experimental analysis of mathematics instructional components: Examining the effects of student-selected versus empirically-selected interventions. *Journal of Behavioral Education*, 12, 35-54. doi:10.1023/A:1022370305486

Cobb, B., Sample, P. L., Alwell, M., & Johns, N. R. (2006). Cognitive-behavioral interventions, dropout, and youth with disabilities: a systematic review. *Remedial and Special Education*, 27, 259-275. doi:10.1177/07419325060270050201

Cochran, L., Feng, H., Cartledge, G., & Hamilton, S. (1993). The effects of cross age tutoring on the academic achievement, social behaviors, and self-perceptions of low achieving African-American males with behavioral disorders. *Behavioral Disorders*, 18, 292-302. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Cole, C. L., Davenport, T. A., Bambara, L. M., & Ager, C. L. (1997). Effects of choice and task preference on the work performance of students with behavior problems. *Behavior Disorders*, 22, 65-74. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Cole, C. L. & Levinson, T. R. (2002). Effects of within-activity choices on the challenging behavior of children with severe developmental disabilities. *Journal of Positive Behavior Interventions*, 4, 29-37.

Coleman, M., Webber, J., & Algozzine, B. (2000). Inclusion and students with emotional/behavioral disorders. *Special Services in the Schools*, 15, 25-47. Retrieved from http://dx.doi.org/10.1300/J008v15n01_03

Coleman, M., Wheeler, L., & Webber, J. (1993). Research on interpersonal problem-solving training: A review. *Remedial and Special Education*, 14, 25-36. doi:10.1177/074193259301400205

Connolly, A. J. (2007). *KeyMath 3: Diagnostic Assessment.* Bloomington, MN: Pearson.

Cook, B. G. (2002). Inclusive attitudes, strengths, and weaknesses of pre-service general educators enrolled in a curriculum infusion teacher preparation program. *Teacher Education and Special Education*, 25, 262-277.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied Behavior Analysis* (2nd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.

Cosden, M., Gannon, C., & Haring, T. G. (1995). Teacher-control versus student-control over choice of task and reinforcement for students with severe behavior problems. *Journal of Behavioral Education*, 5, 11-27.

Council for Exceptional Children, (2012). *Professional Practice Topics and Information: Inclusion*. Retrieved from http://www.cec.sped.org/Content/NavigationMenu/NewsIssues/TeachingLearningCenter/ProfessionalPracticeTopicsInfo/Inclusion/default.html

Coutinho, M. J. (1986). Reading achievement of students identified as behaviorally disordered at the secondary level. *Behavioral Disorders*, 11, 200-207. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Dibley, S. & Lim, L. (1999). Providing choice making opportunities within and between daily school routines. *Journal of Behavioral Education*, 9, 117-132. doi:1053-0819/99/0600-0117

Dunlap, G. & Childs, K. E. (1996). Intervention research in emotional and behavioral disorders: An analysis of studies from 1980-1993. *Behavioral Disorders*, 21, 125-136. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Dunlap, G., DePerczel, M., Clarke, S., Wilson, D., Wright, S., White, R., & Gomez, A. (1994). Choice making to promote adaptive behavior for students with emotional and behavioral challenges. *Journal of Applied Behavior Analysis*, 27, 505-518. doi:10.1901/jaba.1994.27-505

Dunlap, G., Kern-Dunlap, L., Clarke, S., & Robbins, F. R. (1991). Functional assessment, curricular revisions, and severe behavior problems. *Journal of Applied Behavior Analysis*, 24, 387-397. doi:10.1901/jaba.1991.24-387

Dyer, K., Dunlap, G., & Winterling, V. (1990). Effects of choice making on the serious problem behaviors of students with severe handicaps. *Journal of Applied Behavior Analysis*, 23, 515-524. doi:10.1901/jaba.1990.23-515

Evertson, C. M. & Emmer, E. T. (2012). Classroom management for elementary teachers (9th ed.). Upper Saddle River, NJ: Pearson.

Falk, K. B. & Wehby, J. H. (2001). The effects of peer-assisted learning strategies on the beginning reading skills of young children with emotional and behavioral disorders. *Behavioral Disorders*, 26, 344-359. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Fantuzzo, J. W., Rohrbeck, C. A., Hightower, A. D., & Work, W. C. (1991). Teachers' use and children's preferences of rewards elementary school. *Psychology in the Schools*, 28, 175-181. doi:10.1002/1520-6807(199104)28:2<175::AID-PITS2310280213>3.0.CO;2-K

Fish, M. C. & Mendola, L. R. (1986). The effect of self-instruction training on homework completion in an elementary special education class. *School Psychology Review*, 15, 268-276.

Forness, S., Kavale, K., Blum, I., & Lloyd, J. (1997). A mega-analysis of meta-analyses: What works in special education and related services. *Teaching Exceptional Children*, 13, 4-9.

Fuchs, L. S., Hamlett, C. L., & Fuchs, D. (1999). *Monitoring Basic Skills Progress.* Austin, TX: Pro-Ed, Inc.

Gagnon, J. C., Barber, B. R., Van Loan, C., & Leone, P. E. (2009) Juvenile correctional schools: Characteristics and approaches to curriculum. *Education and Treatment of Children*, 32, 673-696. doi:10.1353/etc.0.0068

Gagnon, J. C., & Richards, C. (2008). Making the right turn: A guide about youth involved in the juvenile corrections system (pp. 1-61). Washington, DC: National Collaborative on Workforce and Disability for Youth, Institute for Educational Leadership.

Gardner, R. & Frazier-Trotman, S. (2001). Comprehensive programming for elementary students with behavioral disorders. In L. M. Bullock & R. A. Gable (Eds.), *Addressing the social, academic, and behavioral needs of students with challenging behavior in inclusive and alternative settings* (pp. 21-24). Arlington, VA: Council for Children with Behavioral Disorders.

George, C. L. (2010). Effects of response cards on performance and participation in social studies for middle school students with emotional and behavioral disorders. *Behavioral Disorders*, 35, 200-213. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Glomb, N. & West, R. P. (1990). Teaching behaviorally disordered adolescents to use self-management skills for improving the completeness, accuracy, and neatness of creative writing homework assignments. *Behavioral Disorders*, 15, 233-242. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Gresham, F. M. (1998). Social skill training: Should we raze, remodel, or rebuild? *Behavioral Disorders*, 24, 19-25. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Guess, D., Benson, H. A., & Siegel-Causey, E. (1985). Concepts and issues related to choice-making and autonomy among persons with severe disabilities. *Journal of the Association for Persons with Severe Handicaps*, 10, 79-86.

Guetzloe, E. (1999). Inclusion: The broken promise. *Preventing School Failure*, 43, 92.

Gunter, P. L. & Coutinho, M. J. (1997). Negative reinforcement in classrooms: What we're beginning to learn. *Teacher Education and Special Education*, 20, 249-264. Retrieved from http://www.tedcec.org/publications/journals

Harding, J., Wacker, D. P., Cooper, L. J., Millard, T., & Jensen-Kovalan, P. (1994). Brief hierarchical assessment of potential treatment components with children in an outpatient clinic. *Journal of Applied Behavior Analysis*, 27, 291-300. doi:10.1901/jaba.1994.27-291

Hawkins, J. (1988). Antecedent pausing as a direct instruction tactic for adolescents with severe behavioral disorders. *Behavioral Disorders*, 13, 263-272. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Henderson, K., Klein, S., Gonzalez, P., & Bradley, R. (2005). Teachers of children with emotional disturbance: A national look at preparation, teaching conditions, and practices. *Behavioral Disorders*, 31, 6-17. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Heward, W. L., Gardner, R., Cavanaugh, R. A., Courson, F. H., Grossi, T. A., & Barbetta, P. M. (1996). Everyone participates in this class: Using response cards to increase active student response. *Teaching Exceptional Children*, 28, 4-10.

Hodge, J., Riccomini, P. J., Buford, R., & Herbst, M. H. (2006). A review of instructional interventions in mathematics for students with emotional and behavioral disorders. *Behavioral Disorders*, 31, 297-311. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Hughes, C. A., Deshler, D. D., Ruhl, K. L., & Schumaker, J. B. (1993). Test-taking strategy instruction for adolescents with emotional and behavior disorders. *Journal of Emotional and Behavioral Disorders*, 1, 189-198. doi:10.1177/106342669300100307

Individuals with Disabilities Education Improvement Act, 20 U.S.C. §1400 *et seq.* (2004) (reauthorization of the Individuals with Disabilities Education Act of 1997)

Ip, S. M. & Szymanski, E. M. (1994). Effects of staff implementation of a choice program on challenging behaviors in persons with developmental disabilities. *Rehabilitation Counseling Bulletin*, 37, 347-358.

Johnston, J. M. & Pennypacker, H. S. (2009). *Strategies and Tactics of Behavioral Research* (3rd ed.). New York: Routledge.

Jolivette, K., Wehby, J. H., Canale, J., & Massey, N. G. (2001). Effects of choice-making opportunities on the behavior of students with emotional and behavioral disorders. *Behavioral Disorders*, 26, 131-145. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Kauffman, J. M. (2005). *Characteristics of emotional and behavioral disorders of children and youth* (8th ed.). Columbus, OH: Merrill Prentice Hall.

Kauffman, J. M., Bantz, J., & McCullough, J. (2002). Separate and better: A special public school class for students with emotional and behavioral disorders. *Exceptionality*, 10, 149-170. Retrieved from http://www.erlbaum.com/Journals/journals/EX/ex.htm

Kauffman, J. M. & Hallahan, D. P. (1995). *The illusion of full inclusion: A comprehensive critique of a current special education bandwagon*. Austin, TX: Pro-Ed.

Kennedy, C. H. (2005). *Single-case designs for educational research*. Boston: Allyn and Bacon.

Kern, L., Bambara, L., & Fogt, J. (2002). Class-wide curricular modifications to improve the behavior of students with emotional and behavioral disorders. *Behavioral Disorders*, 27, 317-326. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Kern, L., Mantenga, M. E., Vorndran, C. M., Bailin D., & Hilt, A. (2001). Choice of task sequence to increase engagement and reduce problem behaviors. *Journal of Positive Behavior Interventions*, 3, 3-10. doi:10.1177/109830070100300102

Kern, L., & State, T.M. (2009). Incorporating choice and preferred activities into class-wide

instruction. *Beyond Behavior*, 18, 3-11. Retrieved from http://www.ccbd.net/publication/beyondbehavior

Killu, K., Clare, C. M., Im, A. (1999). Choice vs. preference: The effects of choice and no choice of preferred and non preferred spelling tasks on the academic behavior of students with disabilities. *Journal of Behavioral Education*, 9, 239-253. doi:10.1023/A:1022143716509

Kostewicz, D. E., Ruhl, K. L., & Kubina, R. M. (2008). Creating classroom rules for students with emotional and behavioral disorders: A decision-making guide. *Beyond Behavior*, 16, 14-21. Retrieved from http://www.ccbd.net/publication/beyondbehavior

Lago-Delello, E. (1998). Classroom dynamics and the development of serious emotional disturbance. *Exceptional Children*, 64, 479-792.

Lancioni, G. E., O'Reilly, M. F., & Emerson, E. (1996). A review of choice research with people with severe and profound developmental disabilities. *Research in Developmental Disabilities*, 17, 391-411.

Landrum, T. J., Tankersley, M., & Kauffman, J. M. (2003). What is special about special education for students with emotional and behavioral disorders? *The Journal of Special Education*, 37, 148-156. doi:10.1177/00224669030370030201

Lane, K. L., Wehby, J. H., Little, A. M., & Cooley, C. (2005). Academic, social, and behavioral profiles of students with emotional and behavioral disorders educated in self-contained classrooms and self-contained schools: Part I-are they more alike than different? *Behavioral Disorders*, 30, 349-361. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Levendoski, L. S. & Cartledge, G. (2000). Self-monitoring for elementary school children with serious emotional disturbances: Classroom applications for increased academic responding. *Behavioral Disorders*, 25, 211-224. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Lewis, T. J. & Sugai, G. (1999). Effective behavior support: A systems approach to proactive schoolwide management. *Focus on Exceptional Children*, 31, 1-24.

Lipsky, D. A. & Gartner, A. (1997). *Inclusion and school reform: Transforming america's classrooms*. Baltimore, MD: Brookes Publishing Co.

Lloyd, J. W., Bateman, D. F., Landrum, T. J., & Hallahan, D. P. (1989). Self-recording of attention versus productivity. *Journal of Applied Behavior Analysis*, 22, 315-323. doi:10.1901/jaba.1989.22-315

Ma, H. (2010). Comparison of the relative effectiveness of different kinds of reinforcers: A PEM approach. The Behavior Analyst Today, 10, 398-427. Retreived from www.baojournal.com/archives

Maag, J. W. (2001). Management of surface behavior: A new look at an old approach. *Counseling and Human Development*, 33, 1-10.

Maag, J. W. (2006). Social skills training for students with emotional and behavioral disorders: A review of reviews. *Behavioral Disorders*, 32, 5-17. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Maag, J. W. & Swearer, S. M. (2005). Cognitive-behavioral interventions for depression: Review and implications for school personnel. *Behavioral Disorders*, 30, 259-276. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Madden, N. A. & Slavin, R. E. (1983). Mainstreaming students with mild handicaps: academic and social outcomes. *Review of Educational Research*, 53, 519-569. doi:10.3102/00346543053004519

Maggin, D. M., Wehby, J. H., Moore Partin, T. C., Robertson R., & Oliver, R. M. (2011). A comparison of the instructional context for students with behavioral issues enrolled in self-contained and general education classrooms. *Behavioral Disorders*, 36, 84-99. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Mastropieri, M. A., Emerick, K., & Scruggs, T. E. (1988). Mnemonic instruction of science concepts. *Behavioral Disorders*, 14, 48-56. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

McIntosh, R., Vaughn, S., Schumm, J. S., Haager, D., & Lee, O. (1993). Observations of students with learning disabilities in general education classrooms. *Exceptional Children*, 60, 249-261.

Meadows, N. B., Neel, R. S., Scott, C. M., & Parker, G. (1994). Academic performance, social competence, and mainstream accommodations: A look at mainstreamed and nonmainstreamed students with serious behavioral disorders. *Behavioral Disorders*, 19, 170-180. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Moes, D. R. (1998). Integrating choice-making opportunities within teacher-assigned academic tasks to facilitate the performance of children with autism. *Journal of the Association for Persons with Severe Handicaps*, 23, 319-328.

Montgomery, R. W. & Ayllon, T. (1993). The effects of "do", "don't", and "wait" requests on compliance and behavior and stimulus generalization. *Journal of Behavior Therapy and Experimental Psychiatry*, 24, 171-180. doi:10.1016/0005-7916(93)90046-Y

Mooney, P., Epstein, M. H., Reid, R., & Nelson, J. R. (2003). Status of and trends in academic intervention research for students with emotional disturbance. *Remedial and Special Education*, 24, 273-287. doi:10.1177/07419325030240050301

Mooney, P., Ryan, J. B., Uhing, B. M., Reid, R., & Epstein, M. H. (2005). A review of self-management interventions targeting academic outcomes for students with emotional and behavioral disorders. *Journal of Behavioral Education*, 14, 203-221. doi:10.1007/s10864-005-6298-1

Morgan, P. (2006). Increasing task engagement using preference or choice making. *Remedial and Special Education*, 27, 176-187. doi:10.1177/07419325060270030601

Munk, D. D. & Repp, A. C. (1994). The relationship between instructional variables and problem behavior: A review. *Exceptional Children*, 60, 390-401.

Nelson, C. M., Rutherford, R. B., Center, D. B., & Walker, H. M. (1991). Do public schools have an obligation to serve troubled children and youth? *Exceptional Children*, 57, 406-415.

Nelson, J. R. (1996). Designing schools to meet the needs of students who exhibit disruptive behavior. Journal of Emotional and Behavioral Disorders, 4, 147-161. doi:10.1177/106342669600400302

Neville, M. H. & Jenson, W. R. (1984). Precision commands and the "Sure I Will" program: A quick and efficient compliance training sequence. *Child & Family Behavior Therapy*, 6, 61-65. doi: 10.1300/J019v06n03_05

Oliver, R. M. & Reschly, D. J. (2010). Special education teacher preparation in classroom management: Implications for students with emotional and behavioral disorders. *Behavioral Disorders*, 35, 188-199. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Osguthorpe, R. T. & Scruggs, T. E. (1986). Special education students as tutors: A review and analysis. *Remedial and Special Education*, 7, 15-26. doi:10.1177/074193258600700405

Parkhurst, J. T. & Asher, S. R. (1992). Peer rejection in middle school: Subgroup differences in behavior, loneliness, and interpersonal concerns. *Developmental Psychology*, 28, 231-241.

Parsons, M. B., Reid, D. H., Reynolds, J., & Bumgarner, M. (1990). Effects of chosen versus assigned jobs on the work performance of persons with severe handicaps. *Journal of Applied Behavior Analysis*, 23, 253-258. doi:10.1901/jaba.1990.23-253

Peterson, S. M., Caniglia, C., & Royster, A. J. (2001). Application of choice-making intervention for a student with multiply maintained problem behavior. *Focus on Autism and Other Developmental Disabilities*, 16, 240-246.

Penno, D. A., Frank, A. R., & Wacker, D. P. (2000). Instructional accommodations for adolescent students with severe emotional and behavioral disorders. *Behavioral Disorders*, 25, 325-343. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Pierce, C. D., Reid, R., & Epstein, M. H. (2004). Teacher-mediated interventions for children with ebd and their academic outcomes: A review. *Remedial and Special Education*, 25, 175-188. doi:10.1177/07419325040250030501

Powell, S. & Nelson, B. (1997). Effects of choosing academic assignments on a student with attention deficit hyperactivity disorder. *Journal of Applied Behavior Analysis*, 30, 181-183. doi:10.1901/jaba.1997.30-181

Prater, M. A., Hogan, S., & Miller, S. R. (1992). Using self-monitoring to improve on-task behavior and academic skills of an adolescent with mild handicaps across special and regular education settings. *Education and Treatment of Children*, 15, 43-55.

Proctor, M. A. & Morgan, D. (1991). Effectiveness of a response cost raffle procedure on the disruptive classroom behavior of adolescents with behavior problems. *School Psychology Review*, 20, 97-109.

Realon, R. E., Favell, J. E., & Lowerre, A. (1990). The effects of making choices on engagement levels with persons who are profoundly multiply handicapped. *Education and Training in Mental Retardation*, 25, 299-305.

Reddy, L. A. & Richardson, L. (2006). School-based prevention and intervention programs for children with emotional disturbance. *Education and Treatment of Children*, 29, 379-404.

Reid, R., Gonzalez, J. E., Nordness, P. D., Trout, A., & Epstein, M. H. (2004). A meta-analysis of the academic status of students with emotional/behavioral disturbance. *The Journal of Special Education*, 38, 130-143. doi:10.1177/00224669040380030101

Roberts, R. & Mather, N. (1995). The return of students with learning disabilities to regular classrooms: A sellout? *Learning Disabilities Research and Practice*, 10, 46-58.

Romaniuk, C. & Miltenberger, R. (2001). The influence of preference and choice of activity on problem behavior. *Journal of Positive Behavior Interventions*, 3, 152-159. doi:10.1177/109830070100300303

Romaniuk, C., Miltenberger, R., Conyers, C., Jenner, N., Jurgens, M., Ringenberg, C. (2002). The influence of activity choice on problem behaviors maintained by escape versus attention. *Journal of Applied Behavior Analysis*, 35, 349-362. doi:10.1901/jaba.2002.35-349

Ryan, J. B., Pierce, C. D., Mooney, P. (2008). Evidence-based teaching strategies for students with ebd. *Beyond Behavior*, 17 (3), 22-29. Retrieved from http://www.ccbd.net/publication/beyondbehavior

Ryan, J. B., Reid, R., & Esptein, M. H. (2004). Peer-mediated intervention studies on academic achievement of students with ebd: A review. *Remedial and Special Education*, 25, 330-341. doi:10.1177/07419325040250060101

Safran, S. P. & Safran, J. S. (1985). Classroom context and teachers' perceptions of problem behaviors. *Journal of Educational Psychology*, 77, 20-28.

Salend, S. J. & Gordon, B. D. (1987). A group-oriented timeout ribbon procedure. *Behavioral Disorders*, 12, 131-137. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Salend, S. J. & Sonnenschein, P. (1989). Validating the effectiveness of a cooperative learning strategy through direct observation. *Journal of School Psychology*, 27, 47-58.

Schloss, P. J., Harriman, N. E., & Pfefier, K. (1985). Application of a sequential prompt reduction technique to the independent composition performance of behaviorally disordered youth. *Behavioral Disorders*, 11, 17-23. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Schumm, J. S. & Vaughn, S. (1995). Getting ready for inclusion: Is the stage set? *Learning Disabilities Research and Practice*, 10, 169-179.

Scott, T. M**.** (2002). Removing roadblocks to effective behavior intervention in inclusive settings: Responding to typical objections. *Beyond Behavior, 12* (1), 21-28. Retrieved from http://www.ccbd.net/publication/beyondbehavior

Scott, T. M. & Nelson, C. M. (1999). Using functional behavioral assessment to develop effective intervention plans: Practical classroom applications. *Journal of Positive Behavior Interventions*, 1, 242-251. doi:10.1177/10983007 9900100408

Scruggs, T. E. & Mastropieri, M. A. (1996). Teacher perceptions of mainstreaming/inclusion, 1958-1995: A research synthesis. *Exceptional Children*, 63, 59-74.

Seybert, S., Dunlap, G., & Ferro, J. (1996). The effects of choice-making on the problem behaviors of high school students with intellectual disabilities. *Journal of Behavioral Education*, 6, 49-65. doi:10.1007/BF02110477

Shapiro, E. S., Keller, M. A., Lutz, J. G., Santoro, L. E., & Hintze, J. M. (2006). Curriculum-based measures and performance on state assessment and standardized tests: Reading and math performance in Pennsylvania. Journal of Psychoeducational Assessment, 24, 19-35. 10.1177/0734282905285237

Sherman, J., Rasmussen, C., & Baydala, L. (2006). Thinking positively: How some characteristics of ADHD can be adaptive and accepted in the classroom. *Childhood Education*, 82, 196-200. doi:10.1080/00094056.2006.10522822

Shinn, M. R., Walker, H. M., & Stoner, G. (2002). *Interventions for academic and behavior problems II: Preventative and remedial approaches*. Washington, DC: National Association of School Psychologists.

Simpson, R. L. (1999). Children and youth with emotional and behavioral disorders: A concerned look at the present and a hopeful eye for the future. *Behavioral Disorders*, 24, 284-292. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Simpsom, R. L., Peterson, R. L., & Smith, C. R. (2011). Critical educational program components for students with emotional and behavioral disorders: Science, policy, and practice. *Remedial and Special Education*, 32, 230-242. doi:10.1177/0741932510361269

Singer, G. H., Singer, J., & Horner, R. H. (1987). Using pretask requests to increase the probability of compliance for students with severe disabilities. *Journal of the Association for Persons with Severe Handicaps*, 12, 287-291.

Siperstein, G. N., Wiley, A. L., & Forness, S. R. (2011). School context and the academic and behavioral progress of students with emotional disturbance. *Behavioral Disorders*, 36, 172-184. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Skerbetz, M. D. & Kostewicz, D. E. (2013). *Academic choice for students with emotional disturbance in inclusive settings*. Manuscript submitted for publication.

Skinner, C. H., Belfiore, P. J., & Pierce, N. (1992). Cover, copy, and compare: Increasing geography accuracy in students with behavior disorders. *School Psychology Review*, 21, 73-81.

Smith, R. G., Iwata, B. A., & Shore, B. A. (1995). Effects of subject versus experimenter-selected reinforcers on the behavior of individuals with profound developmental disabilities. *Journal of Applied Behavior Analysis*, 28, 61-71. doi:10.1901/jaba.1995.28-61

Smith, C. R., Katsiyannis, A., & Ryan, J. B. (2011). Challenges of serving students with emotional and behavioral disorders: Legal and policy considerations. *Behavioral Disorders*, 36, 185-194. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Soodak, L. C., Podell, D. M., & Lehman, L. R. (1998). Teacher, student, and school attributes as predictors of teachers' responses to inclusion. *The Journal of Special Education*, 31, 480-497. doi:10.1177/002246699803100405

Steinberg, Z. & Knitzer, J. (1992). Classrooms for emotionally and behaviorally disturbed students: Facing the challenge. *Behavioral Disorders*, 17, 145-156). Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Stone, R. H., Boon, R. T., Fore, C., Bender, W. N., & Spencer, V. G. (2008). Use of text maps to improve the reading comprehension skills among students in high school with emotional and behavioral disorders. *Behavioral Disorders*, 33, 87-98. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Sutherland, K. S., Lewis-Palmer, T., Stichter, J., & Morgan, P. L. (2008). Examining the influence of teacher behavior and classroom context on the behavioral and academic

outcomes for students with emotional and behavioral disorders. *The Journal of Special Education*, 41, 223-233. doi:10.117/0022466907310372

Sutherland, K. S. & Morgan, P. L. (2003). Implications of transactional processes in classrooms for students with emotional/behavioral disorders. *Preventing School Failure*, 48, 32-37.

Sutherland, K. & Singh, N. (2004). Learned helplessness and students with emotional and behavioral disorders: Deprivation in the classroom. *Behavioral Disorders*, 29, 169-181. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Sutherland, K. S. & Snyder, A. (2007). Effects of reciprocal peer tutoring and self-graphing on reading fluency and classroom behavior of middle school students with emotional or behavioral disorders. *Journal of Emotional and Behavioral Disorders*, 15, 103-118. doi:10.1177/10634266070150020101

Sutherland, K. S. & Wehby, J. H. (2001). Exploring the relationship between increased opportunities to respond to academic requests and the academic and behavioral outcomes of students with ebd. *Remedial and Special Education*, 22, 113-121. doi:10.1177/074193250102200205

Sutherland, K. S., Wehby, J. H., & Copeland, S. R. (2000). Effect of varying rates of behavior-specific praise on the on-task behavior of students with ebd. *Journal of Emotional and Behavioral Disorders*, 8, 2-8. doi:10.1177/106342660000800101

Swain, J. C. & McLaughlin, T. F. (1998). The effects of bonus contingencies in a classwide token program on math accuracy for middle-school students with behavioral disorders. *Behavioral Interventions*, 13, 11-19.

Sweeney, W. J., Salva, E., Cooper, J. O., & Talbert-Johnson, C. (1993). Using self-evaluation to improve difficult-to-read handwriting of secondary students. *Journal of Behavioral Education*, 3, 427-443. doi:10.1007/BF00961545

Tapasak, R. C. & Walther-Thomas, C. S. (1999). Evaluation of a first-year inclusion program. *Remedial and Special Education*, 20, 216-225. doi:10.1177/074193259902000405

Tapp, J. T., Wehby, J. H., & Ellis, D. M. (1995). A multiple option observation system for experimental studies: MOOSES. *Behavior Research Methods Instruments and Computers*, 27, 25-31.

Umbreit, J. & Blair, K. (1996). The effects of preference, choice, and attention on problem behavior at school. *Education and Treatment in Mental Retardation and Developmental Disabilities*, 31, 151-161.

U.S. Department of Education, National Center for Education Statistics (2011). *Digest of Education Statistics, 2010* (NCES 2011-015), Chapter 2.

Vannest, K. J., Harrison, J. R., Temple-Harvey, K., Ramsey, L., & Parker, R. I. (2011). Improvement rate differences of academic interventions for students with emotional and

behavioral disorders. *Remedial and Special Education*, 32, 521-534. doi: 10.1177/0741932510362509

Vaughn, B. J. & Horner, R. H. (1997). Indentifying instructional tasks that occasion problem behaviors and assessing the effects of student versus teacher choice among these tasks. *Journal of Applied Behavior Analysis*, 30, 299-312. doi:10.1901/jaba.1997.30-299

Villa, R., & Thousand, J. (1995). *Creating an inclusive school* (pp. 28-44). Alexandria, VA: Association for Supervision and Curriculum Development.

von Mizener, B. H. & Williams, R. L. (2009). The effects of student choices on academic performance. *Journal of Positive Behavior Interventions*, 11, 110-128. doi:10.1177/1098300708323372

Wagner, M., Friend, M., Bursuck, W., Kutash, K., Duchnowski, A., Sumi, W., & Epstein, M. (2006). Educating students with emotional disturbances: A national perspective on school programs and services. *Journal of Emotional and Behavioral Disorders*, 14, 12-30. doi:10.1177/10634266060140010201

Wagner, M., Kutash, K., Duchnowski, A. J., Epstein, M. H., & Sumi, W. C. (2005). The children and youth we serve: A national picture of the characteristics of students with emotional disturbances receiving special education. *Journal of Emotional and Behavioral Disorders*, 13, 79-96. doi:10.1177/10634266050130020201

Waldron, N. L. & McLeskey, J. (1998). The effects of an inclusive school program on students with mild and severe learning disabilities. *Exceptional Children*, 64, 395-406.

Walker, H., Colvin, G., & Ramsey, E. (1995). *Antisocial behavior in school: Strategies and best practices*. Belmont, CA: Brooks/Cole Publishing.

Walker, H. M., Forness, S. R., Kauffman, J. M., Esptein, M. H., Gresham, F. M., Nelson, C. M., & Strain, P. S. (1998). Macro-social validation: Referencing outcomes in behavioral disorders to societal issues and problems. *Behavioral Disorders*, 24, 7-18. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Walther-Thomas, C., Bryant, M., & Land, S. (1996). Planning for effective co-teaching: The key to successful inclusion. *Remedial and Special Education*, 17, 255-264. doi: 10.1177/074193259601700408

Wehby, J. H., Falk, K. B., Barton-Arwood, S., Lane, K. L., & Cooley, C. (2003). The impact of comprehensive reading instruction on the academic and social behavior of students with emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders*, 11, 225-238. doi: 10.1177/10634266030110040401

Wehby, J. H., Symons, F. J., Canale, J. A., & Go, F. J. (1998). Teaching practices in classrooms

for students with emotional and behavioral disorders: Discrepancies between recommendations and observations. *Behavioral Disorders*, 24, 51-56. Retrieved from http://www.ccbd.net/publication/behavioraldisorders

Ysseldyke, J. E., Thurlow, M. L., Wotruba, J. W., & Nania, P. A. (1990). Instructional arrangements: Perceptions from general education. *Teaching Exceptional Children*, 22, 4-8.

Zigmond, N., Levin, E., & Laurie, T. E. (1985). Managing the mainstream: An analysis of teacher attitudes and student performance in mainstream high school programs. *Journal of Learning Disabilities*, 18, 535-541.