

Using School-Home Communication to Reduce Problem Behaviors
In Children with Autism Spectrum Disorders

By

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CHAPTER I

INTRODUCTION

Although parent participation is one of the six principles of IDEA and parents are expected to act as an accountability mechanism for schools (Turnbull & Turnbull, 2000), such responsibilities may not align with the parent's own vision for their role in their child's education (Hess, Molina, & Kozleski, 2006). However, parents who are unable or unwilling to participate through advocacy do have other opportunities to be actively involved in their child's education. One alternative type of parent participation is school-home communication. This type of parent involvement with the school is frequently addressed in the literature on parents of children with autism spectrum disorders (ASD), and is also consistently highlighted in the well-established literature base on parent involvement for students without disabilities.

School-Home Communication in General Education

According to Hoover-Dempsey and Walker (2002), "effective family-school communication strengthens the 'match' between home and school expectations for student learning, and clarifies the roles that each may play in supporting student achievement," (p. 6). This type of parent involvement is often included in conceptual frameworks for general education students, such as those defined by Epstein and Fantuzzo. Based on Epstein's model (1986, 1992, 2001), considered to be the most influential in guiding researchers, practitioners, and policy-makers (Walker & Hoover-Dempsey, 2008), this type of family involvement is defined as establishing regular, meaningful two-way communication between home and school.

Specifically, Fantuzzo and colleagues (2000) identified 11 important communication behaviors including talking with the teacher, attending parent-teacher conferences, and writing notes.

For the population of general education students, this type of parent involvement seems effective. When teachers provide consistent communication about student progress, it assists in improving student behavior (Leach & Tan, 1996; Sanders, 1998) and increasing student achievement (Kervin, 2005). Particularly when parents are trained with high quality procedures, written communication between parents and teachers can also be effective in increasing homework completion (Patton, Jayanthi, & Polloway, 2001). Cox (2005) found that school-to-home notes were the most commonly used technique for home-school collaboration and that they were effective across grades. Such effective parent involvement has also been shown to lead to other benefits, including improved parental satisfaction with the child's education (Griffith, 1997; Hoover-Dempsey & Sandler, 1997) and better family-school partnerships (Hoover-Dempsey & Walker, 2002). Therefore, the general education literature shows the importance and effectiveness of home-school communication for child, parent, and teacher outcomes.

School-Home Communication in Special Education

Compared to parents of typically developing students, parents of students with disabilities, and ASD in particular, may require more direct, frequent communication with the school (Polloway, Bursuck, & Epstein, 2001). By definition, children with ASD have deficits in communication, making vital that communication between home and school be frequent, honest, and open (Stoner et al., 2005). Spann and colleagues (2003) identified the exchange of information about the child's progress and needs as the most commonly cited reason for home-school communication by parents. Beyond progress reporting, frequent communication may also relate to more effective collaborative practices between teachers and parents (Starr, Foy, &

Cramer, 2001). Specifically, parents of children with ASD report communication to be a highly valued method of collaboration, providing them with information about their child and making parents feel respected as members of the educational team (Renty & Roeyers, 2006; Tucker & Schwartz, 2013). As highlighted by Stoner and colleagues (2007), communication with educators may be the “first and foremost need of parents of children with ASD” (p. 36).

Although more limited than research in the general education literature (Zhang, Hsu, Kwok, Benz, & Bowman-Perrott, 2011), some studies have related increased school-home communication and positive parent outcomes. In a longitudinal study, Benson (2015) found that increased school-home communication was associated with decreases in maternal stress and increased parenting efficacy for parents of children with ASD. Further, parent satisfaction with service provision is positively correlated with parent perceptions of the quality of communication with teachers (Whitaker, 2007).

Although the extent to which schools provide opportunities for involvement is the single best predictor of maternal educational involvement for children with ASD (Benson, Karlof, & Siperstein, 2008), many schools still do not provide sufficient opportunities for home-school communication. This lack of communication is often cited as a challenge for parents of school-age children with ASD (Stoner et al., 2007; Tucker & Schwartz, 2013). Parents report this barrier as a frequently experienced problem and a major source of dissatisfaction (Rattaz et al., 2014; Starr & Foy, 2012). In fact, compared to parents of typically developing children and children with other disabilities, parents of children with ASD are less likely to be satisfied with the level of communication from the school (Zablotsky, Boswell, & Smith, 2012). Further, these parents report that home-school communication is inconsistent and often focuses on child problem behavior, rather than sharing the child’s accomplishments (Kelley, 1990). Therefore, although

the importance of home-school communication is acknowledged, little has been done to improve upon this critical type of school involvement for parents of children with ASD. Additional research is needed to develop effective educational practices (Jabery, Arabiat, Khamra, Betawi, & Jabbar, 2014; Tucker & Schwartz, 2013).

Several practical recommendations have been proposed to improve communication between parents and schools. First, in order to develop a formal communication plan, Tucker and Schwartz (2013) recommend asking parents about their preferred method of communication. When creating the plan, teachers should provide details about the type, topic, and frequency of communication to give the team structure in sharing information about the child. Second, schools should foster communication by regarding parents as experts on their child and should make an effort to engage in honest and consistent communication (Stoner et al., 2005, 2007). More specifically, schools should use formal communication notebooks and, through a variety of modes such as e-mail and phone calls, engage in frequent informal communication with parents. To date, however, the effectiveness of such strategies has not been evaluated for children with ASD, particularly with regard to their effects on child outcomes (Zhang et al., 2011).

School-Home Communication Interventions

Although research addressing the outcomes of school-home communication interventions for school-age children with ASD is limited, established methods do exist for other populations of students with disabilities. One such method, originating in the 1960's (Volpe & Fabiano, 2013), includes school-home notes. This approach has many names, including: daily behavior report card (DBRC; Burke & Vannest, 2008), daily report card (DRC; Dougherty & Dougherty, 1977), direct behavior ratings (DBR; Chafouleas, Riley-Tillman, & McDougal, 2002), school-home notes (Kelley, 1990), home-notes (Blechman, Schrader, & Taylor, 1981), and daily

progress reports (Crone, Horner, & Hawken, 2004). Evidenced by this assortment of terminology, there is much variation in the procedures described under this umbrella. As explained by Chafouleas and colleagues (2009), "...DBR is not defined by a single scale, form, or number of rating items; rather, it is likely that lines of research will (and should) investigate multiple versions and applications of DBR as a method of assessment, communication, and intervention," (p. 196). For this reason, researchers have identified four key characteristics of DBRCs to broadly define this flexible procedure (Chafouleas et al., 2002).

First, target behaviors must be clearly specified. Although a long list of behaviors may be targeted using a DBRC, target behaviors must be defined in a way that is objective, clear, and complete. For example, disruptive behavior may be defined as, "...student action that interrupts regular school or classroom activity. For example: out of seat, fidgeting, playing with objects, acting aggressively, talking/yelling about things that are unrelated to classroom instruction," (Chafouleas, 2011). This operational definition describes observable characteristics of the behavior, uses unambiguous language, and establishes the boundaries of the behavior, often including examples and non-examples (Volpe & Fabiano, 2013). Clearly defining the target behavior helps to ensure that the teacher, child, and parent are consistent in their understanding and expectations of child behavior across contexts. In addition, such well-specified definitions promote reliable measurement of the behavior by teachers, researchers, and any other classroom observers.

The second critical component relates to the behavior rating system: child behaviors must be rated at least once daily. This requirement increases the likelihood of accurate and reliable teacher reporting of child target behavior. For example, although a teacher might construct a behavior rating system that monitors behavior over the course of a week, it may be challenging

to accurately report direct ratings of behavior over a time period longer than one school day, especially if the student inconsistently exhibits the target problem behavior (Volpe & Fabiano, 2013). In general, it is considered acceptable for behaviors to be rated for short periods of time daily (e.g., each 45 min class period) up to the full course of the school day (Vannest, Burke, Sauber, Davis, & Davis, 2011). As a guideline, the schedule for behavior ratings should be based on opportunities for observation and the need for data, with shorter observation periods being ideal, and regardless, occurring at least once daily (Christ, Riley-Tillman, & Chafouleas, 2009).

The third critical component of DBRCs involves behavior ratings that are shared across individuals. This information about child behaviors may be shared with other teachers (e.g., across class periods or specialists). In addition to being reviewed with school staff, the school-home note is also frequently shared with the parent as a form of school-home communication. By sharing information across individuals and settings, all stakeholders receive prompt feedback about student behavior.

When shared with parents, the use of DBRC as a home-school communication intervention provides a clear, direct link between parents and teachers. According to Vannest and colleagues (2010) it is “a method championed for increasing the quality of contact between home and school” (p.655). This home school communication component promotes collaboration and provides opportunities for: (a) sharing expectations, (b) providing consistent feedback, and (c) providing skill-development information (Vannest et al., 2011). This component of DBRCs may be particularly valuable for parents of children with ASD, who are often dissatisfied with communication from the school (Rattaz et al., 2014; Starr & Foy, 2012).

The final common characteristic of DBRC relates to using the school-home note either as part of the intervention or as a way to monitor the effects of the intervention. Given the nature of

the DBRC, it often functions concurrently as both intervention and assessment. For example, the teacher uses the individually designed school-home note to record student behavior at school (monitoring). The teacher then reviews this data with the student and provides feedback (intervention). Finally, the note is sent home to the parent who may initial it to confirm that it was received and that they provided any predetermined consequences (intervention).

Based on these established critical components, along with its flexibility in utilizing individualized procedures, research has consistently demonstrated the effectiveness of DBRCs (Vannest, Davis, Davis, Mason, & Burke, 2010). In an early review, Smith, Williams, and McLaughlin (1983) found DBRCs to be an effective intervention that did not require extensive parent training to support home-based contingent reinforcement. In another review, Chafouleas and colleagues (2002) highlighted the efficiency of DBRCs as dual intervention and progress monitoring tools. Finally, in a recent meta-analysis on single case research designs, Vannest and colleagues (2010) examined 17 eligible studies with 107 participants. On a range of outcomes, they found a 61% improvement rate from baseline to intervention, with a range from 56% to 66% improvement.

Application of School-Home Communication Interventions for ASD

Given this existing research on the effectiveness of DBRC home-notes, there are several reasons to support the extension of this intervention to children with ASD. These relate to: (a) shared child characteristics, (b) the nature of the intervention, (c) the parent involvement component, and (d) the value of the school-home note as both an intervention and progress monitoring tool.

Child characteristics. A considerable body of research demonstrates the efficacy of DBRCs in decreasing disruptive behaviors and increasing on-task behaviors for students with

attention deficit hyperactivity disorder (ADHD). Specifically for this population of children, DBRCs are considered to be an evidence-based practice (Eiraldi, Mautone, & Powers, 2012). Like those with ADHD, children with ASD often exhibit externalizing behaviors that are disruptive and interfere with opportunities for learning and social interaction at school (Dunlap & Fox, 2007). Most children with ASD exhibit inattentive, hyperactive, and impulsive behaviors and many meet the diagnostic criteria for ADHD. Children with ADHD also often have social problems and exhibit traits of ASD (Antshel, Zhang-James, & Faraone, 2013). Given these overlapping behavioral characteristics, DBRC procedures are likely to be similarly effective for both groups of students.

Nature of intervention. The use of a DBRC generally involves the teacher evaluating student behavior and the parent providing a consequence based on the evaluation. These intervention procedures, which utilize feedback and contingent reinforcement, are based on well-established behavioral principles (Cooper, Heron, & Heward, 2007). Such principles have long been shown effective for children with ASD (Neitzel, 2009). In addition, parents and teachers of children with ASD are often already familiar with these principles (Brock et al., 2014), minimizing the effort needed to implement these procedures at home and at school.

Further, a home-based contingency, in which the child earns a preferred activity or object based on school behavior, seems particularly motivating for children with ASD. In one study, Jurbergs and colleagues (2010) found that, while DBRC with and without parent-delivered consequences were both effective for students with ADHD, the treatment that included parent-delivered consequences increased on-task behavior even more. Although praise and positive feedback from teachers and parents may motivate some students to exhibit decreased problem behaviors at school, many children with ASD (who have deficits in social skills) may be more

motivated to gain access to a tangible item, such as a preferred toy. Thus, for children with ASD, a home-based reward system may be a critical component of the intervention.

Parent involvement. DBRCs also foster active parent involvement when the school-home note is sent home. This family involvement component is considered a core element of any comprehensive instructional program for students with ASD (Iovannone, Dunlap, Huber, & Kincaid, 2003) and is important for families of children with ASD for several reasons. First, this procedure empowers the parent to be actively involved in monitoring and improving the child's behavior at school. The DBRC also increases the consistency in expectations and consequences across the home and school environment, which seems especially important for children with ASD, who often have difficulty generalizing skills across people and contexts (National Research Council, 2001). A home-based reinforcement system that is provided contingent on school behavior helps to connect behavioral expectations across these two settings. This home component also allows for the use of items (e.g., special toys and activities) that are not available at school and may be especially reinforcing for the child (Kelley, 1990, 2003). Thus, by involving the parent directly in the intervention and reinforcement procedures, DBRCs may improve intervention effects for children with ASD.

In addition, the DBRC builds on the parent-teacher relationship and promotes collaboration between home and school (Fabiano et al., 2010). Though teachers of children with ASD may use some version of an informal home-note, the DBRC provides both parents and teachers with a basic level of structure and focus. Using this structured format, the teacher records specific behavioral data from the child's day, writes whether the child reached their behavior criterion, may provide an anecdotal note about the day, and sends this communication form home daily. The parent then consistently receives this information each day, which they

have learned how to understand and interpret. The DBRC thus structures information, helping the parent and teacher work together toward a common goal—decreasing the child’s problem behavior. This systematic collaboration between teachers and parents seems far more effective than the less structured attempts at home-school communication and collaboration that currently exist in the literature on students with ASD.

Progress monitoring. Also highly relevant for students with ASD is the recent focus on the use of DBRCs for progress monitoring. This feature makes DBRC procedures efficient, which is especially important for teachers of children with ASD who have many demands on their time (Chafouleas et al., 2002). In addition, by combining intervention and assessment procedures, students gain access to additional instructional time.

Although DBRC procedures usually rely on direct behavior ratings (i.e., teacher ratings of behaviors immediately following an observation period), the more commonly used approach to data collection for students with ASD is systematic direct observation (Witmer, Nasamran, Parikh, Schmitt, & Clinton, 2015). This observational method, which involves observing and quantifying behavior as it occurs, is considered to be a fundamental component of applied behavior analysis (ABA; Gast, 2010). Others have called it, “... the most widely accepted method for formative collection of behavioral data...” (Riley-Tillman, Chafouleas, & Briesch, 2007, p. 78). Systematic direct observation is considered to be reliable and accurate, and highly useful for assessment and intervention monitoring (Riley-Tillman, Kalberer, & Chafouleas, 2005). However, some have suggested that teachers cannot simultaneously teach and collect systematic direct observation data in a reliable manner (Riley-Tillman, Chafouleas, Sassu, Chanese, & Glazer, 2008), and that it may not be feasible for daily monitoring of behavior (Riley-Tillman et al., 2007).

Despite these challenges, methods must be developed to help teachers to accurately and feasibly collect high-quality data on the behaviors of children with ASD. This is especially critical given the focus on data collection and data-based decision making, as well as the identified need for accurate teacher-collected data on student outcomes for children with ASD (Witmer et al., 2015). It is important to understand how accurate, systematic, observational data can be collected by teachers in the typical classroom environment and used to inform decisions about teaching and behavior management practices.

Research Questions

Given the strengths of this intervention and the potential benefits for the child, parent, and teacher, this study evaluated the effectiveness of school-home notes for school-age students with ASD who exhibit off-task behaviors at school. There is a clear need for this extension of the literature, as no prior study on this critical and practical topic has been conducted to evaluate the effectiveness of this type of intervention for students with ASD (Frafjord-Jacobson et al., 2013). Parents of students with ASD are more dissatisfied with communication from the school than parents of children with other disabilities (Zablotsky et al., 2012), highlighting the need for and the potential benefit of such an intervention. Adding to this need, these parents often have poor partnership with the school and resort to adversarial conflict resolution processes to address disagreements (Zirkel, 2011). This intervention promotes collaboration, links home and school on a consistent basis, and may result in improved student and parent outcomes for this high-need group. In this study, I therefore answered the following research questions:

1. Is there a functional relation between a school-home note intervention with home-based contingent reinforcement and reduced off-task behavior for school-age children with ASD?

2. Do self-reported parent-teacher communication, partnership, and involvement increase following intervention?
3. Do teacher-collected data on child behavior demonstrate the same evidence of effect as researcher-collected data?
4. What is the acceptability of this intervention package for parents, teachers, and students?

CHAPTER II

METHODS

Participants

Participants included four child-parent-teacher triads, although six students total were recruited and initially identified as eligible for participation. However, one of the eligible students refused to provide his assent; another did not exhibit sufficiently high levels of off-task behavior during baseline to indicate the need for intervention or present an opportunity for a demonstration of effect.

Inclusion criteria. Student participants met the following eligibility criteria based on parent/teacher report and record review: (a) eligible for special education services under a primary or secondary category of ASD, (b) in grades K-8, (c) teacher reported high frequency off-task behavior during at least one school activity, (d) parent and teacher reported child ability to comprehend and respond to delayed reinforcement delivered at home, and (e) parent and teacher reported receptive language level to understand the school-home note and home-based contingency. Child participants were excluded if they demonstrated problem behavior that was dangerous to themselves or others (e.g., self-injurious behavior, aggression) during the target activity. Before beginning data collection, all child eligibility criteria were confirmed through record review, classroom observation, and parent and teacher interviews.

Parents of eligible students were required to agree to participate in study procedures, particularly providing contingent home-based reinforcement. They also were required to verbally state that they lived with the participating child during all school days (i.e., Monday-Friday).

Any special education teacher, general education teacher, or paraprofessional was eligible to participate if they worked with an eligible student at a time during the school day when the child exhibited off-task behavior. The school activity during which the participating teacher was present and the child exhibited off-task behavior was required to occur at least three times per week. If a paraprofessional was identified as the school staff for whom study procedures (e.g., data collection and intervention) were most feasible, the special education classroom teacher was also included in intervention planning and progress monitoring (e.g., making changes to reinforcement criterion).

Participant descriptions. Information on student, parent, and teacher demographics and characteristics were collected via record review and self-report (see Table 1). Three of the four student participants were male, ranging from 6 to 13 years of age. Parent participants were all White, non-Hispanic mothers, with an annual household income of over \$100,000. Only one was unmarried and worked outside of the home. Teacher participants included two special education teachers and two paraprofessionals; all were female. Two identified as White, non-Hispanic, one as Hispanic, and one as African-American. They reported from 5 to 15 years of experience in the field.

Ryan. Ryan, a second grader, was an 8-year-old male who was eligible for special education services under the educational diagnosis of autism. School records presented an Autism Diagnostic Observation Schedule (ADOS; Lord, Rutter, DeLavore, & Risi, 2008) score above the cutoff for the presence of ASD (standard score of 7 on Reciprocal Social Interaction and 6 on Communication). Results of the Adaptive Behavior Assessment System (ABAS; Harrison & Oakland, 2000) showed a general adaptive composite (GAC) score of 71, indicating a moderate delay. Although Ryan did not have behavior services included on his Individualized

Table 1

Participant Descriptions

	Student			
	Ryan	Daniel	Leo	Emily
Child				
Age (years)	8	13	9	6
Gender	Male	Male	Male	Female
Race/ ethnicity	White/ non-Hispanic	White/ non-Hispanic	White/ non-Hispanic	White/ non-Hispanic
Age of ASD dx	2-yr	10-yr	20-mo	3-yr
Comorbid dx	---	---	ADHD	ADHD SLD
Parent				
Role	Mother	Mother	Mother	Mother
Race/ ethnicity	White/ non-Hispanic	White/ non-Hispanic	White/ non-Hispanic	White/ non-Hispanic
Education	BA/BS	BA/BS	Master's +	BA/BS
Profession	Stay-at-home	CPA	Stay-at-home	Stay-at-home
Family income	>\$100,000	>\$100,000	>\$100,000	>\$100,000
Marital status	Married	Single	Married	Married
# of children	2	1	2	2
Teacher				
Role	Para	Para	SPED teacher	SPED teacher
Gender	Female	Female	Female	Female
Race/ethnicity	White/ non-Hispanic	African American/ non-Hispanic	White/ Hispanic	White/ non-Hispanic
Age	59	43	28	37
Years of experience	12	11	5	15

Note. ASD = autism spectrum disorder; dx = diagnosis; ADHD = Attention-deficit/hyperactivity disorder; SLD= speech/language delay; BA/BS = Bachelor of Arts/ Bachelor of Science; CPA = certified public accountant; para = paraprofessional; SPED = special education.

Education Program (IEP), he received direct speech services and occupational therapy (OT) consult. His IEP also included accommodations such as: (a) preferential seating, (b) behavior/performance contracting, (c) extra cues/prompts, (d) check often for understanding, and (e) provide direction in small, distinct steps. Ryan spent the majority of his day in the regular education classroom, but was officially placed in a special education classroom where he returned during transition times (e.g., arrival). Karen, the paraprofessional who provided support for Ryan at school, consented to be the teacher participant. This was her second year working in Ryan's classroom, but she had a total of 12 years of experience in the field of education. Although both Ryan's mother and father participated in the consent and planning meetings, his mother agreed to implement the home-based component of the intervention. She was a homemaker who cared for Ryan and his younger sister.

Daniel. Daniel was a 13-year-old male who received special education services in a self-contained fifth to sixth grade classroom. According to school records, results of an individual cognitive ability test and an adaptive behavior skills assessment showed evidence of a significant cognitive disability. Originally eligible for special education services under the state category of developmental delay, autism became his primary disability category when he was diagnosed at age 10. Daniel received direct speech and OT services. His IEP indicated that his behavior impeded his learning, and that these behavior challenges should be addressed through accommodations. These included (a) paraprofessional support, (b) social interaction support, (c) environmental arrangement (e.g., preferred seating, minimizing distractions), (d) checking for understanding, and (e) giving directions in small, distinct steps. Daniel's IEP also indicated that he met the requirements for alternate assessment. The paraprofessional who provided support in Daniel's special education classroom agreed to participate in the study. She had been working in

this role, at the same school, for 11 years. Daniel's mother was a single parent who relied on babysitters and his grandmother to supervise him after school. She reported working long hours as a certified public accountant (CPA), but agreed to participate in the study.

Leo. Leo was a fourth grader who was supported by an auxiliary aide across the regular education and special education classroom settings. His scores on the Childhood Autism Rating Scale (CARS-2; Schopler, Van Bourgondien, Wellman, & Love, 2010; 46.5 parent-report and 41.5 teacher-report) indicated a severe level of autism. His parent and teacher also provided ratings on the ABAS (Harrison & Oakland, 2000; GAC scores of 42 parent-report and 47 teacher-report) that indicated significant delays in his adaptive skill functioning. Leo's IEP stated that his behaviors impacted his learning, and that they should be addressed through a behavior goal, functional behavior assessment, behavior intervention plan (BIP), and sensory strategies. Leo was eligible for alternate assessment and received direct speech and OT services. His special education teacher, Amy, agreed to participate in the study with him. With five years total experience in the field, it was her second year as Leo's teacher. Leo's mother, who self-identified as a homemaker and home-schooled his sister, also agreed to participate in the study.

Emily. Emily, a female in kindergarten, had a primary diagnosis of autism. Scores on the CARS (Schopler et al., 2010) indicated mild to moderate symptoms of ASD, with ABAS (Harrison & Oakland, 2000) scores indicating a moderate impairment (GAC 73, 76, and 70 for mother, father, and teacher ratings, respectively). Emily's school record did not indicate a need for a behavior goal, but it did specify that she receive accommodations such as preferential seating, small group instruction, and repeated directions. She also received direct speech and OT services. Emily's classroom teacher agreed to participate in the study; it was her first year teaching Emily, but she had been working at the school, as kindergarten teacher, for seven years.

Emily's mother was a homemaker who also cared for Emily's older sister, who was diagnosed with ADHD and dyslexia.

Setting and Target Activity

All study procedures were implemented in the typical classroom setting. Specific target activities within the classroom were identified on an individual basis (see Table 2). Child participants attended school across two public school districts and one private school. Procedures for all but one student were implemented in the special education classroom.

Ryan. Ryan spent the majority of his day in the regular education second grade classroom with 14 other students, one of whom was also on his special education teacher's caseload, and required 1:1 assistance. Instruction was provided by a certified general education teacher with support from one to two paraprofessionals, including Karen. We chose to focus on the English/Language Arts (ELA) class period for the intervention. This class period was scheduled for 80 min at the beginning of the school day. Instruction consisted of a range of formats and practices, including whole group instruction at desks or on the carpet, small group work at desks, independent work (e.g., worksheets, writing), and sensory breaks. To minimize this variability in instructional activities, we chose whole group instruction on the carpet as the target activity for Ryan. The teacher provided this type of instruction at least three days per week, for a typical duration of approximately 15 to 30 min. During instruction on the carpet, all students sat on the ground with the teacher seated in a chair on either side; her location varied based on the activity. Activities on the carpet included listening to stories, following along in a textbook, completing a worksheet on a clipboard, attending to instruction on a portable whiteboard, and discussion with the whole group or a partner. No whole class or individualized formal behavior management systems were observed during this activity.

Table 2

Description of Classroom Settings and Target Activities

	Student			
	Ryan	Daniel	Leo	Emily
Setting				
School type/ District	Public/ District 1	Public/ District 1	Public/ District 2	Private
Grade	2nd	6th	4th	Kindergarten
Class type	Regular ed	Self-contained	Self-contained	Self-contained
Class size	14 students	4 students	8 students	3 students
Staff	1 gen ed teacher 2 paras	1 sped teacher* 1 para 1 ASL interpreter	1 sped teacher 7 paras	1 sped teacher
Target Activity				
Subject	ELA	Calendar	Reading	ELA
Class time	9:20-10:40	8:10-8:35	10:10-10:30	9:10-10:10
Target activity time	variable	8:10-8:35	10:10-10:30	9:10-9:40
Times/week	3-5	3	3	5
Group size	Whole class (large group)	Whole class (small group)	1:1	Whole class (small group)
Formal behavior management procedures	None observed	Visual support	Token board, written schedule, behavioral momentum, BIP	Reinforcement system, timer, visual support

Note. Para = paraprofessional; sped = special education; ASL = American Sign Language; ELA = English Language Arts; BIP= behavior intervention plan.

* Teacher resigned before end of school year and was not replaced.

Daniel. Daniel received all of his instruction in a self-contained, middle school special education classroom. Although many students were on the special education teacher's caseload, only four were present during the target activity, calendar. These students had a range of disabilities; therefore, in addition to the classroom special education teacher who led the calendar activity, one paraprofessional, Monique, and one American Sign Language (ASL) interpreter provided support. The calendar activity was conducted three days a week at the beginning of the school day, for approximately 20 to 25 min. The activity followed a consistent structure including: (a) opening song, (b) greetings and choice, (c) question of the day (d) alphabet song in words and sign, (e) calendar, (f) schedule review, and (g) closing song. The four participating students sat at a rectangular table facing the calendar and a white-board, with the paraprofessional and ASL interpreter sitting on both sides of the students. Monique consistently sat next to Daniel at one end of the table. A laminated symbol was taped to the table in front of him to remind him of the expectation to keep his hands in his lap. Other than this, no formal whole class or individualized behavior management procedures were observed. However, Monique sporadically provided Daniel with verbal or light physical prompts to attend to the classroom teacher who was providing instruction.

Leo. Although Leo spent some of his day in a regular education classroom, his academic instruction was provided in a 1:1 structured instructional format in the special education classroom. This classroom served many second through fourth grade students with a range of disabilities. The physical classroom space was set up with individual work-spaces or centers. During Leo's target activity, reading, approximately seven other students were present or transitioning in and out of the class. Although Leo had an auxiliary aide assigned to him for the full day, his special education classroom teacher, Amy, provided instruction during this activity.

Reading instruction occurred three times a week (Tuesday through Thursday) for approximately 20 min, starting when Leo finished the preceding center activity. During this reading activity, Leo sat at his work-table with his teacher next to him, and read a leveled book from a reading curriculum. Amy asked comprehension questions during and at the end of the story. She also used several behavior management strategies during the reading activity and throughout the day, including: (a) token board with five tokens, (b) behavioral momentum, (c) written schedule, and (d) an individualized behavior support plan.

Emily. Emily attended a private school for students with mild disabilities. Her kindergarten ELA class, taught by Danielle, included her and two other students. This daily class period was scheduled for 60 min. However, three days a week, an Occupational Therapist provided each student with 10 min of 1:1 services, starting approximately 30 min after the class period began. Therefore, the first 30 min of class were targeted for intervention because for the last 30 min of the ELA class period, only two students were present for instruction in the classroom.

During each ELA class period, Danielle provided instruction at a U-shaped table in small room. She sat on the inside of the table and the students were spread out evenly on the other side. Students had assigned seats, with Emily sitting between the other two students each day. Although Danielle varied instructional activities somewhat daily, students were familiar with the general routine and potential activities. For example, each class began with students taking out their homework and writing their names on the back of a paper visual with five activities to check off as completed. Danielle then passed out materials or started the first instructional activity. Following each activity, which lasted from 5 to 15 min, students colored in the symbol on their visual and earned a “fidget break” (i.e., two min of free time with a small sensory toy).

Danielle used a timer to indicate when it was time to put the sensory toys away and transition to the next work activity. Danielle also used a reinforcement system in which the students intermittently earned stones for completing their work; however, this system was not used consistently.

Materials

Materials for data collection and intervention were provided for participants. All formative and summative data were collected using paper and pencil procedures. Researchers used clipboards to hold paper data sheets (see Appendix A). We wore headphones attached to a smartphone to hear the recording that indicated each interval for data collection. I created this recording so that every 12th researcher data collection interval (5 s) aligned with each teacher data collection 1-min interval (5 s x 12 intervals = 1 min). On days when a second observer was collecting data for purposes of inter-observer agreement, we used a headphone splitter so that both observers could listen to the recording of the 5-s interval prompts simultaneously. I also provided teachers with small clipboards and copies of the data collection sheet and school-home note. In addition, I gave them a Motivaider timer to keep in the classroom. These timers, used as a prompt for teachers for observing and recording data at the correct interval, were set to vibrate every min and then automatically restart.

Response Definitions and Data Collection

Child behavior. The primary outcome, child off-task behavior, was defined as the student engaging physically or verbally with materials or people in a way other than what was expected for the given activity. This included disruptive behaviors, such as talking to other students and school staff during instruction, and other problem behaviors that were identified as

a concern for each individual student. See Table 3 for individual additions to the operational definition of *off-task* for each participant.

Data on off-task behavior were collected by both researchers and teacher participants. Researchers used momentary time sampling to record the presence or absence of off-task behavior at the moment each 5-s interval ended for a 10-min sample of the target activity. We calculated the total percentage of intervals with the occurrence of off-task behavior by dividing the number of intervals with the presence of the target behavior by the total number of intervals (i.e., 120), and multiplying by 100. During the same 10-min sample, teachers also recorded momentary time sampling data on child behavior at 1-min intervals. Using this data collection procedure, each minute, when the Motivaider vibrated, the teacher looked at the target student and recorded whether the student was engaging in off-task behavior at that exact moment.

Parent involvement. To answer my secondary research question, I measured parent involvement in three ways, all using parent and teacher self-report (see Appendix A). Other than Daniel's teacher, who left the teaching position before the conclusion of the study, students' special education classroom teachers completed these measures even in the instances when paraprofessionals were responsible for implementing the intervention.

Partnership. The Family-Professional Partnership Scale (F-P Partnership; Summers et al., 2005) was derived from a qualitative study on the perceptions of parents and service providers, from which six themes of collaborative partnerships were identified (Blue-Banning, Summers, Frankland, Nelson, & Beegle, 2004). I used two versions (Family and Professional) of this scale to measure satisfaction with the family-school relationship using two 9-item subscales: child-focused and teacher-focused. These 18 items were rated by parents and teachers on a 5-point Likert scale from 1 (*very dissatisfied*) to 5 (*very satisfied* ; Cronbach's alpha = .93;

Table 3

Off-task Examples and Non-Examples by Participant

Participant	Examples	Non-examples
Ryan	<p>Playing with objects or stimming on them instead of using them for their intended purpose. For example:</p> <ul style="list-style-type: none"> • Opening and closing a book instead of holding it closed in his lap or reading from it • Playing with a clipboard even if looking at the teacher • Pulling on the carpet instead of looking at the teacher and participating according to teacher directions <p>Orienting body away from the teacher or looking somewhere other than the teacher or another student who is talking (according to teacher directions)</p> <p>Self-stimulatory behaviors that do not involve an object but disrupt participation in the activity (e.g., blowing on fingers when expected to be writing, flicking fingers in front of eyes, picking at lip and not looking at teacher)</p> <p>Lack of participation when given individual or group directions</p>	<p>Verbally providing an appropriate response without raising hand</p>
Daniel	<p>Orienting body away from the teacher who is providing instruction, or another student who is participating</p> <p>Talking to the paraprofessional during instruction</p> <p>Laying head down on table, defined as placing his upper body and/or head down on the table during instructional activity</p> <p>Disruptive behaviors of concern including:</p> <ul style="list-style-type: none"> • Vocalizations (including cursing, scripting, and echolalia)- Defined as any time the student makes an audible sound that is not related to the content of the activity. This may include the following: (a) scripting, defined as repeating phrases from another context such as a movie or book, when it is not relevant or on-topic with the content of the current calendar activity; (b) cursing, defined as saying the word “bitch” or another inappropriate word that is not allowed in a school setting; (c) echolalia, defined as repeating what another adult or student says at a time when the target student is not expected to be speaking • Finger/eye stimming- Defined as a repetitive motion of the target student’s fingers, while hands are either in a clasped or separated position and raised above the surface level of the table within the student’s vision. This may include the hands being held up to the student’s eyes, or in the air from one to a few inches above the surface of the table while he is looking at them 	<p>Looking at the teacher who is providing instruction but not singing with the group</p> <p>Answering questions when asked (even if answer is incorrect and not making eye contact with teacher)</p> <p>Looking at peers when they are responding to a teacher’s question.</p> <p>Finger stimming while responding to a teacher instruction or answering teacher questions</p>

Leo	<p>Vocalizing or scripted verbal responses that are not related to the topic of instruction</p> <p>Moving his body out of his seat without asking permission (e.g., standing up or flopping to the floor).</p> <p>Stimming on materials when it interferes with attending to or following through with an instruction.</p> <p>Not following teacher instructions or responding to teacher questions, even with prompts</p> <p>Teacher provided hand-over-hand or full-physical prompts to complete a task</p> <p>Turning body and head so that it is oriented away from the teacher (e.g., looking in the back of the chair).</p> <p>Yelling at a volume that is louder than typical conversation</p> <p>Putting any part of his hand or other non-edible objects (e.g., pencils, markers) inside his mouth, even if still attending or responding to instructions</p> <p>Grabbing adults in an attempt to pull himself towards them and away from the table</p>	<p>Responding or attending to teacher prompts other than full physical, including reminders of appropriate behavior, choosing a reinforcer, or referring to token board</p> <p>Looking at/reading materials even if not responding immediately to teacher questions about the materials</p> <p>Verbally or physically responding to teacher questions even if not making eye contact or if response is incorrect</p> <p>Stimming or scripting when on break</p>
Emily	<p>Looking away from the teacher who is providing instruction or the materials that are being used for instruction</p> <p>Not following an individual or group direction</p> <p>Verbally answering a teacher question with a response that is off topic</p> <p>Touching the rocks that are used for reinforcement or looking in the cup at the rocks (unless instructed to do so at the end of class or attending to the teacher and rocks as they are put in the cup)</p> <p>Laying head down on table during instruction if not still looking at teacher or attending to materials</p> <p>Self-stimulatory behavior such as rapidly shaking head back and forth</p> <p>Tipping two legs of the chair off the floor</p> <p>Getting out of her seat during instruction (unless she has permission to do so), defined as her bottom or knee not being in contact with the seat</p> <p>Throwing materials into the air or onto the floor</p>	<p>Yelling out an answer to a teacher question at a volume louder than typical conversation</p> <p>Interrupting the teacher when done with an independent activity</p> <p>Standing in front of her seat in order to see into a container, such as when choosing a sensory toy from the basket</p>

Summers et al., 2005). Teacher and parent self-reported satisfaction with partnership were measured using the F-P Partnership Scale pre- and post-intervention. During the social validity interview, parents and teachers were also asked one open-ended question related to partnership: “Did the intervention change your relationship with the child’s parent (or teacher)?”

Communication. The weekly rate of parent and teacher interactions was self-reported by both the parent and classroom special education teacher throughout the course of the study. An interaction was defined as any exchange of information between the parent and special education teacher (not including interactions through general education teachers or paraprofessionals), including any mode such as written or verbal communication. Each phone call, e-mail exchange, or conversation other than the school-home note intervention counted as one interaction. These teacher and parent self-report data were recorded on researcher-created data sheets at least once weekly. I collected paper data sheets from participants monthly. To address communication in the social validity interview, I asked: “Did the intervention change your communication with the child’s parent (or teacher)?”

Involvement. I measured parents’ perceptions of involvement at the start and end of the study using a modified version of the Family Involvement Questionnaire-Elementary (FIQ-E; Benson, 2015, Fantuzzo, Tighe, & Childs, 2000). This 42-item measure of parent involvement was originally developed to measure the educational engagement of parents of young typically developing children (Fantuzzo et al., 2000) and was modified by Benson (2015) to make it more appropriate for parents of children with ASD. Consistent with factor analysis of the original measure, Benson identified three reliable subscales: home-school communication (13 items; $\alpha = .74$), home-based involvement (17 items; $\alpha = .84$), and school-based involvement (12

items; $\alpha = .78$). Each item was rated by the parent on a 4-point scale from 1 (*rarely*) to 4 (*always*).

Social validity. At the completion of the study, each teacher and parent completed a modified version of the Intervention Rating Profile (IRP-15; Martens, Witt, Elliot, & Darveaux, 1985) to indicate the acceptability of study goals, procedures, and effects. This measure consists of 15-items rated on a 6-point scale from *strongly disagree* to *strongly agree* (internal consistency from .88-.98). Teacher participants also completed a modified version of the Assessment Rating Profile- Revised (ARP-R; Shapiro, Eckert, & Hintz, 1999) to indicate the acceptability of the data collection methods (Cronbach's $\alpha = .99$). These 12 items from the ARP-R, along with one additional item to address the feasibility of the data collection method, were rated on a 6-point scale from *strongly disagree* to *strongly agree*. Teachers and parents also answered a series of open-ended questions about the acceptability of study goals, procedures, and effects (see Appendix B for social validity interview outline). If a paraprofessional was responsible for data collection and completion of the school-home note, both the special education classroom teacher and the participating paraprofessional completed all of these social validity measures (with the exception of Daniels' teacher, who was no longer working at the school at the time of the social validity interview).

Student measure. If appropriate, the student also completed a modified version of the Children's Intervention Rating Profile (CIRP; Witt & Elliott, 1983) to indicate his or her ratings of the intervention. This is a parallel version of the IRP-15 designed for use with school-age children (internal consistency from .75-.89). The CIRP contains seven items that are evaluated from the student's perspective on fairness, effectiveness, and negative consequences of participating in the intervention. The wording of three items is negatively phrased (i.e., with a

rating of *no* indicating a positive response) to determine whether the student comprehends the item(s). Although typically rated on a 6-point Likert scale, the scale was modified to a 3-point scale (*no, maybe, yes*) to be appropriately matched to the child's functioning and language levels. I also modified the wording of individual items to more specifically reference the child's individualized intervention (e.g., "I liked the method..." changed to "I liked earning ladybugs...") for the purposes of comprehension and accuracy of child social validity ratings. Although all students were provided with this individualized measure, only those whose teachers reported they seemed to comprehend it, and who provided ratings other than *yes* across all items were included.

Experimental Design

In this study I used a single-subject multiple baseline design across participants to demonstrate the effectiveness of the school-home note intervention in reducing child off-task behavior at school. This design was appropriate for this study because student behavior was independent, but sufficiently similar to respond to the same intervention. Only one student per classroom was included in the study and I used inclusion criteria to ensure that the student participants had similar characteristics and baseline levels of problem behavior. Thus, participants were expected to respond similarly to the same intervention, but a change in one participant's behavior would not change the behavior of another participant (Gast, 2010). The use of this design supports strong experimental control and inter-subject replication to demonstrate the effects of the school-home note for multiple participants.

This multiple baseline design also controls for numerous threats to internal validity such as history, maturation, and testing, by staggering the introduction of the intervention across tiers/participants. The inclusion of four participants, rather than three, controlled for attrition

(given the expectation that no more than 25% of participants would drop-out). In this multiple-baseline across participants design, we concurrently collected data across all four participants (i.e., tiers) so that an effect could be demonstrated even if a participant dropped out from the study, as one demonstration and two replications of an effect are needed to demonstrate a functional relation in single-subject research. This design also has the advantage of not requiring the withdrawal of the intervention to demonstrate an effect, making it acceptable for use in educational settings where parents and teachers may not approve of the removal of an effective practice.

Using this design, I collected baseline data on the dependent variable concurrently across all participants and introduced the intervention first in the tier with the most stable baseline data, (after collecting at least three baseline data points). As I introduced the intervention in the first tier, I expected an immediate change in level and trend only for this participant, while the other tiers, still in baseline, remained stable and unchanged. In this way, any changes in the dependent variable could be attributed to the systematic introduction of the school-home communication intervention. Once this first participant demonstrated a change in level and trend after introduction of the school-home note intervention and earned reinforcement by meeting behavioral criterion for at least two consecutive days, the intervention was introduced for the next participant. I continued this systematic and sequential introduction of the school-home note intervention until it had been introduced across all participants, demonstrating experimental control through changes in child off-task behavior only after the introduction of the intervention.

The intervention condition was considered complete when a participant met the following criteria: (a) stable data that was no longer demonstrating a decelerating, therapeutic trend, (b) at least three consecutive data points at a level that was a 50% or greater reduction relative to the

mean of the last three baseline data points for that participant, (c) at least three consecutive days of earning home-based reinforcement (i.e., meeting behavior criterion), and (d) teacher, parent, and researcher agreement on an acceptable level of off-task behavior.

Procedures

Study procedures broadly followed the guidelines outlined by Kelley (1990) for using school-home notes. These procedures are summarized in Table 4.

Recruitment. After receiving approval from the Vanderbilt Institutional Review Board and permission to conduct research in each school district, I contacted district or school administrators (e.g., special education coordinators), behavior specialists, and representatives from the autism team via e-mail or phone. I shared information with these district contacts about the study, including inclusion criteria. I then asked these school or district level specialists to identify potential participants. If a teacher or student was suggested for possible inclusion, I contacted the principal of that school to obtain approval to contact the teacher and parent directly. Only after receiving principal approval did I ask the teacher to send a screening consent home to the parent/guardian of the potential child participant. Once the consent for screening was signed and returned to the school, I confirmed eligibility criteria by: (a) observing in the classroom to confirm the presence of child off-task behavior (at least 33% of intervals for a 10-min sample), and (b) reviewing child records to confirm the diagnosis of ASD and grade level from K-8.

Planning meeting. After confirming child eligibility, I scheduled a planning meeting at the school with the parent and teacher. This meeting, which lasted approximately 30 min, followed a semi-structured interview agenda (see Appendix B). First, I reviewed study procedures and provided examples of data sheets and school-home communication forms. I then

Table 4

Study Procedures

Procedure	Participant	Component	Data collection/ Measures
Recruitment	T, P	-Contact district personnel -Obtain screening consent from parent	
Initial screening	S	-Classroom observation to confirm inclusion criteria	
Planning meeting	T, P, S	-Obtain consent and assent -Semi-structured interview to: -confirm child eligibility -identify target activity and define target behavior	FIQ-E: P F-P Partnership Scale: P, T
Teacher training- Data collection	T	-Teacher training meeting -Live practice during target activity	
Baseline	T, P		Child off-task: T, R Weekly interactions: P, T
Teacher and parent training- Intervention	T, P	-Design school-home note -Identify criterion for reinforcement -Identify home reward	
Intervention	T, P, S		Child off-task: T, R Weekly interactions: P, T
Fading/ maintenance	T, P, S		Child off-task: T, R Weekly interactions: P, T
Post-intervention/ Social validity interview	T, P, S	-Review results -Semi-structured interview on acceptability	IRP-15: P, T ARP-R: T CIRP: S FIQ-E: P F-P Partnership Scale: P, T

Note. T = teacher participant; P = parent participant; S = student participant; R = researcher; FIQ-E = Family Involvement Questionnaire- Elementary (Benson, 2015); F-P Partnership Scale = Family-Professional Partnership Scale (Summers et al., 2005); IRP-15 = Intervention Rating Profile (Martens et al., 1985); ARP-R = Assessment Rating Profile- Revised (Shapiro et al., 1999); CIRP = Child Intervention Rating Profile (Witt & Elliott, 1983).

confirmed eligibility criteria and answered any questions about the study so that all parent and teacher participants could sign consent forms before continuing with the meeting. At this point, the parent also identified whether the child would be able to sign an assent form, or whether a verbal response to an assent script would be more appropriate. All parents other than Ryan's chose the latter option. Next, based on information I presented from classroom observations, we collaboratively agreed upon the target school activity. I then presented parents and teachers with a draft operational definition of off-task behavior, individualized for the student. After parents and teachers provided feedback and we finalized the operational definition, parents and teachers were asked to independently complete pre-intervention measures (see Table 4).

Teacher training. Before beginning baseline data collection, I trained the teacher or paraprofessional in data collection procedures using the Motivaider timer. This training session included the following components: (a) review operational definition of off-task behavior; (b) discuss and model examples and non-examples of target behavior; (c) review data collection sheet, and discuss teacher requested changes; (d) introduce Motivaider timer and its functions; (e) practice using Motivaider, including stopping, starting, and resetting; (f) review fidelity steps for data collection, (g) rehearse data collection with trainer acting as student; and (h) answer teacher questions and discuss concerns. This training session on data collection procedures was considered complete when the teacher reached at least 90% agreement for 10 intervals of researcher modeled behaviors. At that point, I scheduled a session for live practice in the classroom during the target activity. Training criterion was reached when the teacher and I agreed on the presence or absence of child off-task behavior in at least 90% of 1-min intervals in a 10-min sample for two live practice sessions during the target activity.

Baseline. During the baseline condition, the teacher participant collected momentary time sampling data on student off-task behavior at 1-min intervals for a 10-min sample of the target activity. Researchers also collected momentary time sampling data on student off-task behavior at 5-s intervals for the same 10-min sample as the teacher participant. We collected baseline data at least three times per week during the target activity. Other than collecting baseline data, teachers and paraprofessionals were directed to provide instruction and interact with all students as they normally would, using typical behavior management strategies. When baseline data collection began, the parent and teacher were also asked to begin recording their total number of interactions with each other per week.

Teacher and parent training meetings. Before introducing the intervention for each participant, I met with parents and teachers to plan for the intervention and train them on procedures. I created a semi-structured meeting agenda loosely based on the DRC Design Interview Form (Appendix B; Volpe & Fabiano, 2013) and completed 11 steps from parent and teacher implementation checklists (see Appendix C). For paraprofessional participants (Karen and Monique), parent trainings were conducted separately. However, Ryan's special education teacher (not an official participant in the study) attended the parent intervention training meeting to provide her input. Both special education classroom teacher participants (Amy and Danielle) attended joint teacher/parent intervention planning meetings (for Leo and Emily, respectively) with participating parents. Joint training meetings lasted approximately 45 min, while individual training meetings required approximately 30 min.

At these parent and teacher intervention training meetings, I presented a graph of baseline on-task behavior, including descriptive information such as the median percentage on-task and the mean of the last three data points. Using these data, I also proposed an initial criterion for

reinforcement and a goal for the final criterion (e.g., 80% on-task for three consecutive days). Data presented to parents, teachers, and students were consistently framed as increasing on-task behavior to help them focus on increasing a desired, incompatible behavior, rather than decreasing a problem behavior. The initial goal was set at a level that was slightly higher than baseline on-task levels, but was expected to be easily achieved by the student. This decision was made to increase the likelihood that the student would earn the home-based reinforcement soon after the intervention was introduced, and that they would quickly learn the contingency, or the relation between a behavior and its consequence (i.e., “If I follow my behavioral expectations at school to earn points, then I will get [reinforcer] at home.”).

After agreeing on an initial criterion for home-based contingent reinforcement, I presented a draft home-school communication form to parents and teachers. Together, we reviewed the intervention steps, behavioral expectations, and formatting of the note. I recorded any revisions that needed to be completed before beginning the intervention. We also discussed preferred tangible items or activities that might be used for home-based reinforcement contingent on school behavior. Using the Home Reward Planning Sheet (Appendix B; Volpe & Fabiano, 2013), each parent participant identified a reward that could be isolated for the purpose of the school-home note intervention. In selecting the reward, parents were asked to confirm that it was: (a) highly preferred, (b) acceptable to the parent, (c) feasible to provide, and (d) feasible to withhold. After parent and teacher participants demonstrated their mastery of intervention fidelity steps by practicing each step and responding to corrective feedback, we created a plan for introducing the intervention. This included discussing when the teacher and/or parent would tell the student about the school-home note intervention, and whether the student would require a social story or any other researcher-created materials to understand the intervention procedures.

School-home note intervention. The intervention consisted of a school-home note that was sent home with the child on days when the target activity was completed (at least three times weekly). As in baseline, the teacher participant and researchers continued to record data on off-task behavior for a 10-min sample. Data collected by teacher participants at 1-min intervals were used for the purposes of the home note, to determine if the student met their goal; researcher collected data at 5-s intervals were used for research purposes (e.g., visual analysis and determining evidence of a functional relation). Therefore, on days when the researchers were not able to be present but the target activity occurred, the teacher participants collected data and used these data to implement the intervention.

Each school-home note was individualized, but at a minimum, included the following components as specified by Kelley (1990): (a) a space to write the child's name and the date, (b) room for additional teacher comments, (c) a clearly stated target behavior, and (d) an indication of how often the behavior occurred/whether the criterion was met. See Table 5 for a summary of intervention components by participant, and Appendix D for each student's individualized school-home note. Before the target activity began, the teacher participant showed the school-home note to the child and reviewed the behavioral expectations and the criterion for earning home-based reinforcement that day. Immediately following the conclusion of the target activity, the teacher participant transferred the data they had collected on the student's off-task behavior to the school-home note.

After transferring the behavior data, the teacher participant reviewed the form with the child, verbally stating and using the visual to reference whether or not the student met his or her behavior criterion. If the student did so, the teacher praised him or her using positively phrased statements (e.g., "Wow, you kept your hands down and your eyes on the teacher today during

Table 5

Intervention Characteristics by Participant

Component	Participants			
	Ryan	Daniel	Leo	Emily
Introduction	Script read daily	-----	Social story read first two days of intervention On-topic talking sorting activity	Social story read daily
Behavioral expectations	1. Pay attention to teacher 2. Keep hands in lap	1. Eyes on teacher 2. Quiet hands 3. No silly talking	1. Follow directions 2. Hands down 3. On-topic talking	1. Follow directions the first time 2. Keep chair on the ground
Goal tracking	Maps	Points	Points	Ladybugs
Reinforcement	Paper airplane Sticker Playground	Circus peanuts or candy corn	Snake toy Lion king toy	Nutella
Mode home	Binder	Binder	Folder	Binder

calendar. Great job!”). If the student did not meet the criterion for reinforcement, the teacher remained neutral while providing feedback and reminded the student of the goal for the next day (e.g., “You had a hard time paying attention today. You need to earn eight points on the carpet to get your special toy at home. Let’s try again tomorrow.”). The teacher participant then wrote a brief note to the parent and ensured that the note was put away in the agreed upon place (e.g., binder) so that the parent would see it that afternoon or evening. All other classroom behavior management and instructional procedures remained consistent with the baseline condition. In addition, the parent and teacher participants continued to report weekly on their frequency of interactions.

Within one hour of the parent arriving at home, he or she was expected to review the

form with the student at home, providing praise and the pre-determined reinforcer if the child met his or her behavior goal. The parent was asked to isolate this reward for the home-based contingency and not provide access to it for any reason other than the child meeting this pre-determined behavior criterion. If the child did not meet this criterion for reinforcement, the parent neutrally reminded him or her of the behavioral expectation and the opportunity to earn the reward the next day (e.g., “I see you only got three points today during calendar- you need five to play on the iPad. Let’s try again tomorrow by keeping your hands to yourself.”). Parents were also told to informally monitor the child’s interest in the reward. If the parent noticed the child losing interest in the reward or becoming satiated, they were asked to select a new, feasible preferred item or activity to isolate for the purpose of this home-based reinforcement contingency. In addition to a written list of the parent steps for intervention implementation, each school-home note included a box for the parent to write a response. Although not a required component of the intervention, some parents sporadically wrote a note back to the teacher or made a note about implementation, and each school-home note was sent back to the school the next day.

With support from researchers, teacher participants monitored student data to make changes in the criterion for reinforcement as appropriate. After two consecutive days of meeting criterion, the teacher made a decision regarding whether criterion should be increased and by how much, with input from the researcher and parent. For example, as the end of the school year approached, the decision was made not to increase Emily’s criterion from seven points to the original goal of eight points, even though she successfully earned reinforcement for two consecutive days. Emily’s teacher and mother decided they were satisfied with a goal of 70% on-task (i.e., 30% or less off-task) because they wanted to prioritize the student being successful in

earning reinforcement during the final days of school.

Fading. Following completion of the school-home note intervention condition, I planned to gradually and systematically thin the schedule of reinforcement. In this condition, teacher participants would be expected to follow a protocol for thinning the schedule of reinforcement, while researchers collected maintenance probes once weekly. I planned to use these data to evaluate the sustained effects of the school-home note on decreased child-off task behavior. However, due to the end of the school year, I was unable to continue data collection and intervention for long enough to thin the schedule of reinforcement.

Post-intervention social validity interview. Before the end of the school year, I scheduled individual meetings with parents and teacher participants to complete post-intervention measures and conduct a semi-structured social validity interview. Special education teachers who did not participate directly in the study (i.e., Ryan's teacher) were also invited to these meetings. Meetings were held in locations that were convenient for participants, such as the school (for two parents and all teachers) or a coffee shop (two parents). Lasting approximately 30 min, I showed parents and teachers graphs of student data, verbally asked them questions about the acceptability of the intervention procedures and results, and used the remaining time for participants to complete post-intervention involvement and social validity rating scales. All participants were provided with a gift-card (\$50 for parents and \$75 for teachers) before the conclusion of the meeting.

Procedural Fidelity

I collected fidelity data throughout the study to ensure that parent and teacher trainings and meetings were conducted as planned (implementation fidelity), and that the intervention itself was implemented by parents and teachers as designed (intervention fidelity).

Implementation fidelity. During all training meetings, I completed fidelity checklists to ensure that procedures were implemented as described (see Appendix C). According to implementation fidelity data from these checklists, I conducted all data collection and intervention training meetings with 100% fidelity. A second observer independently attended meetings and completed the fidelity checklist in 75% of meetings across participants and meeting types; they indicated 100% agreement on the presence of all training components.

Intervention fidelity. In order to demonstrate implementation of specific intervention components, parents and teachers self-reported their adherence using checklists that were built in to the data collection form (teacher; see Appendix A) and school-home note (parent; see Appendix D). Teacher steps included: (1) wear Motivaider timer set for 1 min during target activity, (2) record data each time the Motivaider vibrates, (3) refrain from addressing student behavior while the Motivaider is vibrating, (4) transfer data to school-home note, (5) review form with student immediately following target activity, (6) provide praise if criterion is reached and remain neutral if not, (7) write a brief note to the parent, and (8) put school-home note in correct place to be sent home. During baseline, teachers self-reported on the presence of items 1-3 and the absence of steps 4-8. Once the intervention was introduced, teachers reported on the presence of all (1-8) intervention fidelity steps.

Teacher intervention fidelity data were reported in 84%-97% of baseline and intervention sessions across participants. We were able to collect IOA data on self-reported intervention fidelity in at least 65% of these sessions. On average, teacher fidelity was reported to be between 93% and 100% across participants, with average IOA of 97%-100% across participants. The only step that was not implemented correctly by teachers in all sessions was recording data each time the Motivaider vibrated; sometimes, teacher participants would be busy with another task

and would miss an interval, thereby not implementing the data collection strategy as planned during the 10-min sample. Additionally, because the intervention was continued once Daniel's classroom teacher left her position, Monique was unable to collect data because she filled the teacher's role in running the calendar activity. As a result, researcher- instead of teacher- collected data from 1-min intervals were used for the intervention (i.e., completing the school-home note). Therefore, the intervention was not implemented with fidelity for six of Daniel's intervention sessions because the intervention was designed to use teacher-collected data (i.e., intervention fidelity steps 1 and 2).

The five parent intervention fidelity steps that were self-reported on the school-home note included: (1) got the school-home note from child's backpack within one hour of arriving at home; (2) reviewed the school-home note with the child; (3) provided praise and the reinforcer if the child earned it, remaining neutral if he or she did not; (4) did not give access to the reward if it was not earned based on school behavior; and (5) put the form back in child's backpack. Data on the presence or absence of these intervention fidelity steps were only collected once the intervention was introduced, as we knew that the parents could not complete the steps during baseline when the school-home note was not being sent home (as confirmed through data collected on the absence of teacher fidelity steps 4-8). To further ensure that elements of the intervention were not implemented at home during baseline, we also did not discuss details regarding the home-based components of the intervention until the intervention training meeting, held immediately before the intervention was introduced.

Across participants, parents sent all of the school-home notes back to school to be collected by the teacher or researcher, reporting on their fidelity in 100% of intervention sessions. Due to the nature of the parent-implemented steps, we were unable to independently

collect data on parent intervention fidelity for purposes of reliability. I calculated the total percentage of parent intervention fidelity by dividing the number of steps implemented each time the note was sent home by the total number of parent intervention fidelity steps (i.e., five). If a parent self-reported fidelity lower than 80% or failed to return one school-home note per week or more, I planned to contact them for retraining. Parents reported, on average 98.5% intervention fidelity, with a range from 96.0%-100% across participants. Daniel's mother and Leo's mother each reported one instance of not reviewing the school-home note with their child within one hour of arriving at home. Leo's mother also forgot once to put the form back in Leo's folder to be returned to school the next day; however, she did send the form back to school when she noticed, so that intervention fidelity data could be collected by the researcher.

Observer Training and Inter-Observer Agreement

Researcher-collected data. Additional observers for this study included three graduate students in special education who were completing experience hours to become Board Certified Behavior Analysts (BCBA). I trained these research assistants (RA) on data collection procedures before beginning baseline data collection using the following procedures. First, during a one hour training session, I provided them with written data collection procedures and a coding manual, which we reviewed as a group. Next, I provided RAs with a video to code independently using the definition of off-task behavior. Once RAs reached 90% accuracy in coding this 10-min sample from the video and passed a written test on coding definitions with 100% correct responses, they were considered ready to practice live coding in the classroom setting. Each RA was assigned to one classroom/participant for training and data collection, and one RA was able to collect data for two participants in the same school district. Once an RA reached the criterion of coding two consecutive 10-min sessions during the target activity with at

least 85% agreement with an expert coder (i.e., myself), they were considered ready to begin data collection.

A secondary observer collected inter-observer agreement (IOA) data on child off-task behavior, the primary dependent variable, in at least 33% of sessions distributed across all participants and conditions. I calculated IOA using a point-by-point method, dividing the total number of agreements by the number of agreements plus disagreements (i.e., 120), and multiplying by 100. After calculating IOA immediately following the data collection session, we reviewed disagreements and notes from the session, adding specific examples and non-examples to the coding manual as necessary. Average IOA ranged from 85%-90% across participants, with a range from 79%-98% IOA for individual sessions (see Table 6 for IOA by participant and condition).

To help interpret this measure of reliability, I also calculated the coefficient kappa (Cohen, 1960), which controls for base-rates of behavior and the likelihood of agreeing on the presence or absence of the dependent variable by chance (e.g., a very high percentage of intervals with the presence of off-task behavior). Average kappas were in an acceptable range for all participants (i.e., $>.60$), indicating good or excellent agreement based on guidelines provided by Cicchetti and colleagues (2006) and Bruckner and Yoder (2006) (see Table 6). Some minor differences were noted across conditions; however this was expected due to changes in the base-rate of off-task behavior following introduction of the intervention.

Teacher-collected data. Teacher participants were trained in data collection procedures during a training meeting and then reached criterion through live-coding during the target activity (see Procedures section). Although researchers were present for the large majority of sessions with teacher-collected data, teacher participants continued to implement the intervention

Table 6

Inter-Observer Agreement by Participant and Condition

Condition	Researcher-Collected Data				Teacher-Collected Data	
	Percent Agreement		Kappa		Percent Agreement	
	Mean	Range	Mean	Range	Mean	Range
Ryan (Karen)						
Baseline	95.8%	93.3%-98.3%	0.85	0.85-0.85	87.1%	80%-100%
Intervention	88.0%	79.2%-95.0%	0.70	0.47-0.84	85.7%	60%-100%
Daniel (Monique)						
Baseline	84.2%	84.2%-85.8%	0.64	0.59-0.72	83.6%	60%-100%
Intervention	87.3%	80.0%-92.5%	0.74	0.61-0.83	87.5%	70%-100%
Leo (Amy)						
Baseline	85.0%	80.8%-88.3%	0.68	0.60-0.75	80.0%	70%-100%
Intervention	84.6%	82.5%-86.7%	0.66	0.56-0.71	82.7%	60%-100%
Emily (Danielle)						
Baseline	87.9%	80.8%-90.8%	0.73	0.62-0.82	77.5%	60%-90%
Intervention	88.8%	81.7%-95.8%	0.57	0.27-0.71	84.3%	56%-100%

(including data collection) on days when researchers were not present. This occurred specifically for Ryan and Emily, whose target activity was conducted up to five days a week. Because teacher participants collected data every minute, researcher-collected data from overlapping intervals could be used to calculate IOA for teacher-collected data. Researchers calculated IOA for teacher-collected data at every session at which they were present, with one exception; if the teacher participant reported missing an unidentified interval, then we could not identify corresponding intervals to compare agreement on the occurrence of off-task behavior. This happened once for Amy and once for Danielle. If a teacher identified a specific interval they missed during the 10-min sample, we calculated IOA for the total number of intervals for which they collected data (e.g., dividing agreements by 9 total intervals instead of 10).

Thus, IOA on teacher-collected data was calculated for an average of 88.5% of sessions across participants, with a range from 77.4%-100% of sessions with teacher-collected data. As shown in Table 6, agreement between teacher- and researcher-collected data at 1-min intervals varied widely, with ranges from 56.0%-100%. These disagreements included unitizing (i.e., presence of) and classifying (i.e., type of code) differences. Whenever point-by-point agreement fell below 80%, I discussed the disagreements with the teacher, clarified the operational definition of off-task, reminded them of the momentary time sampling data collection procedure (i.e., recording data on the student's behavior only during the moment the timer was vibrating), and added examples and non-examples to the coding manual, as appropriate. Because teacher-collected data at 1-min intervals were used for intervention purposes, rather than determining a functional relation, and because I was trying to promote the teacher participant's ability to continue using the intervention once the study was over, teacher participants used their data and coding decisions for determining whether the student met criterion for earning home-based

contingent reinforcement, even if we had low IOA.

Data Analysis

I graphed and analyzed researcher-collected data on off-task behavior immediately following each session to use ongoing visual analysis to inform decision-making regarding condition changes. After all data were collected, I used this multiple baseline across participants graph to evaluate the effects of the school-home note on decreasing off-task behavior for school-age children with ASD. I made statements about a functional relation based on the trend, level, and variability of data within and across conditions and tiers (Gast, 2010). I also used visual analysis to compare these graphs of researcher-collected data-- and corresponding statements about functional relations --with graphs of teacher-collected data to determine to what extent these measures and conclusions correspond.

To answer the secondary research question regarding changes in parent involvement, I graphed weekly data of parent and teacher reported interactions to visually evaluate changes. I also summarized pre- and post-intervention parent and teacher responses from the F-P Partnership Scale (Summer et al., 2005) and the FIQ-E (Benson 2015) using intra-participant descriptive information, such as means and ranges. Further, I reviewed open-ended responses from the post-intervention social validity interview to evaluate parents' and teachers' perceptions of any changes in communication and partnership. Although only based on the reports of four participant triads, changes in parent and teacher-reported involvement from pre-intervention to post-intervention might be used to draw tentative conclusions about possible changes in parent involvement following the introduction of the of the school-home note intervention. Similarly, to evaluate the social validity of this intervention, I calculated means and ranges for parent, teacher, and child ratings of acceptability and reviewed open-ended responses for related themes.

CHAPTER III

RESULTS

School-Home Note Intervention

As shown in Figure 1, the intervention was first introduced for Ryan, who had the most stable baseline data other than one session with very low levels of off-task behavior (i.e., session 2); all other baseline data points were from 42.5%-57.0% off-task. We hypothesized that the topic of the story that his teacher was reading during the second session, one of Ryan's special interests, was likely related to this outlier. Following introduction of the school-home note with home-based contingent reinforcement, Ryan's off-task behavior immediately decreased in level, with a decelerating trend for seven sessions. Although no data were able to be concurrently collected in the second tier for the first three sessions following the introduction of the intervention (due to unexpected teacher absence), and off-task behavior of Leo and Emily also demonstrated a decelerating trend, following the return from spring break, Ryan's off-task behavior continued to decelerate while the off-task behavior of other participants did not. After some variability, Ryan's off-task behavior stabilized at the end of the intervention condition at 15% off-task, with a change in level from a median of 52.9% off-task in baseline to a median of 30.8% off-task in intervention (see Table 7). Mean off-task behavior for his final three sessions was 13.9%, a more than 50% decrease from the mean of his last three baseline data points (i.e., 50.7% off-task). Due to the end of the school year, we were not able to fade the schedule of reinforcement or monitor the maintained effects of this intervention for Ryan.

The intervention was next introduced for Daniel, who had the highest baseline level of

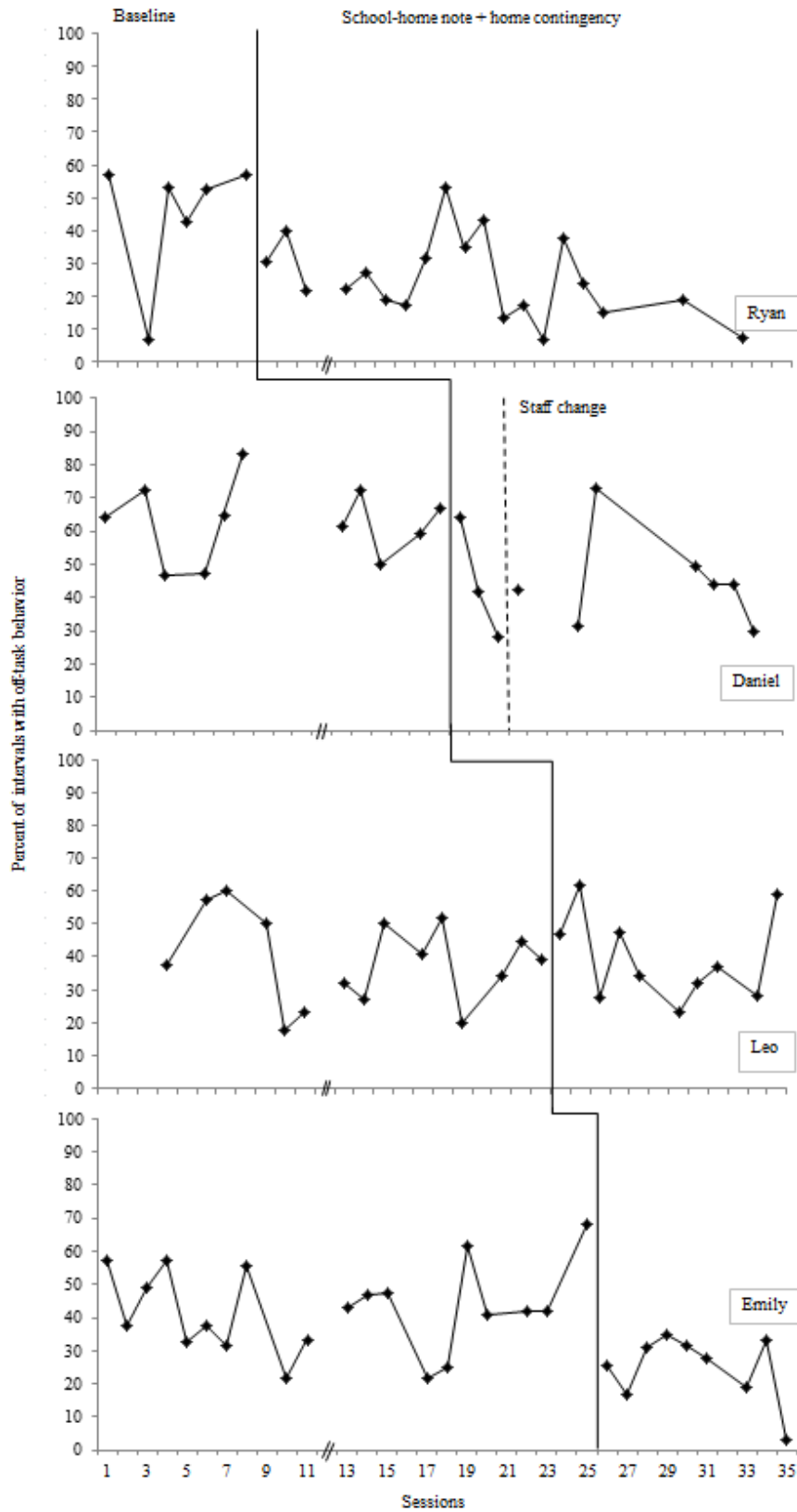


Figure 1. Graph of student off-task behavior across participants (5-sec intervals).

off-task behavior and the most stable data following the 1.5 week break in data collection after session 11 (i.e., spring break). With a median of 61.7% off-task behavior in baseline, Daniel's off-task behavior demonstrated an immediate decelerating trend after introduction of the intervention, although there was not an immediate change in the level in his off-task behavior in the first intervention session. Off-task behavior across the third and fourth tiers, still in baseline, did not demonstrate similar decelerating trends during concurrent data collection. In Daniel's fourth intervention session, his classroom teacher was unexpectedly absent, so another paraprofessional led the calendar activity in her place. After learning that his classroom teacher would not be returning, we experienced a break in data collection and intervention while the school made logistic decisions about caseload and staffing. During this week, Daniel's class joined the upper-grades special education class for their activities, which were conducted under vastly different conditions than the typical calendar activity (e.g., number of students, unfamiliar teacher). In order to continue implementing the intervention, which seemed initially effective, under conditions that were as similar as possible to the first three intervention sessions, we compromised on removing the teacher data collection component so that Monique could run the calendar activity in Daniel's classroom in place of the classroom teacher. To promote consistency, the classroom staff decided not to request a substitute, so I also sat in Monique's spot next to Daniel at the table while collecting data during calendar. Monique continued to complete all other intervention fidelity steps. After the third session following the staff change, which returned to a baseline level of off-task, Daniel's off-task behavior demonstrated a decelerating trend for the final four sessions of the intervention condition. Due to the end of the school year, we were unable to continue the intervention or data collection to reach stable, low levels of off-task behavior and demonstrate an effect. Overall, the median level of Daniel's off-

task behavior during the intervention condition following the staff change was 44.2% (see Table 7), with an average of 39.5% off-task behavior in the last three intervention sessions (compared to a mean of 58.6% for the final three baseline sessions).

Next, for logistic reasons, we introduced the intervention in the third tier for Leo. Although we had planned to introduce the intervention next for Emily, her teacher became sick and was unable to attend the scheduled intervention training meeting. Due to the few number of remaining school days, I chose to introduce the intervention for Leo, rather than keeping both Leo and Emily in baseline for an additional week.

Although Leo demonstrated a relatively low level of off-task behavior in baseline (i.e., median of 39.2%) with high variability (range 17.5%-60.0%), visual analysis of the final three baseline data points indicated an accelerating trend. After the introduction of the school-home note with home-based contingent reinforcement, Leo's off-task behavior continued to accelerate for two sessions, followed by a decelerating trend. This pattern was consistent with cyclic variability witnessed in the baseline condition, the source of which we were unable to identify and control. There was a minimal change in level after the intervention was introduced, with a median of 35.5% of intervals with off-task behavior, but continued variability (range 23.3%-61.7%). In the last session before the end of the school year, Leo's off-task behavior returned to a high percentage of off-task behavior.

In the fourth tier, Emily's off-task behavior immediately decreased in level following the introduction of the school-home note with home-based contingent reinforcement. From a median of 41.7% off-task with high variability in baseline (see Table 7), Emily's off-task behavior became more stable once the intervention was introduced, with decreased variability and a median of 27.5% off-task. Although the final intervention session indicated the potential for

Table 7

Intervention and Off-Task Data by Participants

Participant	Teacher				Researcher			
	Intervention			Sessions meeting criterion	Assessment		Off-task	
	Off-task criterion				Baseline	Intervention	Baseline	Intervention
	Initial %	Final %	Goal %	% of sessions (proportion)	Median (range)	Median (range)	Median (range)	Median (range)
Ryan	40%	20%	20%	85% (22/26)	50% (20%-60%)	20% (0%-60%)	52.9% (6.7%-57.0%)	30.8% (6.7%-53.3%)
Daniel	50%	40%	30%*	70% (7/10)	70% (40%-90%)	40% (10%-60%)	61.7% (46.7%-83.3%)	44.2% ^a (30.0%-73.0%) ^a
Leo	50%	30%	20%*	60% (6/10)	50% (30%-80%)	40% (30-70%)	39.2% (17.5%-60.0%)	35.5% (23.3%-61.7%)
Emily	40%	30%	20%*	75% (9/12)	50% (20%-80%)	30% (0%-60%)	41.7% (21.6%-68.3%)	27.5% (3.3%-33.3%)

*Indicates participant may have met goal with additional sessions. ^aFollowing staff change only.

continued decreases in off-task behavior, the end of the school year did not allow for ongoing evaluation of the effectiveness of the intervention for Emily until off-task behavior reached a stable level that no longer indicated a therapeutic trend.

Overall, there were therapeutic changes in off-task behavior across the baseline and intervention conditions for two of four participants, as indicated by visual analysis. However, changes in Daniel's classroom environment during the target activity, after the intervention was introduced, limited our ability to identify a third demonstration of effect to indicate a functional relation. Leo's cyclic variability and corresponding lack of effect further limit the conclusions that can be drawn about the effectiveness of the school-home note with home-based contingent reinforcement intervention in reducing off-task behavior for students with ASD.

Parent Involvement

Partnership. As shown in Table 8, results of the family and professional versions of the F-P Partnership Scale (Summers et al., 2005) did not indicate a major change in partnership after the intervention for any participant other than Daniel's mother. She reported a change in partnership from an average of 3.7-4.0, with responses at pre-intervention ranging from 2-4 (*dissatisfied to satisfied*), and following intervention from 3-5 (*neither to very satisfied*) across both the child-focused and the family-focused subscales. However, no teacher-reported results were available for comparison because the teacher on whom she reported at pre-intervention was no longer working at the school at the time the study was completed. Thus, Daniel's mother's ratings of partnership post-intervention were reported on her relationship with the school staff, rather than his former teacher, and this change may have accounted for the difference in pre- and post-intervention scores. All other participants indicated a change of .1 or less from pre-intervention to post-intervention full-scale ratings of partnership. Participants, on average,

Table 8

Parent Involvement Summative Results by Participant

Participant	Measure	Scale	Subscale	Parent		Teacher	
				Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
				Mean (Range)	Mean (Range)	Mean (Range)	Mean (Range)
Ryan	F-P Partnership	1-5	Full scale	4.9 (4-5)	4.9 (4-5)	4.6 (4-5)	4.6 (4-5)
			Child	4.9 (4-5)	4.9 (4-5)	4.4 (4-5)	4.7 (4-5)
			Family	5.0 (5)	5.0 (5)	4.8 (4-5)	4.6 (4-5)
	FIQ-E	1-4	Full scale	2.3 (1-4)	2.5 (1-4)		
Daniel	F-P Partnership	1-5	Full scale	3.7 (2-4)	4.0 (3-5)	5.0 (5)	
			Child	3.6 (2-4)	3.7 (3-4)	5.0 (5)	
			Family	3.9 (3-4)	4.3 (3-5)	5.0 (5)	
	FIQ-E	1-4	Full scale	2.1 (1-4)	2.1 (1-4)		
Leo	F-P Partnership	1-5	Full scale	3.6 (3-4)	3.7 (3-4)	3.9 (2-5)	3.9 (2-5)
			Child	3.6 (3-4)	3.8 (3-4)	4.2 (2-5)	4.0 (2-5)
			Family	3.7 (3-4)	3.6 (3-4)	3.7 (2-5)	3.9 (3-5)
	FIQ-E	1-4	Full scale	2.7 (1-4)	2.5 (1-4)		
Emily	F-P Partnership	1-5	Full scale	4.9 (4-5)	5.0 (5)	4.1 (3-5)	4.0 (4)
			Child	4.9 (4-5)	5.0 (5)	4.0 (3-5)	4.0 (4)
			Family	4.9 (4-5)	5.0 (5)	4.2 (4-5)	4.0 (4)
	FIQ-E	1-4	Full scale	2.5 (1-4)	2.5 (1-4)		

Note. F-P Partnership = Family-Professional Partnership Scale (Summers et al., 2005); FIQ-E = Family Involvement Questionnaire-Elementary (Benson, 2015).

reported strong partnerships between parents and teachers, with averages ranging from 3.6-5.0. Some discrepancies in partnership scores across parents and teachers were noted between Daniel's mother and teacher on pre-intervention ratings, and for Emily's mother and teacher at pre- and post-intervention. While Emily's teacher was *satisfied* with their partnership at post-intervention, Emily's mother was *very satisfied*.

Based on parent and teacher open-ended responses at the conclusion of the study, some positive changes in partnership were anecdotally reported. Leo's mother stated that the intervention helped her and his teacher to "think of things in a different way," and that the intervention was something they "can work on together because we each had a piece of it to do." Although Emily's mother felt her relationship with the teacher was already strong at the beginning of the study, her teacher reported that she "felt most comfortable with her [Emily's mother] because of the study" and that it "increased common ground." Similarly, in response to a question about changes to the relationship with the parent, Monique, Daniel's paraprofessional, said that it was a "positive change, very positive." Although these changes were not reflected in the quantitative measure of parent-school partnership, anecdotal differences were reported by some participants, particularly when there was room for improvement based on the pre-intervention F-P Partnership Scale (Summers et al., 2005) score.

Communication. As shown in Figure 2, interactions between parents and teachers did not increase after the introduction of the intervention, according to teacher or parent report. Across all participants except for Emily, weekly rates of parent-teacher interactions decreased after the intervention was introduced. Unfortunately, data were not reported consistently enough by teachers or parents to evaluate reliability, or in some cases, to evaluate results.

However, during post-intervention interviews with parents and teachers, all participants

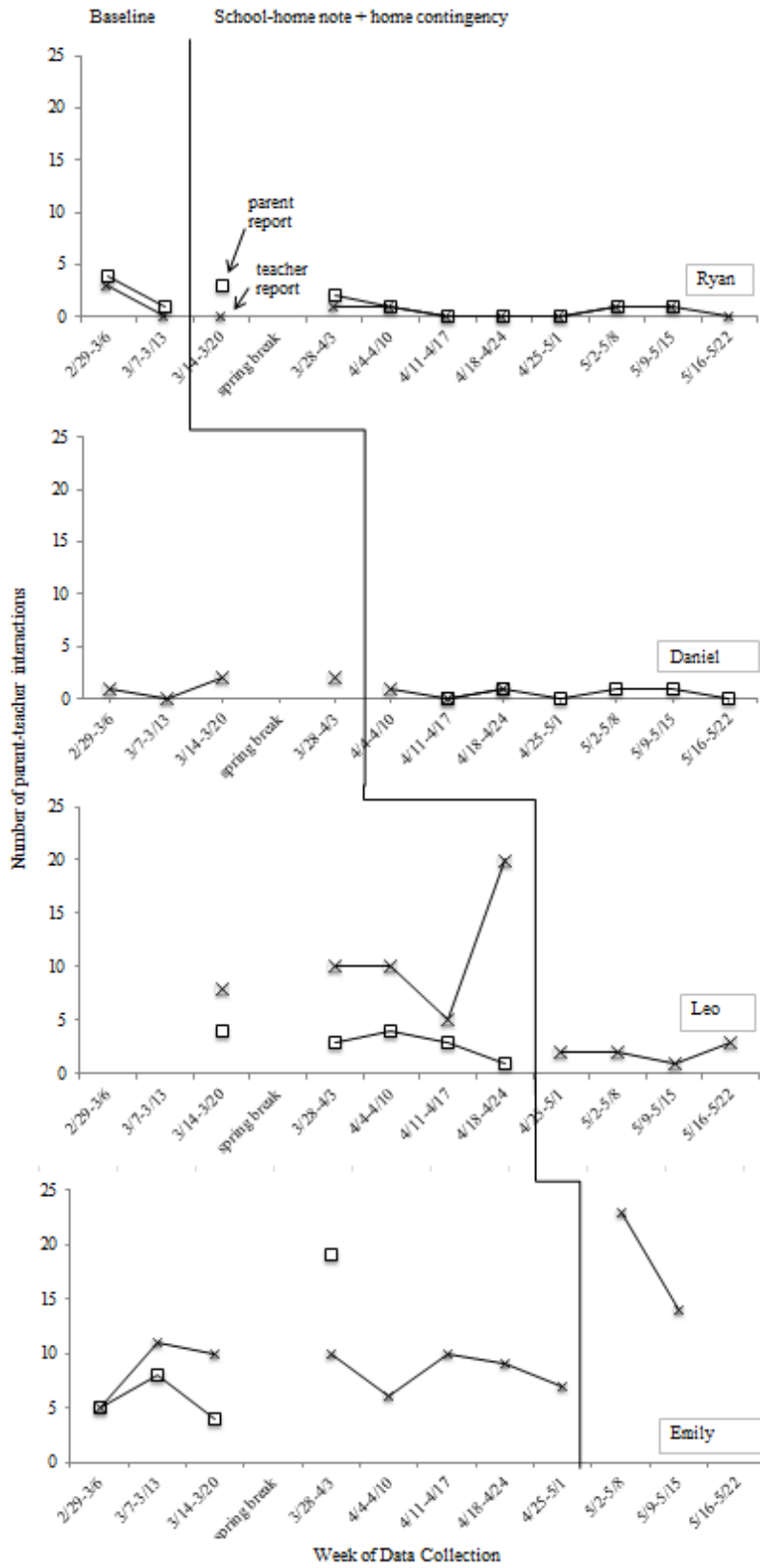


Figure 2. Graph of parent-teacher interactions by week.

reported a positive change in communication as a result of the intervention. Leo's mother and teacher independently stated that the intervention helped Amy to report more positive information about his day, rather than only communicating when negative things happened. Similarly, Emily's mother reported that she liked hearing how Emily did each day, because otherwise "you don't know what going on unless something off happens." Both Leo's and Daniel's teachers also noticed that, at least initially, communication from the students' mothers increased. Regarding Daniel's mother, Monique stated that, "It got her attention and made her more involved." His mother agreed that there had not been a lot of communication previously because she didn't know what to ask about. The study gave her "...a formalized, specific thing to know about." Therefore, positive changes in communication were anecdotally reported by both teachers and parents.

School involvement. Results from the parent-completed FIQ-E (Benson, 2015) did not indicate a change in parent involvement from pre-intervention to post-intervention (see Table 8). Responses for all parents on the 42-items ranged the full scale from 1 (*rarely*) to 4 (*always*) both before and after the intervention. Pre-intervention average responses ranged from 2.1-2.7 (with Daniel's and Leo's mothers providing the lowest and highest ratings, respectively), while all parents other than Daniel's mother reported a post-intervention average involvement of 2.5 (between *sometimes* and *often*). While two parents (of Ryan and Emily) self-reported a slight increase in their school involvement, the average rating self-reported by Leo's mother decreased slightly following the intervention, and Daniel's mother did not report any change in her involvement at school.

Teacher vs. Researcher Collected Data

As shown in the side-by-side graphs of researcher-collected and teacher-collected data on

student off-task behavior (see Figure 3), similar conclusions can be drawn from visually analyzing both sets of data on level, trend, and stability (see Table 7). Although slightly more variable when collected by teachers every 1 min than by researchers every 5 s, Ryan's and Emily's off-task behavior showed a clear change in trend from baseline to intervention regardless of data collector. Similarly, immediately after the introduction of the intervention for Daniel, and again a few sessions after the initial staff change, his off-task data demonstrated a decelerating trend in a therapeutic direction whether visually analyzing teacher- or researcher-collected data. Leo's off-task behavior, when evaluated using data collected by researchers and by teachers, did not indicate an effect of the intervention. However, the cyclic variability that was evident in researcher-collected data seemed to be masked in teacher-collected data.

When comparing researcher- and teacher-collected data on one graph (see Figure 4), it is also evident that, for all participants except for Leo, the greater variability in teacher-collected data at 1-min intervals was due to both under and over-estimates of off-task behavior. As shown in the graph, the white open circles, indicating teacher-collected data, are scattered above and below the black diamonds (i.e., researcher-collected data at 5-s intervals). However, data collected by Amy consistently overestimated Leo's off-task behavior in all but four sessions across baseline and intervention conditions. Thus, observer error, in addition to measurement error, impacted these results.

Social Validity

All participants gave positive ratings for the acceptability of the intervention (see Table 9), with a range from an average of 4.5 reported by Leo's mother to 5.9 reported by Ryan's teachers on the IRP-15 (Martens et al., 1985). The item rated lowest across participants was: "This intervention was consistent with those I have used/ the school has used in the classroom

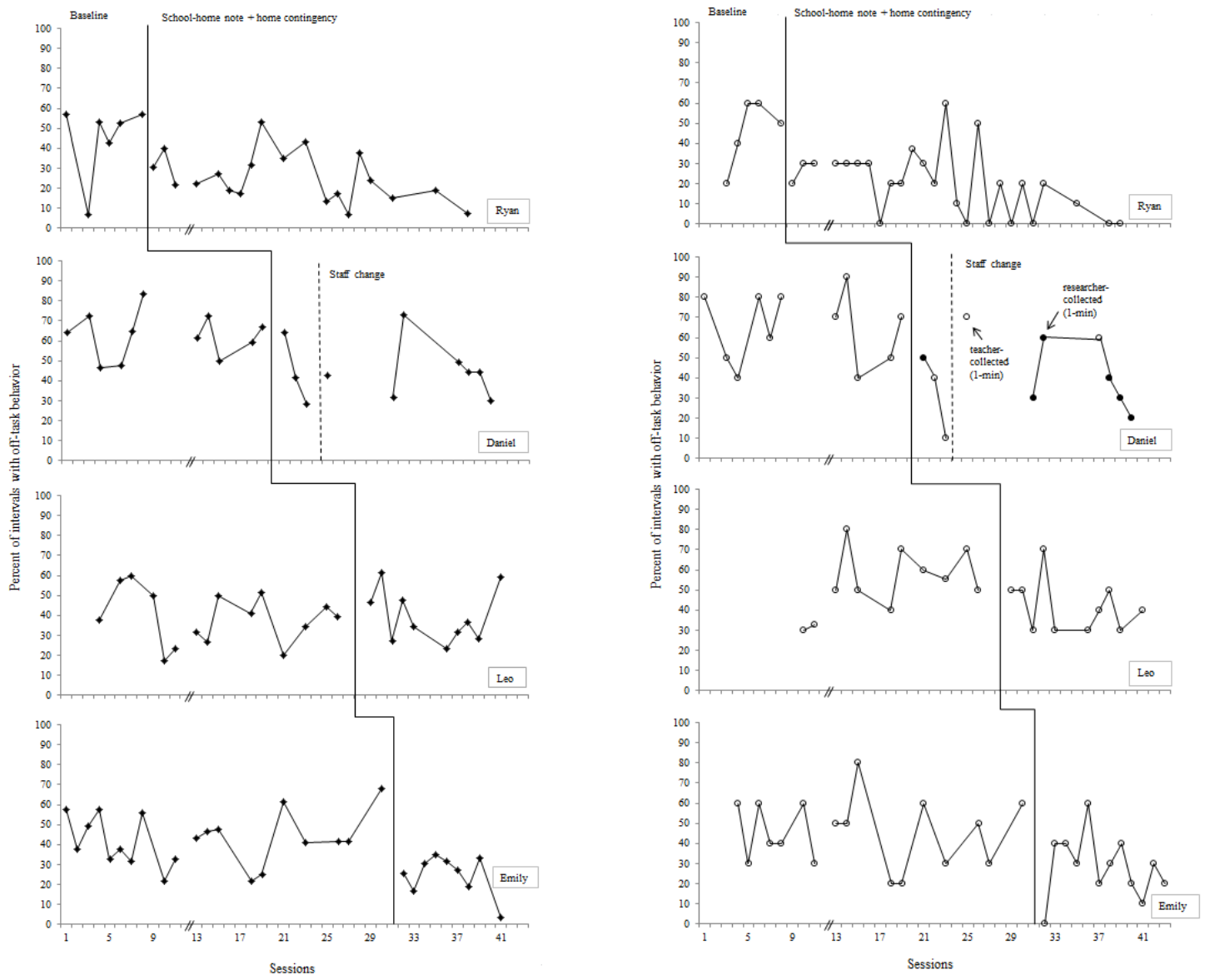


Figure 3. Graph comparing visual analysis of researcher- (left) and teacher- (right) collected data on student off-task behavior across participants.

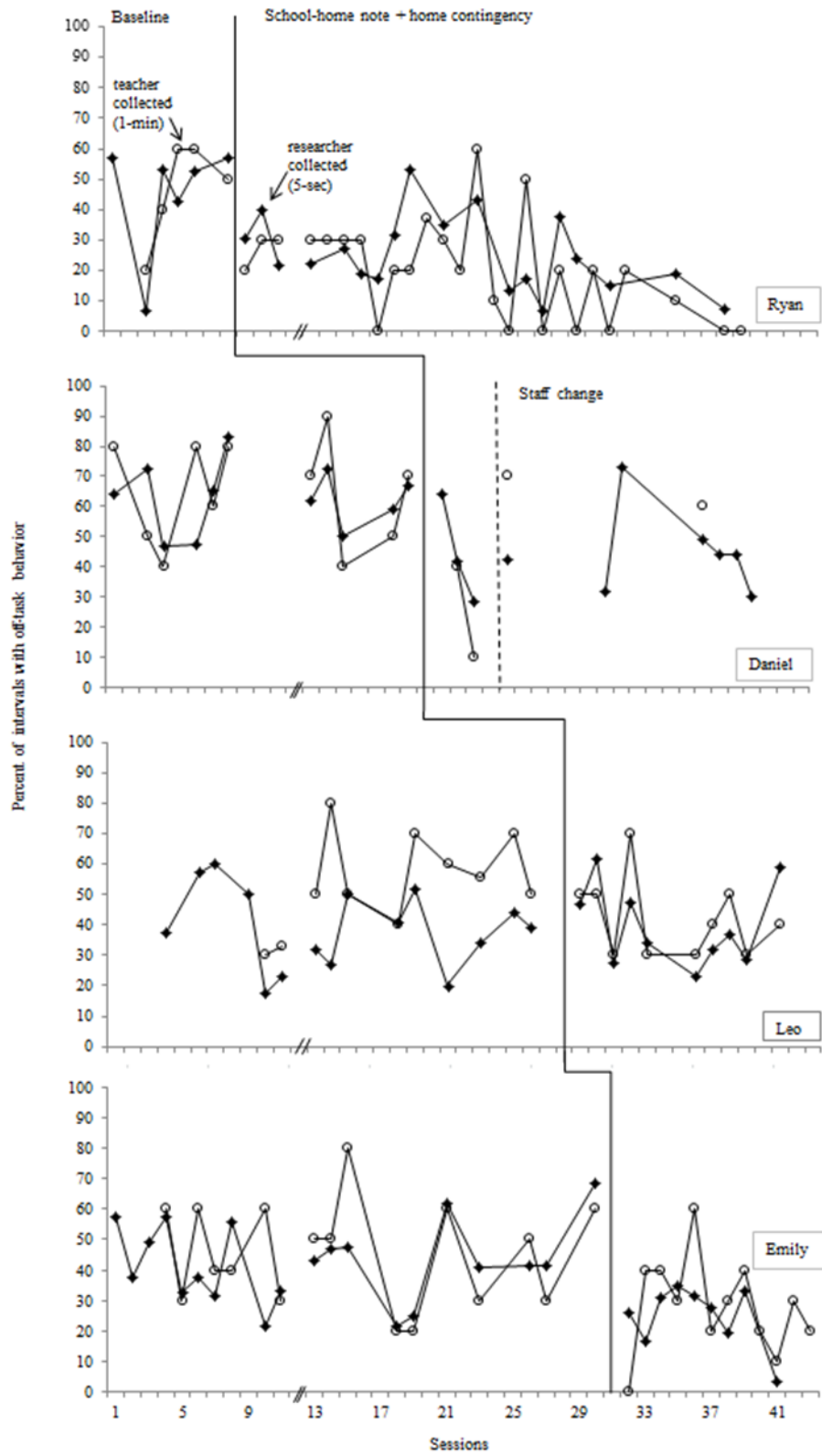


Figure 4. Graph of researcher- (5-sec intervals) and teacher-collected (1-min intervals) data on student off-task behavior across participants.

Table 9

Social Validity Results by Participant

Measure	Scale	Participant	Ryan	Daniel	Leo	Emily
			Mean (Range)	Mean (Range)	Mean (Range)	Mean (Range)
ARP-R	1-6	Teacher	5.8 (5-6)		5.5 (4-6)	4.9 (4-5)
		Para	5.9 (5-6)	5.6 (5-6)		
IRP-15	1-6	Teacher	5.9 (5-6)		5.5 (4-6)	4.9 (4-5)
		Para	5.9 (5-6)	5.6 (5-6)		
		Parent	5.7 (5-6)	5.0 (4-6)	4.5 (2-6)	5.8 (4-6)
CIRP	1-3	Student	2.4 (1-3)	2.3 (1-3)		

Note. ARP-R = Assessment Rating Profile- Revised (Shapiro et al., 1999); IRP-15 = Intervention Rating Profile (Martens et al., 1985); CIRP = Child Intervention Rating Profile (Witt & Elliott, 1983); para = paraprofessional.

setting before.” The item with the highest rating across participants was: “This intervention was reasonable for the behavior problem described.” Two out of four student participants were able to complete the modified CIRP (Witt & Elliott, 1983) to report on their perceptions of the acceptability of the intervention. Ryan answered positively to all questions except for indicating that there was a better way to help him, and that other kids would not like to do this with their teacher and parent. Daniel answered *yes* to all questions (even those phrased negatively for reverse coding) except for indicating that the intervention may have caused problems with his friends.

Teacher participants also rated the acceptability and feasibility of assessment/data collection procedures positively; average scores on the ARP-R (Shapiro et al., 1999) ranged from

4.9-5.9 across participants. Only two items were rated lower than a 5, by one participant each. Danielle agreed with all statements other than: “This assessment procedure was a good way to measure the child’s problem,” with which she *slightly agreed*. Additionally, Amy slightly agreed with the statement: “This assessment was likely to be helpful in the development of intervention strategies,” making a note on the paper measure indicating that this was because the data did not show any clear trends. All teachers *agreed* or *strongly agreed* that the data collection procedures were feasible.

During social validity interviews, teacher participants also reported that the intervention and data collection procedures were easy to implement, even while collecting other types of data in the classroom. Parents agreed that the home-based reinforcement component did not require too much effort, and consistently stated they would be happy for the school to continue using this procedure, or a similar one, in the future. All teachers also said they would consider continuing to use the intervention during next school year or the summer.

Parents also shared positive feedback about the home-based component of the intervention, reflecting on promising interactions with their children regarding the intervention. Leo’s mother was pleased that he did not react negatively when she told him neutrally that he did not earn his reward. Daniel’s mother also responded positively, glad that he was able to tell her why he didn’t earn his home-based reinforcement on days when he hadn’t met his criterion (i.e., stating the specific behavioral expectation). Similarly, Emily’s mother was happy to see that she was very motivated and excited by the home-based contingent reinforcement. As she stated, “She was all about it and she didn’t bring it up if she didn’t earn it.” Therefore, results from quantitative measures and open-ended responses showed high levels of acceptability for the intervention, data collection procedures, and outcomes of this study across participants.

CHAPTER IV

DISCUSSION

Parents of students with ASD report school-home communication to be a highly valued, but often poorly executed, type of involvement (Tucker & Schwartz, 2013; Zablotsky et al., 2012). However, little research has evaluated ways to improve partnership between parents and schools by developing effective communication. Furthermore, interventions that capitalize on the importance of communication and involvement for parents have not been evaluated for students with ASD. In this study, I investigated the use of a school-home note with home-based contingent reinforcement intervention for school-age students with ASD. I have four main findings that extend the research in this area.

First, with only two demonstrations of a treatment effect, I was not able to identify a functional relation between the school-home note with home-based contingent reinforcement and decreased student off-task behavior at school. As the first study to evaluate the use of school-home notes with home-based contingent reinforcement specifically for students with ASD, this lack of a demonstration of an effect generates many new research questions. Particularly because the design of this study meets high standards for quality (Horner et al., 2005), it may be replicated with participants who are similar to the two for whom the intervention was effective in decreasing off-task behavior at school (i.e., Ryan and Emily). School-home note interventions have been effective with many other student populations (Van Nest et al., 2010), and it seems likely that with more consistency across participant characteristics and classroom settings, the necessary three demonstrations of effect to indicate a functional relation may be identified.

Second, although formal self-report quantitative measures of involvement, communication, and partnership did not indicate an increase in parent involvement, parents and teachers across child participants described positive changes in these areas as a result of the intervention. In terms of partnership, parents and teachers specifically reported improvement in their relationship because the intervention provided something they could work on together. One teacher also indicated that, although she had a strong relationship with all parents of her students, she felt closest with the parent of the participating student as a result of the intervention. Given that many schools struggle to build positive relationships with parents (Mapp & Kuttner, 2013) and that parents of students with ASD experience unique barriers to partnership (Tucker & Schwartz, 2013), any positive change in family-professional partnership is valuable for these students and their parents.

In the future, participants with poor partnership should be recruited in order to increase the possibility of measuring quantitative change in the parent-teacher relationship. In this study, I was unable to recruit such participants through the school system; parent and teacher participants reported positive partnership before the study began, leaving little room for improvement on the quantitative measure (F-P Partnership Scale; Summers et al., 2005). However, a high proportion of parents of children with ASD use adversarial methods of dispute resolution, such as due process (Zirkel, 2011) to resolve disagreements with the school. Unfortunately, this formal process often leaves the family-school relationship damaged beyond repair (Getty & Summy, 2004). By engaging in more proactive, informal methods of dispute resolution and relationship building earlier, such damaging processes may be avoided by schools and families that need to address disagreements and poor partnership (Mueller, 2009). A more effective way to reach this subset of participants may be to first connect with parent participants through non-school

disability support organizations (e.g., Parent Training and Information Centers, Community Parent Resource Centers), and then connect with these students' schools and teachers. With a different group of participants, it is possible that quantitative changes in parent-school partnership may be observed following the intervention.

Relating to communication, findings that emerged from parent and teacher responses to open-ended questions during the post-intervention meeting are consistent with the literature. Parents and teachers highlighted that the intervention created a basis for consistent communication about student behavior during a target time, regardless of whether it was good or bad. This is important because the parents in this study, and parents of students with ASD more generally (Kelley, 1990), felt that prior to the intervention, communication from school typically occurred when negative information about student behavior needed to be conveyed.

Additionally, parents and teachers liked the structured, focused nature of communication using the school-home note. One parent who reported that she did not communicate frequently with the school highlighted that the school-home note provided her with a structure around which to learn more specific information about her child's day and to ask related questions. Tucker and Schwartz (2013) similarly identified this desire of parents to recognize their own need for information and the teacher's goal of sharing information with parents before they have to look for other sources of information; this is consistent with the findings in the current study.

It is possible that coordinated increases in other types of parent-teacher interactions were not evidenced in self-reported weekly rates because parents and teachers liked and relied on the consistency and structure of the school-home note and therefore did not seek out additional opportunities for communication. Additionally, parent and teacher rates of weekly interactions were not reported consistently, with much missing data. Although all procedures in this study

used paper-and-pencil materials, for data that is collected repeatedly over time from parents and teachers, other types of data collection should be considered. For example, a computer system (e.g., Redcap) that can send automated texts every day or every week may be less intrusive than reminders from the researcher. Despite these missing data and a lack of change in self-reported rates of parent-teacher interactions, participants described other benefits of the intervention related to the consistent communication about the child's on-task behavior during a target school activity.

My third major finding relates to the comparison of researcher- and teacher-collected data. Data on off-task behavior collected at 5-sec intervals by researchers were used for visual analysis and to determine whether there was a functional relation between the intervention and decreased off-task behavior. Although a more accurate estimate of off-task behavior, data collected at such frequent intervals would not have been feasible for teachers; instead, teacher participants were asked to collect momentary time sampling data at 1-min intervals. While this interval length introduced increased variability, visual analysis of teacher-collected data resulted in similar conclusions regarding the effectiveness of the intervention. Other than for Leo, the school-home note with home-based contingent reinforcement caused a decelerating trend in student off-task behavior, although with less clear results for Daniel.

Beyond evaluating a change in behavior using visual analysis, all teacher participants *agreed* or *strongly agreed* that collecting data at 1-min intervals during the target activity was feasible. Although the collection of direct observational data collection should be encouraged, some questions remain about the accuracy of such data, specifically depending on teacher responsibilities during data collection. For example, Karen and Monique had the highest percentages of point-by-point agreement with researchers on the presence of off-task behavior.

However, they both were able to focus primarily on data collection while providing minimal behavioral support to one student during the target activity (until Daniel's teacher left and Monique began to run the calendar activity, at which point she stopped collecting data on student behavior). In contrast, while collecting data, Danielle was providing instruction for and managing the behavior of three kindergarten students, two of whom exhibited considerable behavior challenges. Amy collected other types of data while working 1:1 with Leo, who required high levels of support and attention to stay on-task and not engage in more disruptive problem behaviors.

Distinctly, Amy was the only teacher participant who consistently over-reported off-task behavior, as compared with researcher-collected data. Therefore, observer error, as well as measurement error, affected the comparison between teacher-collected and researcher-collected data for Leo. This systematic source of error may have impacted the effectiveness of the intervention for Leo, because successful use of the intervention relies on accurate measurement of behavior (Chafouleas et al., 2002). Because of high levels of teacher-reported off-task behavior during baseline, I set Leo's initial criterion for earning home-based reinforcement at 50% to ensure that he would earn reinforcement within the first few sessions of the intervention condition to develop an understanding of the contingency between school behavior and the home-based reward. However, this criterion, based on teacher-collected data, was actually higher than his median baseline level of off-task behavior from researcher-collected data (39% off-task). Along with cyclical variability, which may have masked the effect of the intervention, by using this initial criterion we may have inadvertently reinforced higher levels of off-task behavior, requiring more time to decrease the criterion and demonstrate an effect. In future studies on this topic, additional inclusion criteria for teacher participants should be considered to

ensure that teachers are able to record accurate, reliable data during the target activity.

My last main finding relates to the acceptability of this intervention package for parents, teachers, and students. All teachers and parents—including those without evidence of an effect for decreased student off-task behavior—rated the social validity of the intervention highly. Even Leo’s teacher *slightly agreed* with the statement: “This intervention proved effective in changing the child’s problem behavior,” adding a note, “Not on data, but anecdotally.” In response to open ended questions, teachers and parents reported that the intervention was worth the effort, that they thought it worked, and that they would continue using it in the future. The IRP-15 (Martens et al., 1985) item rated lowest across participants addressed the consistency of the intervention with those the child had used at school before. This was unanticipated, given that the intervention was based on using direct observational data to provide parent-implemented contingent reinforcement. It was expected that parents and teachers would be familiar with these procedures and concepts, which are considered evidence-based practices (Wong et al., 2015) and often used with students with ASD. However, teachers may not be confident in their knowledge of these practices (Brock et al., 2014), as further evidenced in the social validity results of this study.

Implications for Research and Practice

The findings of this study have several implications for research and practice. First, teacher participants reported the momentary time sampling data collection procedure to be feasible and, overall, collected data with acceptable levels of agreement. Given questions about the accuracy and reliability of the types of behavior ratings that are typically used on other types of school-home notes, such as DBRCs (Riley-Tillman et al., 2005), this study provides some support for encouraging teachers and paraprofessionals to collect systematic direct observational

data on student behavior. Paraprofessionals in particular, may have responsibilities that are well suited to collecting such data for students with ASD. With minimal training (approximately 30 min) and coaching, the two paraprofessionals in this study collected reliable data on student off-task behavior that were used to monitor progress and implement the school-home note intervention. Future research should evaluate the level of training that is needed to teach paraprofessionals to implement these basic data collection and intervention procedures, as well as to identify how such skills maintain and generalize to other students and settings (Hall, Grundon, Pope, & Romero, 2010). For all students with disabilities, but especially for students with ASD, there is a research to practice gap that suggests the need for effective interventions that are implemented with fidelity by typical intervention agents in schools (Parsons et al., 2013). Based on my findings, this intervention may provide an opportunity to do so.

This study also highlighted the value of parent involvement in implementing behavior management, and more specifically, school-home note interventions for students with ASD. Prior research on DBRC has found that studies that include parents in reinforcement planning, reinforcement implementation, and providing feedback are the most effective in changing student behavior (Vannest et al., 2010). In this study, we involved parents in all study procedures, including the provision of home-based reinforcement. After the intervention was introduced, parents were empowered through their participation and felt positively about their ability to implement the home-based component of the intervention and provide contingent reinforcement, including praise. This initial finding relates to parent empowerment on an individual level, defined as “both giving and receiving help in a mutual process focusing on gaining control over one’s life” (Nachsen, 2004, p.68). This type of empowerment includes self-efficacy and perceived competency, which have been shown to be negatively correlated with

child behavior problems for parents of children with ASD (Weiss, Cappadocia, MacMullin, Viecili, & Lunsky, 2012). Beyond the anecdotal findings in this study, future research should examine this construct as it relates to behavior management interventions at school that include a parent involvement component, such as school-home notes. This may be one additional benefit of including parents in the intervention other than those that are commonly cited in the literature on school-home notes (Frajford-Jacobson, Hanson, McLaughlin, Stansell, & Howard, 2013).

In this study, parents and teachers also reported high social validity for assessment and intervention procedures and results. Knowing that this intervention has high levels of acceptability across stakeholders, researchers should be encouraged to continue to evaluate its effectiveness specifically for students with ASD. If a functional relation is identified, demonstrating the effectiveness of this intervention for certain students with ASD, future research might also include an evaluation of the different components of the intervention. Although I hypothesized that the school-home note with contingent reinforcement would be more effective for students with ASD than a version of the intervention without home-based reinforcement, this has not been examined in the literature. So far, few studies have evaluated the added benefit of this home-based contingency component (Frajford-Jacobson et al., 2013) for any student population. Therefore, additional research is needed to systematically evaluate this intervention package for school-age students with ASD.

Limitations

This study had several limitations that should be addressed. First, due to recruitment challenges and scheduling restrictions, data collection and intervention were terminated for three of the four participants before they reached criterion (based on visual analysis and levels of off-task behavior). Given additional school days and continued implementation of the intervention

over time, we may have demonstrated stronger evidence of a functional relation between the school-home note with home-based contingent reinforcement and decreased off-task behavior. Further, I was unable to implement a fading condition to demonstrate maintenance of effects and to fade the schedule of reinforcement. Therefore, we do not know whether the decreases in off-task behavior for two of the four participants would have continued at levels lower than baseline over time with faded schedules of reinforcement.

Another limitation relates to the participants in this study. All students and their mothers were White, non-Hispanic, and lived in household with annual incomes of more than \$100,000. Only one parent was a single-mother and the others were homemakers. The highly rated feasibility and social validity of intervention procedures and results found in this study may be different for families experiencing other challenges, such as those related to living in poverty. These stressors may impact implementation fidelity (Lau, 2006) and intervention effectiveness (Post, Cegala, & Marinelli, 2001) for home-based components of the intervention. However, parents of children with ASD in general experience greater stress than parents of children with other disabilities (Hayes & Watson, 2013), and the positive outcomes related to parent involvement identified in this study should not be minimized. Rather, future research should be conducted with families from more diverse socio-economic and linguistic backgrounds to evaluate the intervention, specifically considering challenges related to cross-cultural communication (McREL International, 2014).

Additionally, differences across participant characteristics and target activities should be noted. Although I tried to recruit participants with ASD with similar characteristics (e.g., autism severity, receptive language, adaptive functioning) and baseline levels of problem behavior, I was unable to avoid some dissimilarities. Two participants were on the “higher functioning” part

of the spectrum, as indicated by language level and classroom placement. Further, participants spanned a wide age range (6-13 years), and there is evidence that effective intervention approaches may vary for students of different ages (LeBel et al., 2012). Finally, target activities and levels of support were very different for all participants. However, interventions that are implemented in the natural setting must fit within the typical classroom and school routines, and such compromises are necessary to conduct high-quality collaborative research in the school and home (Parsons et al., 2013), especially when it is implemented by typical intervention agents (i.e., teachers and parents).

Another limitation of this study relates to data collection procedures. First, for feasibility purposes, data on off-task behavior were only collected during a 10-min sample of the target activity. Although this generally seemed representative of student behavior for the duration of the target activity (which ranged from 15-30 min across participants), in some sessions, depending on the activity, the presence of off-task behavior did not seem consistent across the total duration of the activity. Therefore, data collected from the 10-min sample may not have been an accurate representation of off-task behavior for the duration of the activity. To try to minimize this, data were collected during the same part of the target activity each session. For example, data collection in Emily's classroom was always started once the students finished writing their name on their schedule and initiated the first activity. Data collection in Daniel's classroom during calendar was begun as soon as the class started singing the opening song.

Also related to data collection, direct observational data were only collected on the primary dependent variable, student off-task behavior. However, in addition to the introduction of the intervention, teacher behaviors that were not measured may have been related to changes in student off-task behavior. For example, teachers provided varying amounts of prompts during

target activities, and these were not controlled for or measured. For some students for whom changes in the level of off-task behavior from baseline to intervention were not large in magnitude, desired changes in teacher behavior may have occurred. Anecdotally, in addition to the decrease in Ryan's off-task behavior, he gained independence in self-managing his own behavior, requiring fewer verbal and gestural redirects from Karen. In contrast, after the intervention was introduced, it seemed that Danielle initially provided Emily with more frequent verbal reminders of behavioral expectations than during baseline. Such teacher behaviors, in addition to student behavior, should be measured in future studies.

Finally, I chose to focus on behavior reduction in this study, targeting a decrease in off-task behavior as a result of the intervention. The selection of this primary dependent variable was consistent with the literature on school-home notes (Riley-Tillman et al., 2007). However, as I conducted initial planning and training meetings, I realized that this focus was not consistent with general school behavior management approaches, which more often use positive behavior supports. The intervention, which reinforced low-levels of off-task behavior, seemed better framed for participants as providing reinforcement for higher levels of on-task behavior. Therefore, when data were presented to parents and students, they were framed this way. Despite challenges in operationally defining on-task behavior consistently (Gill & Remedios, 2013) future research should consider measuring student behavior in a way that can be consistent across the data collection, intervention, and communication elements of the school-home note intervention.

Conclusions

This study was the first to address the effectiveness of school-home notes in decreasing student off-task behavior particularly for school-age students with ASD. I demonstrated that

teachers can feasibly collect direct observational data on student behavior using momentary time sampling to implement a school-home note, with home-based contingent reinforcement provided with fidelity by parents. Although more research is needed to demonstrate evidence of a functional relation, this study provides some initial, preliminary findings relating to student off-task behavior and parent-school partnership. Particularly for students with ASD, the potential of interventions that build on communication and collaborative partnership between home and school should continue to be examined in the future through high quality studies.

Appendix A

Data Collection Forms and Measures

Student: _____ Data collector: _____ Date: _____

CHILD BEHAVIOR DATA

Each time the Motivaider vibrates, look at the student and identify whether or not he is off-task at that moment.

Circle "on" if on-task and "off" if off-task

Interval	Off-task	Notes
1	on off	
2	on off	
3	on off	
4	on off	
5	on off	
6	on off	
7	on off	
8	on off	
9	on off	
10	on off	
Total	___/10	
Total%	%	

FIDELITY DATA

Indicate whether you completed each of the following steps (Y = yes and N = no)

Component	Completed?
1. Wear Motivaider set for 1-min. intervals for 10 min. during class	Y N
2. Record data each time Motivaider vibrates	Y N
3. Refrain from addressing student behavior while Motivaider is vibrating	Y N
4. Transfer data to school-home note form	Y N
5. Review form with student immediately following class	Y N
6. Provide praise if criterion is reached or remain neutral if not	Y N
7. Write a brief note to the parent	Y N
8. Put school-home note in child's backpack	Y N

Figure 1. Teacher data collection sheet (momentary-time-sampling at 1-min intervals).

Observer initials: _____ Subject ID: _____ Date: _____ Time: _____

Directions- Off-task behavior: Each time the recording indicates an interval, look at the target student and identify whether or not he/she is off-task in that moment. Circle the “on” if on-task/not off-task and “off” if off-task.

Directions- IOA: After the 10-min data collection is complete, compare with teacher-collected data and indicate agreement for that interval. Circle + if in agreement on the occurrence or non-occurrence of the child target behavior and – if you disagree.

Int.	Off-task	Teacher IOA	32	on off		65	on off		98	on off	
1	on off		33	on off		66	on off	+ -	99	on off	
2	on off		34	on off		67	on off		100	on off	
3	on off		35	on off		68	on off		101	on off	
4	on off		36	on off		69	on off		102	on off	+ -
5	on off		37	on off		70	on off		103	on off	
6	on off	+ -	38	on off		71	on off		104	on off	
7	on off		39	on off		72	on off		105	on off	
8	on off		40	on off		73	on off		106	on off	
9	on off		41	on off		74	on off		107	on off	
10	on off		42	on off	+ -	75	on off		108	on off	
11	on off		43	on off		76	on off		109	on off	
12	on off		44	on off		77	on off		110	on off	
13	on off		45	on off		78	on off	+ -	111	on off	
14	on off		46	on off		79	on off		112	on off	
15	on off		47	on off		80	on off		113	on off	
16	on off		48	on off		81	on off		114	on off	+ -
17	on off		49	on off		82	on off		115	on off	
18	on off	+ -	50	on off		83	on off		116	on off	
19	on off		51	on off		84	on off		117	on off	
20	on off		52	on off		85	on off		118	on off	
21	on off		53	on off		86	on off		119	on off	
22	on off		54	on off	+ -	87	on off		120	on off	
23	on off		55	on off		88	on off		Total	___ / 120	___ / 10
24	on off		56	on off		89	on off		Total %	___ %	___ %
25	on off		57	on off		90	on off	+ -			
26	on off		58	on off		91	on off				
27	on off		59	on off		92	on off				
28	on off		60	on off		93	on off				
29	on off		61	on off		94	on off				
30	on off	+ -	62	on off		95	on off				
31	on off		63	on off		96	on off				
			64	on off		97	on off				

IOA:
___ / ___ = ___ %

Figure 2. Researcher data collection sheet (momentary-time-sampling at 5-sec intervals).

Subject ID _____

Date: _____

Circle one: pre post

Modified Family Involvement Questionnaire- Elementary (Benson, 2015)

Below is a list of activities parents sometimes engage in with their child or their child’s school. Please note how frequently, if at all, you currently participate in each of these activities:

	1- rarely	2- sometimes	3- often	4- always
I observe in my child’s classroom.				
I volunteer in my child’s classroom.				
I participate in parent and family social activities with the teacher.				
I participate in planning classroom activities with the teacher.				
I go on class trips with my child.				
I talk with other parents about school meetings and events.				
I participate in planning school trips.				
I attend parent workshops or training offered by my child’s school.				
I meet with other parents from my child’s class outside of school.				
I talk to my child about his/her school day.				
I participate in fundraising activities at my child’s school.				
I feel that parents in my child’s classroom support each other.				
I spend time working with my child on number skills.				
I spend time working with my child on reading/writing skills.				
I talk with my child about how much I love learning new things.				
I spend time working with my child to reduce problem behaviors.				
I talk with my child’s teacher about school work to practice at home.				
I spend time working with my child on language/communication skills.				
I spend time working with my child on self-help skills like dressing, bathing, or toileting.				
I bring home learning materials for my child, like books and computer programs.				

	1- rarely	2- sometimes	3- often	4- always
I share stories with my child about when I was in school.				
I check to see that my child has a place at home to keep books and school materials.				
I spend time with my child working on creative activities.				
I take my child places in the community to learn about new things (for example, zoo, museum, etc.)				
I encourage my child to engage in social activities outside of school.				
I maintain clear rules at my home for my child.				
I take my child to the public library.				
I keep a regular morning and evening schedule for my child.				
I review my child's school work.				
I talk about my child's learning efforts in front of family and friends.				
I actively participate in developing my child's annual IEP.				
I talk with my child's teacher about class rules.				
I talk with the teacher about my child's challenges at school.				
I talk with the teacher about how my child gets along with his/her classmates at school.				
I talk to my child's teacher about homework.				
I talk with my child's teacher about my child's accomplishments.				
I talk with my child's teacher about his/her daily routine at school.				
I attend conferences with the teacher to talk about my child's learning or behavior.				
The teacher and I write notes about my child's school activities.				
I schedule meetings with school administrator to talk about problems or to gain information.				
I talk with my child's teacher on the phone.				
I talk to my child's teacher about personal or family matters.				

Figure 3. Modified Family Involvement Questionnaire-Elementary parent report form.

Subject ID _____

Date: _____

circle one: pre post

FAMILY-PROFESSIONAL PARTNERSHIP

Please use a check mark to indicate your level of satisfaction with each of the items below. We will use this information to improve our practices in developing a trusting partnership with you.

How <u>satisfied</u> are you that your child's teacher....	<i>Very Dissatisfied</i>	<i>Dissatisfied</i>	<i>Neither</i>	<i>Satisfied</i>	<i>Very Satisfied</i>
1. Helps you gain skills or information to get what your child needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the skills to help your child succeed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Provides services that meet the individual needs of your child.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Speaks up for your child's best interests when working with other service providers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Lets you know about the good things your child does.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is available when you need them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Treats your child with dignity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Builds on your child's strengths.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Values your opinion about your child's needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is honest, even when there is bad news to give.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Keeps your child safe when your child is in his/her care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Uses words that you understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Protects your family's privacy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
14. Shows respect for your family's values and beliefs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
15. Listens without judging your child or family.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
16. Is a person you can depend on and trust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
17. Pays attention to what you have to say.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
18. Is friendly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					

Figure 4. Family-Professional Partnership parent-report form (Summers et al., 2005).

Subject ID _____

Date: _____

circle one: pre post

**BEACH CENTER FAMILY-PROFESSIONAL
PARTNERSHIP SCALE
(PROFESSIONAL VERSION)**

This survey is about the extent of your satisfaction with your partnership-oriented practices with the families with whom you work. The purpose is to guide you in reflecting on your partnership-oriented practices as the basis for self-improvement. Please read each item by filling in the blank with a name of the parent on whom you will focus in the completion of this survey.

How <u>satisfied</u> are you with the way that you...	<i>Very Dissatisfied</i>	<i>Dissatisfied</i>	<i>Neither</i>	<i>Satisfied</i>	<i>Very Satisfied</i>
1. Help _____ gain skills or information to get what his/her child needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Have the skills to help _____'s child succeed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Provide services that meet the individual needs of _____'s child.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Speak up for _____'s child's best interests when working with other service providers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Let _____ know about the good things your child does.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are available when _____ needs you.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Treat _____'s child with dignity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Build on _____'s child's strengths.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Value _____'s opinion about his/her child's needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Are honest, even when there is bad news to give.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Keep _____'s child safe when child is in your care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Use words that _____ understands.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Protect _____'s privacy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Show respect for _____'s values and beliefs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Listen without judging _____, his/her child, and family.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Are a person on whom _____ can depend and trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Pay attention to what _____ has to say.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Are friendly to _____.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 5. Family-Professional Partnership teacher-report form (Summers et al., 2005).

Subject ID _____ Role (circle one): parent teacher

Directions: Every time you interact with the student’s parent or teacher, record a tally mark for that day. At the end of the week, add up the number of interactions for that week and record a total amount for that week.

An interaction includes any exchange of information between the parent and teacher, including any mode such as written or verbal communication. Each phone call, e-mail exchange, or conversation will count as one interaction.

For example, if the parent e-mails the teacher and he/she responds to the e-mail, this will be counted as two interactions. If the parent talks with the teacher when picking the child up from school, this will count as one interaction. When the teacher sends the school-home note home with a message on it, this counts as one interaction. If the parent sends a note back to the teacher, this counts as another interaction.

Week of: 2/29- 3/6

Total number of interactions this week (add tally marks below at end of week): _____

	M	T	W	Th	F	Sat.	Sun.
Record a tally mark or note for each interaction on the day it occurs							

Week of: 3/7 - 3/13

Total number of interactions this week (add tally marks below at end of week): _____

	M	T	W	Th	F	Sat.	Sun.
Record a tally mark or note for each interaction on the day it occurs							

Figure 6. Data collection sheet for parent and teacher reported interactions.

Subject ID _____

Date: _____

This questionnaire will help us to understand what you thought of the intervention. Please circle the number which best describes your agreement or disagreement with each statement.

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Slightly Disagree</i>	<i>Slightly Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. The school-home note was an acceptable intervention for my child's problem behavior.	1	2	3	4	5	6
2. Most parents would find this intervention appropriate for their child's behavior problems.	1	2	3	4	5	6
3. The school-home note was effective in changing my child's behavior.	1	2	3	4	5	6
4. I would suggest the use of the school-home note to other parents.	1	2	3	4	5	6
5. My child's behavior problem was severe enough to warrant use of the school-home note	1	2	3	4	5	6
6. Most parents would find the school-home note suitable for their child's behavior problem	1	2	3	4	5	6
7. I was willing to use the school-home note intervention at home.	1	2	3	4	5	6
8. The school-home note intervention did <i>not</i> result in negative side-effects for my child.	1	2	3	4	5	6
9. The school-home note would be appropriate for a variety of children.	1	2	3	4	5	6
10. This intervention was consistent with those my child has used as school before.	1	2	3	4	5	6
11. The school-home note was a fair way to handle my child's problem behavior.	1	2	3	4	5	6
12. The school-home note was reasonable for my child's problem behavior.	1	2	3	4	5	6
13. I liked the procedures used in this intervention.	1	2	3	4	5	6
14. This intervention was a good way to handle my child's behavior problem.	1	2	3	4	5	6
15. Overall, this intervention was beneficial for my child.	1	2	3	4	5	6

What would you change about this intervention?

Figure 7. Social validity Intervention Rating Profile 15 Edited- parent version (IRP-15; Martens et al., 1985).

Subject ID _____

Date: _____

This questionnaire will help us to understand what you thought of the intervention. Please circle the number which best describes your agreement or disagreement with each statement.

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Slightly Disagree</i>	<i>Slightly Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. The school-home note was an acceptable intervention for the child's problem behavior.	1	2	3	4	5	6
2. Most teachers would find this intervention appropriate for the child's behavior problem.	1	2	3	4	5	6
3. This intervention proved effective in changing the child's behavior.	1	2	3	4	5	6
4. I would suggest the use of this intervention to other teachers.	1	2	3	4	5	6
5. The child's behavior problem was severe enough to warrant use of this intervention.	1	2	3	4	5	6
6. Most teachers would find this intervention suitable for the child's behavior problem.	1	2	3	4	5	6
7. I was willing to use this intervention in the classroom setting.	1	2	3	4	5	6
8. This intervention did <i>not</i> result in negative side-effects for the child.	1	2	3	4	5	6
9. This intervention would be appropriate for a variety of children.	1	2	3	4	5	6
10. This intervention was consistent with those I have used in the classroom setting.	1	2	3	4	5	6
11. The intervention was a fair way to handle the child's problem behavior.	1	2	3	4	5	6
12. This intervention was reasonable for the child's behavior problem.	1	2	3	4	5	6
13. I liked the procedures used in this intervention.	1	2	3	4	5	6
14. This intervention was a good way to handle the child's behavior problem.	1	2	3	4	5	6
15. Overall, this intervention was beneficial for the child.	1	2	3	4	5	6

What would you change about this intervention?

Figure 8. Social validity Intervention Rating Profile 15 Edited- teacher version (IRP-15; Martens et al., 1985).

Subject ID _____

Date: _____

This questionnaire will help us to understand what you thought of the assessment. Please circle the number which best describes your agreement or disagreement with each statement.

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Slightly Disagree</i>	<i>Slightly Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. This was an acceptable assessment or data collection strategy for the child's problems.	1	2	3	4	5	6
2. Most teachers would find this approach to assessment appropriate for other problems too.	1	2	3	4	5	6
3. This assessment or data collection strategy was effective in monitoring the child's problems.	1	2	3	4	5	6
4. I would suggest the use of this assessment/ data collection strategy to other teachers.	1	2	3	4	5	6
5. I would be willing to receive this type of assessment results about a new student in my class.	1	2	3	4	5	6
6. This assessment/system of data collection would be appropriate for a variety of students.	1	2	3	4	5	6
7. The assessment/data collection strategy was a fair way to measure the child's problems.	1	2	3	4	5	6
8. This assessment/data collection procedure was reasonable for the child's problems.	1	2	3	4	5	6
9. I liked the assessment/data collection procedures used.	1	2	3	4	5	6
10. This assessment/data collection procedure was a good way to measure the child's problem.	1	2	3	4	5	6
11. Overall the assessment was beneficial for the child.	1	2	3	4	5	6
12. This assessment was likely to be helpful in the development of intervention strategies.	1	2	3	4	5	6
13. This data collection process was feasible for me.	1	2	3	4	5	6

What would you change about this intervention?

Figure 9. Social validity Assessment Rating Profile Revised- teacher version (ARP-R; Shapiro, Eckert, & Hintze, 1999).

Subject ID _____

Date: _____

Circle the answer that matches what you think:

- | | | | |
|--|-----|-------|----|
| 1. Earning points at school and a reward at home to help me follow the rules was fair. | Yes | Maybe | No |
| 2. My teacher was too hard on me. | Yes | Maybe | No |
| 3. The things we did to help me caused problems with my friends. | Yes | Maybe | No |
| 4. There was a better way to help with the problem | Yes | Maybe | No |
| 5. Other kids would like to do this with their teacher and parent. | Yes | Maybe | No |
| 6. I liked earning points at school and a reward at home. | Yes | Maybe | No |
| 7. I think that what we did together helped me do better in school. | Yes | Maybe | No |

Figure 10. Child's Intervention Rating Profile (Elliot & Treuting, 1991).

APPENDIX B

Meeting Guides and Forms

1. Review and sign consent forms
2. Interview
 - a. Review observation information/teacher reported info
 - i. Proposed activity
 1. Is there a particular time of day or activity that is often difficult for him/her?
 - ii. Proposed behavior
 1. What does this look like? What types of disruptive or off-task behaviors does he/she exhibit?
 2. Review existing operational definition of off-task behavior.
 - a. Anything to add?
 - b. Examples and non-examples?
 - c. Anything that should be better specified for this student?
 - iii. Review procedures- does this sound like something that would work for (student name)?
 1. Do you think he/she will understand it?
 2. Can he/she wait for delayed reinforcement?
 3. Will it help to have the parent involved?
 - a. Does the child live with the parent on school days?
 - iv. Review decisions on target behavior and school activity and confirm agreement.
3. Complete Family-Professional Partnership measure (parent and teacher) and Family Involvement Questionnaire- Elementary (parent)

Figure 1. Planning meeting semi-structured interview guide.

Participant ID:_____ Date:_____ Time:_____ Attendees:_____

1. Review baseline data (graph) and operational definition
 - a. Is there a need for intervention?
 - b. Identify criterion/goal for earning reinforcement
 - c. Identify “replacement”/ on-task behavior
2. Present draft school-home communication form
 - a. Changes?
3. Brainstorm and identify home-based reinforcement
 - a. Is it highly preferred?
 - b. Is it acceptable to the parent?
 - c. Is it feasible to provide?
 - d. Is it feasible to withhold?
 - e. Potential barriers and concerns with adherence?
 - f. Remind parents to informally track if child loses interest
4. Review teacher implementation fidelity steps
 - a. Model steps
5. Review parent implementation fidelity steps
 - a. Model steps
6. Practice steps (teacher and parent)
 - a. Provide corrective feedback and behavior specific praise
7. Discuss questions and concerns
8. Review plan for introducing intervention
 - a. Identify best way to be in touch with parent and teacher/ establish check-in schedule

Figure 2. Intervention training meeting agenda.

DRC Design Interview Form

Teacher's name: _____ Child's name: _____
Observer's name: _____ Date: _____

DRC Interview Tasks

1. Review baseline data.
 2. Establish goals for each item.
 3. Establish setting and frequency of ratings.
 4. Establish home reward system.
 5. Establish procedures for progress monitoring.
 6. Establish check-in schedule.
 7. Establish goals for long-term success.
 8. Schedule DRC Evaluation Interview.
1. Review baseline data (the interviewer should have a graph of baseline data to review with the teacher).
 - a. Are there sufficient baseline data (i.e., at least 3–5 data points per target behavior; is baseline stable or does it indicate worsening)?

 - b. Problem validation for each behavior: Is there indeed a problem? (Think about class/school norms for behavior in the settings observed.)
2. Establish goals for each item.
 - a. What are the primary and/or most impairing presenting problems?

 - b. Which behaviors, if targeted, might result in improvements in other behaviors?
3. Establish setting and frequency of ratings.
 - a. Based on the answers to #2, above, when do these behaviors occur? (List all times and settings.)

4. How will the reward system work?
 - a. Home- or school-based?
 - b. Potential barriers to implementing the reward system?
 - c. Concerns with adherence?
 - d. What is rewarding to the child in school?
5. Establish procedures for progress monitoring.
 - a. Who will chart data?
 - b. How will data be transferred?
 - c. Will accuracy be checked by consultant via observation?
6. Establish check-in schedule.
 - a. At this point, who is responsible for particular aspects of the DRC intervention (monitoring progress, providing rewards, scheduling checkups)?

Figure 3. DRC Design Interview Form (Volpe & Fabiano, 2013).

Home Reward Planning Sheet

With your child, review these potential home rewards. As a first step, simply put a checkmark next to each reward your child indicates he or she would like to earn each day.

Home Privileges	<input type="checkbox"/> Minutes television time <input type="checkbox"/> Minutes computer time <input type="checkbox"/> Minutes video game time <input type="checkbox"/> Minutes extended bedtime <input type="checkbox"/> Minutes extended bathtime <input type="checkbox"/> Minutes phone time <input type="checkbox"/> Listen to radio/music at bedtime <input type="checkbox"/> Choose dinner <input type="checkbox"/> Choose dessert <input type="checkbox"/> Choose snack <input type="checkbox"/> Get out of a chore (specify: _____) <input type="checkbox"/> Special snack in tomorrow's lunch <input type="checkbox"/> Sleep in _____ minutes the next morning <input type="checkbox"/> Parent will drive to school the next morning <input type="checkbox"/> Daily cell phone privileges <input type="checkbox"/> Log-on privileges for social networking sites <input type="checkbox"/> Extra outdoor time past curfew <input type="checkbox"/> Use of bike <input type="checkbox"/> Use of scooter/skateboard/rollerblades <input type="checkbox"/> Have a friend over to play
Special Time with Parent	<input type="checkbox"/> Play a game with parent <input type="checkbox"/> Minutes one-on-one time <input type="checkbox"/> Drawing/coloring with parent <input type="checkbox"/> Reading a story with parent <input type="checkbox"/> Building with blocks <input type="checkbox"/> Playing video game together <input type="checkbox"/> Cooking with parent

(continued)

	<input type="checkbox"/> Watching home movies together <input type="checkbox"/> I spy/20 questions/knock-knock jokes with parent, etc. <input type="checkbox"/> Child-directed play activity with parents <input type="checkbox"/> Trip to the playground <input type="checkbox"/> Trip to the library
Tangibles	<input type="checkbox"/> Allowance/money <input type="checkbox"/> Gum <input type="checkbox"/> Candy <input type="checkbox"/> Stickers <input type="checkbox"/> Book <input type="checkbox"/> Toy <input type="checkbox"/> Videogame <input type="checkbox"/> Token that can contribute toward earning a toy/video game <input type="checkbox"/> Grab bag of toys/trinkets <input type="checkbox"/> Make a bid on eBay <input type="checkbox"/> Earn "coupons" for getting out of chores, trips to stores <input type="checkbox"/> Fast food <input type="checkbox"/> Go out for ice cream <input type="checkbox"/> Shopping for new clothes

Figure 4. Home Reward Planning Sheet (Volpe & Fabiano, 2013).

Participant ID: _____

Date: _____

1. What did you think about the intervention?
 - a. Do you think it worked?
 - b. Did you like using it?
 - c. Was it worth the effort?
2. What about it would you change?
3. Do you think you might continue using something like this with the student in the future?
4. Do you think you might consider using something like this with another student?
 - a. Are there specific student characteristics that you think might make this more likely to work for them?
5. Did using the home-school communication form change your communication with the student's parent?
6. Do you think it changed your relationship with the student's parent?
7. Is there anything I didn't ask about that you want to share?

Figure 5. Teacher social validity meeting semi-structured interview.

Participant ID: _____

Date: _____

1. What did you think about the intervention?
 - a. Do you think it worked for your child?
 - b. Did you like using it?
 - c. Was it too much effort/ was it worth it?
 - d. What about it would you change?
2. Would you like the school to continue using something like this with your child in the future?
3. Did using the home-school communication form change your communication with the student's teacher?
4. Do you think it changed your relationship with the student's teacher?
5. Is there anything I didn't ask about that you want to share?

Figure 6. Parent social validity meeting semi-structured interview.

APPENDIX C

Implementation Fidelity Checklists

Participant ID: _____ Trainer: _____ Observer: _____ Date: _____

Check each of the following when the step is completed.

Data Collection Training Step	Check when complete
Review operational definition written during planning meeting	
Discuss and model examples and non-examples of target behavior	
Share data collection sheet and discuss teacher preference for any changes	
Introduce Motivaider and functions	
Review fidelity steps for data collection (first 5)	
Guided practice in using Motivaider including setting, stopping, and starting	
Rehearse data collection with trainer acting as student	
Discuss questions and issues, adding to coding manual as necessary	
Practice data collection until reaching 90% accuracy over 10 intervals	
Schedule sessions for live practice and reliability	

Figure 1. Teacher data collection training implementation fidelity checklist.

Participant ID: _____ Trainer: _____ Observer: _____ Date: _____

Check each of the following when the step is completed.

Intervention Training Step	Check when complete
Introduce school-home note form	
Discuss any needed modifications to form	
Review fidelity checklist, with a focus on last 5 steps	
Identify criterion level of off-task behavior based on baseline data	
Model each step from the fidelity checklist, using the school-home note form	
Teacher practices each step	
Provide immediate corrective feedback for errors and behavior specific praise for correct completion of each step	
Repeat practice	
Review parent intervention components and delineate parent/teacher responsibilities	
Discuss questions and concerns	
Review plan for introduction of intervention (e.g., when)	

Figure 2. Teacher intervention training implementation fidelity checklist.

Participant ID: _____ Trainer: _____ Observer: _____ Date: _____

Check each of the following when the step is completed.

Intervention Training Step	Check when complete
Introduce school-home note form	
Discuss any needed modifications to form	
Review parent fidelity checklist on form, with focus on first two steps	
Discuss criterion level of off-task behavior identified based on baseline data	
Explain teacher intervention components and delineate parent/teacher responsibilities	
Model each step from the parent fidelity checklist, using the school-home note form	
Parent practices each step	
Provide immediate corrective feedback for errors and behavior specific praise for correct completion of each step	
Repeat practice	
Discuss questions and concerns	
Review plan for introduction of intervention (e.g., when)	

Figure 3. Parent intervention training implementation fidelity checklist.

APPENDIX D

School-Home Communication Forms

RYAN'S NOTE

Date: _____

Class: Language Arts

If I earn ____ maps on the rug today, when I go home I will get a special reward!

To earn maps, when I am on the rug I need to:

1. Pay attention to the teacher
 2. Keep hands in my lap
-

Today I earned ____ maps



Did I reach my goal today?

YES

NO

Note to parents:

Parent Checklist

	Initial when completed:	Notes:
1. Got school-home note from child's backpack within 1 hour of arriving at home		
2. Reviewed school-home note with child		
3. Provided praise and the reinforcer if your child earned it, or remained neutral if he did not		
4. Did not give access to the reward if it was not earned based on school behavior		
5. Put form back in child's backpack.		

Figure 1. Ryan's school-home note.

DANIEL'S NOTE HOME

Date: _____

Activity: Calendar

During Calendar I will earn points for having:

1. Eyes on teacher
2. Quiet hands
3. No silly talking

IF I earn _____ points, when I get home from school
I will get a snake toy



Today I earned _____ points

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Did I reach my goal today? YES NO

Note to parent:

Parent Checklist

<u>Please review this behavior sheet with your child and initial the following items as you complete them:</u>	Initial when completed:	Notes:
1. Got school-home note from child's backpack within 1 hour of arriving at home		
2. Reviewed school-home note with child		
3. Provided praise and the reinforcer if child earned it, or remained neutral if he did not		
4. Did not give access to the reward if it was not earned based on school behavior		
5. Put form back in child's backpack.		

Figure 2. Daniel's school-home note.

LEO'S NOTE HOME

Date: _____

Activity: Reading

During reading time I will earn points for:

1. Following directions
2. On-topic talking
3. Hands down

IF I earn ____ points, when I get home from school I will get

circus peanuts



OR

candy corn



Today I earned ____ points

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Did I reach my goal today?

YES



NO



Note to parent:

Parent Checklist

<u>Please review this behavior sheet with your child and initial the following items as you complete them:</u>	Initial when completed:	Notes:
1. Got school-home note from child's backpack within 1 hour of arriving at home		
2. Reviewed school-home note with child		
3. Provided praise and the reinforcer if child earned it, or remained neutral if he did not		
4. Did not give access to the reward if it was not earned based on school behavior		
5. Put form back in child's backpack.		

Figure 3. Leo's school-home note.

EMILY'S NOTE

Activity: Language Arts

Date: _____

During Language Arts Class I need to:

1. Keep my chair on the ground
2. Follow teacher directions the first time











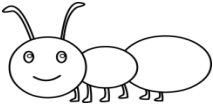
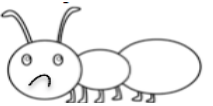
If I earn _____ ladybugs,

when I get home

I will get Nutella!



Note to parent:

Today I earned	10	
_____ lady bugs:	9	
	8	
	7	
	6	
	5	
	4	
	3	
	2	
	1	
Did I reach my goal today?		
YES		NO
		

Parent Checklist

<u>Please review this note with your child and initial each item as you complete it:</u>	Initial when completed:	Notes:
1. Got school-home note from child's binder within 1 hour of arriving at home		
2. Reviewed school-home note with child		
3. Provided praise and the reinforcer if your child earned it, or remained neutral if she did not		
4. Did not give access to the reward if it was not earned based on school behavior		
5. Put form back in child's binder.		

Figure 4. Emily's school-home note.

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