March 2019

Impact of Function-Based Self-Monitoring with Functional Communication Training and Differential Reinforcement on Student Behavior

Sydney Roulhac
University of South Florida, sroulhac12@gmail.com

Follow this and additional works at: https://scholarcommons.usf.edu/etd

Part of the Social and Behavioral Sciences Commons

Scholar Commons Citation

This Thesis is brought to you for free and open access by the Graduate School at Scholar Commons. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Scholar Commons. For more information, please contact scholarcommons@usf.edu.
Impact of Function-Based Self-Monitoring with Functional Communication Training and Differential Reinforcement on Student Behavior

by

Sydney Roulhac

A thesis defense submitted in partial fulfillment of the requirements for the degree of Master of Science Applied Behavior Analysis Department of Child and Family Studies College of Behavioral and Community Science University of South Florida

Major Professor: Kwang-Sun Cho Blair, Ph.D., BCBA-D Committee Members: Raymond Miltenberger, Ph.D., BCBA-D Joleana Ferro, Ph.D., BCBA-D

Date of Approval: March 21, 2019

Keywords: Self-monitoring, disruptive behavior, Tier II intervention, functional communicative behavior

Copyright © 2019, Sydney Roulhac
Dedication

I dedicate this manuscript to my parents, Gina and Maurice Roulhac, for making my success possible by never giving up and teaching me to work hard and instilling in me that hurdles are tests of my endurance and passion. To my sisters Tiffany and Courtney who have always stood by me and supported me throughout my life, even when I did not deserve it. To my Auntie Anna, Auntie Brenda, and best friend for supporting and guiding me during this program. Sydni, Hana, and Ashli, you have motivated me more than I thought possible and created so many great memories.

I cannot thank you all enough. I hope you see that my efforts would not have gone as far without all of the support you have provided.
Acknowledgements

I would like to say thank you to my thesis advisor, Dr. Kwang-Sun Cho Blair for your guidance from the conception to fulfillment of my thesis and contributing to my professional growth. To my thesis committee members, Dr. Raymond Miltenberger and Dr. Joleana Ferro, I extend my gratitude for their support and feedback regarding this study.
# Table of Contents

List of Tables ................................................................................................................................... iii
List of Figures ................................................................................................................................. iv

## Introduction ................................................................................................................................. 1

## Functional Communication Training ...................................................................................... 3

## Self-Monitoring ........................................................................................................................... 5

## Function-Based Self-Monitoring ............................................................................................... 7

## Methods ....................................................................................................................................... 10

- Participants .............................................................................................................................. 10
- Setting and Materials .............................................................................................................. 12
- Measurement .......................................................................................................................... 13
- Procedural integrity ................................................................................................................ 15
- Social validity ......................................................................................................................... 16
- Interobserver agreement ....................................................................................................... 16

## Experimental Design and Procedures ...................................................................................... 17

- Functional behavior assessment .......................................................................................... 18
- Baseline ..................................................................................................................................... 20
- Teacher training and preference assessment .......................................................................... 20
- Student training ...................................................................................................................... 21
- Function-based SM with FCT ............................................................................................... 22
- Function-based SM with FCT plus DRA ............................................................................... 24
- Follow-up .................................................................................................................................. 25

## Results ........................................................................................................................................ 26

- Trial-Based FA ....................................................................................................................... 26
- Preference Assessment ......................................................................................................... 26
- Maintenance ............................................................................................................................ 28
- Social Validity ........................................................................................................................ 28

## Discussion .................................................................................................................................. 35

- Implications for Practice ....................................................................................................... 37
- Limitations .............................................................................................................................. 38
- Conclusion and Future Research .......................................................................................... 40

## References .................................................................................................................................. 41

- Appendix A ............................................................................................................................. 48
- Appendix B ............................................................................................................................. 49
- Appendix C ............................................................................................................................. 50
List of Tables

Table 1. Operational Definitions of Functional Communicative Behavior, Disruptive Behavior, and Task Engagement for Each Participant ................................................................. 14

Table 2. Percentage of sessions with IOA assessment and average IOA across phases and participants ........................................................................................................... 17

Table 3. Student Social Validity Survey Results ..................................................................................... 29

Table 4. Teacher Social Validity Survey (Modified IRP-15) Results .......................................................... 30
List of Figures

Figure 1. Percentage of trials with problem behavior across control (black) and test (grey) trials for attention and escape conditions. ................................................................. 31

Figure 2. Percentage of times each item was chosen............................................................... 32

Figure 3. Percentage of functional communicative behavior across phases and participants. ... 33

Figure 4. Percentage of intervals with academic engagement (squares) and problem behavior (circles) across phases and participants............................................................. 34
Abstract

The current literature on self-monitoring provides limited information on increasing functional communication skills in students with disabilities by incorporating function-based intervention. The purpose of this study was to extend self-monitoring literature by incorporating functional communication training (FCT) into self-monitoring intervention and targeting students who engage in problem behavior due to communication difficulties. Three students with disabilities served in kindergarten through 3rd grade and their corresponding teachers participated in this study. A multiple baseline across participants design with an ABC sequence was used to investigate the impact of function-based self-monitoring (SM) with FCT only and function-based SM with FCT augmented with differential reinforcement of alternative behavior (DRA) on student functional communicative behavior, academic engagement, and problem behavior. The results indicated that the function-based SM with FCT was effective in increasing functional communicative behavior and academic engagement behavior and decreasing problem behavior for all participating students. The addition of DRA further improved behavioral outcomes for one student. Results were maintained for three participants while fading the magnitude of the intervention. Students and teachers rated the function-based SM treatment package as effective and acceptable.
Introduction

Students with communication difficulties often find it challenging to navigate school and are less likely to attain academic success (Morgan & Sideridis, 2013). These students frequently display problem behavior such as noncompliance, disruption, and aggression, that can impede their success within school, resulting in negative outcomes such as expulsion, suspension, and other punitive disciplinary actions (Cohen, 2001; Cortiella & Horowitz, 2014, Reynolds, 2012; Nelson, Benner, Lane, & Smith, 2004; Sugai, Horner, & Gresham, 2002). Communication difficulties specifically affect students with disabilities. Students with autism spectrum disorders (ASD) and other developmental disabilities often have significant difficulty acquiring and using communication skills (Estes, Dawson, Sterling, & Munson, 2007).

Throughout the 20th century, perceptions of equitable education for students with disabilities have changed (McLaughlin, 2010). The 1975 Education for All Handicapped Children Act mandated that students with disabilities be offered the same educational opportunities as their peers without disabilities. The 1997 Disabilities Education Act went further by requiring that students with disabilities participate in general education classrooms as much as possible (National Council on Disability, 2010). However, severe problem behavior often prevents students with disabilities from receiving equitable educational services (Abidin & Robinson, 2002).

To serve an increasingly diverse student population, researchers and practitioners have shifted toward looking at the school as a context for change (Horner & Sugai, 2000). Namely, schools are moving away from reactive discipline plans that rely heavily on negative
consequences for rule infractions. Instead, they are subscribing to proactive, instructional approaches to teaching, prompting, and reinforcing desired behavior patterns within the context of positive behavior supports (Horner & Sugai, 2000). At the base of the model are primary prevention plans aimed at preventing problems or harm from occurring on a school-wide level. Students who are nonresponsive to these intervention efforts are identified for secondary (or classroom level) supports to address common acquisition or performance deficits. Following this, tertiary level interventions are used; these plans are the final and most intensive level of support. Tertiary intervention plans are reserved for students who are exposed to multiple risk factors, who have complex behavior problems, and who are nonresponsive to primary and secondary interventions.

**Functional Behavior Assessment of Problem Behavior in School**

The 1997 reauthorization of the Individuals with Disabilities Education Act (IDEA) required schools to conduct a functional behavioral assessment (FBA) when a student is removed from their regular educational placements for more than 10 days for disciplinary actions (Von Ravensberg, & Blakely, 2015). Thereby, a trend emerged to implement function-based interventions for students whose problem behavior interferes with the learning environment (Drasgow, Yell, Bradley, & Shriner, 1999). Understanding why an individual engages in problem behavior and teaching them a functional communicative response that serves the same function as problem behavior is vital to creating an effective intervention for students who engage in problem behavior due to limited communication skills (Lloyd, Weaver, & Staubitz, 2016).

Although IDEA mandated that FBAs be conducted when designing intervention plans, it did not establish criteria for what should be included in the FBA (Von Ravensberg, & Blakely,
However, there is a consensus about what must go into an FBA, including indirect and direct (descriptive) assessments of behavior. Conducting an FBA provide relevant information that can reliably inform the development of interventions for students with disabilities. Nonetheless, FBAs are often underutilized in schools when developing interventions; therefore, interventions that are ineffective and not linked to behavioral functions are often applied in educational settings (Scott, Anderson, & Spaulding, 2008).

FBAs are crucial to the development of effective interventions. Completing a FBA is useful within the context of school; they provide a systematic and informed way to develop and maintain interventions (Sugai et al., 2000). A FBA allows practitioners and researchers to understand why problem behavior occurs and its consequences, or what its’ function is (Carr & Durand, 1985). This is especially important with students with disabilities in the school setting, who often require educational programming that is specialized and individualized to meet their needs. However, it is often challenging for teachers to meet the needs of students with disabilities who display problem behavior in an effective and efficient way. Evidence indicates that interventions based on FBAs are more effective than traditional interventions to manage student problem behavior (Newcomer & Lewis, 2004), and that function-based interventions may contribute to better inclusive education for students with disabilities (Gann, Ferro, Umbreit, & Liaupsin, 2014; Lane et al., 2007; Walker, Chung, & Bonnet, 2018).

**Functional Communication Training**

As previously stated, students with disabilities are more likely to experience difficulties expressing their wants and needs effectively (Morgan & Sideridis, 2013). Hence, teaching these students to use their communication skills is important. Functional communication training (FCT) is an evidence-based practice within the field of Applied Behavior Analysis, which is the
most studied function-based intervention in the literature. FCT can be used with a variety of individuals with severe problem behavior across various ages and backgrounds (Durand & Merges, 2001; Durand & Carr, 1991). It consists of teaching a learner to use an appropriate functionally equivalent communicative behavior as a replacement for target problem behavior, which will allow the learner to access the same reinforcers as they accessed through engaging in problem behavior. Thus, FCT aims to reduce the reinforcing value of engaging in problem behavior by reinforcing appropriate, alternative communicative behavior.

Research has shown that FCT could be facilitated with differential reinforcement procedures. Wacker et al. (1990) conducted a component analysis of a FCT treatment package consisting of FCT, differential reinforcement, and a time-out (TO) procedure for three individuals with disabilities who were nonverbal and communicated through gestures. Specifically, the researchers conducted a component analysis of FCT alone, FCT plus time-out, and FCT with differential reinforcement. They found FCT alone was not a sufficient intervention for students who engaged in problem behavior for teaching communication skills that generalized to settings outside of training. It was concluded that both control over the delivery of reinforcement for alternative behavior and reinforcing functionally equivalent appropriate behavior were needed for the success of FCT. Therefore, the authors suggested that using differential reinforcement techniques in conjunction with FCT would give students greater control over their reinforcement schedules.

Rooker, Jessel, Kurtz, and Hagopian (2013) further evaluated the use of FCT in combination with alternative schedules of reinforcement that consisted of extinction, NCR, and DRA of another appropriate alternative behavior. In analyzing 58 applications of FCT implemented with individuals with severe behavior disorders, the authors found that NCR was
ineffective and disrupted FCT; in fact, communication skills did not reliably occur during training. Although FCT supplemented by extinction was effective to teach communication skills, the results did not maintain. The authors found that FCT combined with DRA of another alternative behavior was more effective in decreasing problem behavior than when FCT was used with punishment. The authors suggested that by using a DRA procedure in conjunction with FCT, the environment in which they wanted more functional communication to occur, reinforcing and enhanced the overall use of functional communication and decreased the occurrence of problem behavior (e.g., aggression, self-injury, disruption).

**Self-Monitoring**

Self-monitoring (SM) is an evidence-based practice that is commonly used within classroom settings to encourage children to engage in appropriate behavior. SM works by increasing one’s awareness of their own behavior by necessitating that they record the occurrence or nonoccurrence of behavior in a given interval. SM interventions have been associated with improvements in various behaviors, including on-task behavior (Smith & Sugai, 2000; Harris, Friedlander, Saddler, Frizzelle, & Graham, 2005), increases in work completion (Brooks et al., 2003), and decreases in talking out (Smith & Sugai, 2000) for a range of students, including those with emotional and behavioral disorders (EBD; Hansen, Wills, Kamps & Greenwood, 2014; Smith & Sugai, 2000), ADHD (Harris et al., 2005), ASD (Legge, DeBar, & Alber-Morgan, 2010), and communication and language difficulties (Koegel, Koegel, Hurley, & Frea, 1992).

Research on SM has primarily focused on on-task behavior. For example, Wills and Mason (2014) examined the effects of SM on on-task behavior and problem behavior in two 9th-grade students with disabilities (specific learning disabilities and ADHD). A withdrawal design
was used to assess the impact of a self-monitoring intervention for on-task behavior. The researchers found that SM was successful, producing clear increases in on-task behavior. However, changes in disruptive behavior were variable. This variability may have occurred because the researchers did not specifically target or define disruptive behavior, nor did they determine the function of problem behavior, and they did not teach the students how to engage in appropriate behavior which would have allowed them to access the same reinforcement as they accessed from engaging problem behavior.

There has been some research on the use of self-monitoring to teach students to improve communication skills. For example, Koegel et al. (1992) investigated whether self-management that involved monitoring of responses could improve responsiveness to verbal initiations from others in various settings without a treatment provider being present. Four children with ASD (ages 6 to 11) participated in this study; all of them exhibited impairment in communicative skills and lacked responsiveness to other people. A multiple baseline design was used to assess whether responsiveness to verbal initiations and the use of appropriate responses would improve. The results of this study suggest that self-monitoring could be effectively used to decrease social unresponsiveness and improve overall social interactions. In fact, researchers found that when children with disabilities communicated more consistently, the interaction was more fluid and likely to be less aversive, and disruptive behavior was less likely to occur.

Burt (2017) used a multiple baseline design to examine the effects of FCT with SM for three students with EBD who were enrolled in elementary school. The students were taught a functional communicative response as a replacement for problem behavior using procedures similar to functional communication skills (e.g., raising hand to request attention). Then the participants were taught to monitor their use of functional communicative, on-task, and
engagement behaviors. The researchers demonstrated a functional relationship between self-monitoring and functional communicative responses. When functional communication and SM were used the rate of functional communicative responses increased.

**Function-Based Self-Monitoring**

To enhance the outcomes of SM interventions, researchers have incorporated function-based intervention into SM procedures (Wadsworth, Hansen, & Wills, 2015). Kern et al. (2001) demonstrated the effectiveness of SM for increasing incompatible and functionally relevant replacement behaviors meant to decrease problem behavior for three children with disabilities, ages 4-7, who were placed in a short-term hospital facility. First, researchers performed functional analyses to determine the function of each student's behavior. Then, they selected an incompatible and functionally relevant replacement behavior for each student. For example, a student who engaged in problem behavior to escape from tasks was asked to observe whether he could monitor himself either engaging in work (incompatible) or asking for a break (functionally relevant). The authors used a reversal (ABAB) design to evaluate the effectiveness of the SM intervention that focused on SM of incompatible and functionally relevant replacement behavior. The problem behavior of the three students demonstrated clear changes in level between baseline and intervention phases, indicating a functional relationship between function-based self-monitoring and decreased problem behavior.

Briere and Simonsen (2011) also compared the efficacy of SM of functionally relevant behavior to SM of nonrelevant replacement behavior for two typically developing students enrolled in public school. The study took place during classes where the students exhibited the most problem behavior. They utilized a reversal design, with counterbalanced condition order, to document the relationship between types of SM (functionally relevant vs. nonrelevant) and
off-task behavior for two at-risk middle school students. Both students engaged in significantly lower frequencies of off-task behavior when they were taught to self-monitor a functionally relevant replacement behavior (e.g., requesting peer attention) compared to the self-monitoring procedures that focused on SM of nonfunctionally relevant behavior (e.g., engaging in or escaping from a task.).

Hansen et al. (2014) further evaluated the effectiveness of supplementing SM with function-based consequences (FBC) to improve its overall impact on on-task and problem behavior of one typically developing 4th grade student. The authors compared a standard SM intervention that did not result in consequences that were functionally compatible with the student’s problem behavior to SM intervention that incorporated FBC (e.g., providing an opportunity to interact with teacher). They used a multi-element design to assess the effects of each intervention on on-task and disruptive behavior. The authors found that neither SM nor FBC by itself was effective in increasing on-task behavior and decreasing disruptive behavior to the desired levels. However, when SM was supplemented by FCT, there were substantial increases in on-task and decreases in problem behavior in this student, lending more evidence that incorporating function-based intervention into SM may lead to greater improvements than a SM intervention alone.

**Current Study**

SM research has primarily focused on improving on-task behavior and decreasing problem behavior, with only a few studies incorporating function-based intervention into SM. No studies on SM have specifically focused on teaching functional communication skills and improving alternative behavior by incorporating FCT and DRA for students with disabilities. Therefore, the proposed study extended the current literature on self-monitoring by monitoring functional communicative behavior (FCB) to increase functional communicative behavior and
task engagement and decrease problem behavior in students with disabilities. Further, the study investigated the impact of function-based self-monitoring of FCT with and without DRA on student behaviors. In addition, a component analysis of the differential effectiveness of function-based SM alone and function-based SM plus differential reinforcement was used to evaluate the effectiveness of the treatment package on functional communication skills.

Specifically, this study addressed the following questions: (a) will function-based SM with FCT result in increases in functional communicative behavior and task engagement, and decreases in problem behavior of students with disabilities; (b) to what extent will the use of function-based SM with FCT in combination with DRA further increase the students’ use of functional communicative behavior and task engagement, and decrease the incidence of problem behavior; and (c) to what extent will improvement in student behaviors maintain over time.
Methods

Participants

Three students, kindergarten through 3rd grade, in special education classrooms and their corresponding teachers at a local public elementary school participated in this study. One teacher had two participating students who had attention-maintained problem behavior, and one teacher had one student with escape-maintained problem behavior during instructional time in their class. Both teachers already utilized classroom management strategies, such as planned ignoring, token systems, or treasure box, but did not provide function-based reinforcement to the students for engaging in appropriate communicative behavior. Teachers were willing to provide participating students brief access to a reinforcer, determined by a preference and functional behavior assessment, during classroom activities. Recruitment flyers were distributed to teachers in the elementary school, and teachers contacted the researcher if they met inclusion criteria and were willing and interested in participating in the study. To meet inclusion criteria, students had to be able to communicate vocally or with another type of communication mode, but exhibit difficulty expressing their wants and needs effectively as noted by their classroom teacher, and they had to have a history of engaging in problem behavior that interfered with academic activities (e.g., math, reading, writing). The problem behavior had to serve as a social communicative function. Examples of problem behavior included calling-out, yelling, and using profanity. Students who engaged in severe problem behavior, such as self-injurious or property destruction, or who could not follow 1- to 2-step directions were excluded from this study. Throughout the thesis the students and teachers are identified by pseudonyms.

Michael was an 8-year-old student in the 3rd grade. He was diagnosed with Autism Spectrum Disorder (ASD), dysgraphia, and specific language impairment. He was dually served
in a 2nd through 3rd grade self-contained classroom in a social-behavior-communications (SBC) program designed for students with ASD. Michael was nominated to participate due to high levels of disruptive behavior and low task engagement during whole-group reading. Michael was able to independently converse with others; however, he often needed prompting to ask for things he wanted (i.e., a break, help). Following an indirect functional behavior assessment and initial direct observations, Michael’s disruptive behavior was hypothesized to be maintained by attention. Previous interventions included redirection, transition warnings, providing one-on-one assistance, a token economy, reprimands, loss of privileges, and treasure box.

Buster was a 7-year old student in the 2nd grade. He was diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD) and specific language impairment. He was also dually served in the same classroom as Michael and attended a general-education class for English Language Arts (ELA). Buster was nominated due to his high level of disruptive behavior and low academic engagement during independent reading. Following an indirect functional behavior assessment and initial direct observations, Buster’s disruptive behavior was hypothesized to be maintained by adult attention. Buster was able to converse with others; however, he often needed prompting to engage in communicative behavior. Previous interventions included redirection, providing one-on-one assistance, transition warnings, reprimands, and behavior-specific praise.

Oscar was a 4-year old student in kindergarten. He was diagnosed with ASD and specific language impairment. He was served in a self-contained kindergarten classroom in a SBC program designed for students with ASD. Oscar was nominated due to his high level of disruptive behavior and low academic engagement during whole group reading. Oscar was able to respond to others using 1- to 2-word answers and he did not typically initiate verbal
interactions with others. Following an FBA and direct observations, Oscar’s disruptive behavior was hypothesized to be maintained by escape from peers. Previous interventions included redirection, providing one-on-one assistance reprimands and behavior-specific praise.

Michael and Buster had the same teacher who was 50 years old and had 20 year of teaching experience. Her highest level of education was a B.S. in Elementary Education and she was certified in Clinical Education. Oscar’s teacher was 30 years old, had 10 years of teaching experience, and her highest level of education was a B.S. in Education with certification in K-6 subject areas and K-12 Exceptional Student Education. Informed consent was first obtained from each teacher. The researcher explained the study procedures and asked each teacher to read and sign the consent form. Parental informed consent and student verbal assent were obtained for potential student participants. Parents were given a permission form detailing the study, which included the researcher’s contact information for any questions, and were asked to complete, sign, and return the form. Students over the age of 6 received a brief explanation and were asked to give vocal assent to participate in the study.

**Setting and Materials**

This study took place in the natural classroom setting within a local public elementary school in a suburban area in Florida. The school’s population was 83% White, 7% Hispanic, 3% Black, and 7% Other; 34% were low-income and 8% were students with disabilities. Each participating student’s classroom was served by a lead teacher and instructional assistant (IA). Michael and Buster’s classroom was composed of five male students, whereas Oscar’s classroom was comprised of seven male students and one female student. Baseline and intervention occurred in the classroom during an identified problematic academic time period. Michael’s target time period was whole-group reading, where the students received full group instruction,
read a story at their desks and then completed an independent assignment at their desk. Buster’s
target routine was independent seat work. This included worksheets, writing, and paper-based
assessments. Oscar’s target academic time period was whole group reading, where students
received full group instruction, read a story on the carpet, and then worked in smaller groups
with the assistance of the teacher to complete writing assignments.

Teacher training occurred in the classroom during teacher planning time or other break
time where students were not present. Materials for teacher training included PowerPoint with
study procedures and fidelity checklists. Materials for self-monitoring varied depending on the
chosen activity and student ability. Self-monitoring materials included a dry erase marker,
laminated self-monitoring sheet (Appendix C), and Gymboss™ interval timer. In addition,
teachers received a copy of the procedural integrity check (Appendix G).

Measurement

The primary dependent measure was functional communicative behavior, and the
secondary dependent measures included task engagement and disruptive behavior. The behaviors
were operationally defined for each individual participant using information from indirect FBA
and direct observations, and from the definitions used in previous studies. Communicative
behavior included socially-valid forms of expressing wants and needs (i.e., saying ‘break’,
raining hand, and asking for space). Disruptive behavior, including behaviors that were
distracting to others or impeded ongoing activities in the classroom (i.e., calling outs, talking to a
peer without permission, out of seat, making inappropriate noises, playing with irrelevant
objects), were measured (Cook et al., 2014). Task engagement included attending to teacher or
academic speaker, reading (scored as eyes on materials), writing, academic responding,
assignment completion, following teacher direction, raising hand, or attending to materials for
longer than 2 s. The operational definitions of functional communicative behavior, disruptive behavior, and task engagement that were revised from the Thorne and Kamps (2008) study are shown in table 1 for each participant.

Table 1. Operational Definitions of Functional Communicative Behavior, Disruptive Behavior, and Task Engagement for Each Participant

<table>
<thead>
<tr>
<th></th>
<th>Communicative Behavior</th>
<th>Disruptive Behavior</th>
<th>Task Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael</td>
<td>Anytime, Michael raises his hand and makes an appropriate comment about the activity or requests help/attention.</td>
<td>Anytime Michael calls out and makes an inappropriate comment (i.e., “I’m gonna push him off a cliff”). This does not include making an appropriate comment with hand raised</td>
<td>Eyes on his activity, raising his hand and responding to questions.</td>
</tr>
<tr>
<td>Buster</td>
<td>Anytime, Buster raises his hand when he has been instructed not to call out.</td>
<td>Anytime, Buster calls out during an instructional activity when he has been directed not to have outbursts</td>
<td>Eyes on his activity, writing on his worksheet or responding to the teacher with a raised hand.</td>
</tr>
<tr>
<td>Oscar</td>
<td>Anytime, a peer approaches Oscar and he asks peers for space in the absence of other problem behavior.</td>
<td>Anytime, Oscar engages in screaming and or cursing (i.e. “Shut the f@*k up”)</td>
<td>Eyes on the teacher, using an inside voice and responding to the teacher.</td>
</tr>
</tbody>
</table>

Data on functional communicative behavior were collected based on the number of opportunities to perform the behavior. During baseline, an opportunity was determined by the teacher; for instance, Michael’s teacher provided an opportunity for him to engage in the communicative behavior when she posed a question to the class. Alternatively, when a peer approached Oscar during a group activity, Oscar was given an opportunity to engage in the functional communicative behavior. During intervention, opportunities were denoted by the
timer going off, signaling the student to engage in the communicative behavior. The total percentage of functional communicative behavior that occurred during the session was calculated based on the number of opportunities given. Data on task engagement and problem behavior were collected using a 10-s whole interval and 10-s partial interval recording system, respectively (Appendix E). Task engagement and disruptive behavior were not mutually exclusive; in fact, Buster often engaged in problem behavior (calling out) while he was exhibiting task engagement (looking at assignment). The total percentage of intervals in which each target behavior occurred during each session was calculated. Data collection occurred approximately three times per week by the researcher and a research assistant and required a pencil, scoring sheets, and a Gymboss™ timer to signal intervals within observations. The researcher used videos that were publicly available on the Internet to train a research assistant to perform scoring. The research assistant was a graduate student in an Applied Behavior Analysis Master’s program. The research assistant scored to least 90% interobserver agreement with the researcher prior to scoring for the study.

**Procedural integrity.** The RA recorded the percentage of intervention steps completed correctly by teachers during 100% of sessions across all intervention phases using a checklist with a task analysis of implementation steps, adapted from Cook et al. (2012) (Appendix G). The scores on the treatment integrity checklist indicated that the intervention was implemented with high implementation integrity across teachers. Michael’s teacher implemented the intervention correctly on average for 96.2% of step, ranging from 75% -100%. For Buster, the teacher implemented the intervention correctly on average for 96.7% of steps, ranging from 83.3% -100%. Oscar’s teacher implemented the intervention correctly on average for 98.5% of steps, ranging from 83.3%-100%.
**Social validity.** At the end of the study, social validity of function-based SM intervention was assessed utilizing an adapted version of the Intervention Rating Profile (IRP-15; Martens, Witt, Elliot, & Darveaux, 1985) following the intervention phase with teachers. Fifteen items were assessed to determine the extent to which teachers found the intervention to be acceptable, effective, and efficient using a 6-point Likert-type scale. Items were ranked from strongly disagree to strongly agree (Appendix H). One open-ended question allowed teachers to provide any comments about the overall intervention. Student social validity was assessed using a similar questionnaire comprised of five questions, rated on a 3-point scale ranging from strongly disagree to strongly agree. The social validity for student participants was assessed using surveys that were adapted by the researcher using age appropriate language (Appendix I).

**Interobserver agreement.** Interobserver agreement (IOA) was calculated for an average of 33% of all phases for student behaviors, ranging from 27.7% to 36.3% of sessions across participants and behaviors. To assess IOA, the research assistant independently and simultaneously collected data on the target behaviors and treatment integrity. IOA for student target behaviors was calculated using an interval-by-interval procedure, wherein the number of agreements for each interval was summed and divided by the total number of agreements and disagreements for the session, then multiplied by 100% (Kazdin, 1982). IOA for treatment integrity was assessed for 33% of the intervention sessions and calculated by dividing the number of steps scored with agreements by the total number of steps with agreements and disagreements, then multiplying by 100%. Table 2 presents the percentage of sessions in which IOA was collected for each participant, experimental condition, and dependent variables, as well as average IOA scores.
The percentage of sessions when IOA was assessed for Michael averaged 98.3% for problem behavior, 99.3% for functional communicative behavior, and 98.3% for task engagement. IOA for Buster averaged 98.3% for problem behavior, 96.7% for functional communication, and 97.7% for task engagement. IOA for Oscar averaged 100% for problem behavior, 96.7% for functional communication, and 98.3% for task engagement. Overall, IOA averaged 98.6% with 96.7% (90-100%) in baseline, 99.2% (98-100%) in function-based SM, 100% in function-based SM, and 98.3% (90-100%) in fading phase. IOA for Implementation fidelity IOA was 100% across all phases and participants.

Table 2. Percentage of sessions with IOA assessment and average IOA across phases and participants

<table>
<thead>
<tr>
<th></th>
<th>Michael</th>
<th></th>
<th></th>
<th></th>
<th>Buster</th>
<th></th>
<th></th>
<th></th>
<th>Oscar</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>% DB</td>
<td>FCB</td>
<td>TE</td>
<td>% PB</td>
<td>FCB</td>
<td>TE</td>
<td>% PB</td>
<td>FCB</td>
<td>TE</td>
<td>% PB</td>
<td>FCB</td>
<td>TE</td>
</tr>
<tr>
<td>Baseline</td>
<td>25</td>
<td>98</td>
<td>97</td>
<td>97</td>
<td>33</td>
<td>95</td>
<td>90</td>
<td>93</td>
<td>33</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>SM FCT</td>
<td>40</td>
<td>95</td>
<td>100</td>
<td>98</td>
<td>40</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>25</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>SM FCT +DRA</td>
<td>25</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Fading</td>
<td>40</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>25</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>25</td>
<td>100</td>
<td>90</td>
<td>95</td>
</tr>
<tr>
<td>Mean</td>
<td>32.5</td>
<td>98.3</td>
<td>99.3</td>
<td>98.7</td>
<td>36</td>
<td>98.3</td>
<td>96.7</td>
<td>97.7</td>
<td>27.7</td>
<td>100</td>
<td>96.7</td>
<td>98.3</td>
</tr>
</tbody>
</table>

Note: % = the percentage of observed sessions for which a secondary observer recoded data; PB = disruptive behavior; CB = communicative behavior; TE = task engagement; SM = self-monitoring; DRA = differential reinforcement of alternative behavior; NA = not applicable.

Experimental Design and Procedures

A multiple baseline across participants design with an ABC sequence (Kazdin, 2010) was employed to evaluate the effects of function-based SM with FCT alone and function-based SM with FCT plus DRA on student behavior. The experimental phases included (A) baseline, (B) function-based SM with FCT, and (C) function-based SM with FCT plus DRA. Before collecting baseline data, a functional behavior assessment, including a trial-based functional analysis, was
conducted to determine the communicative function(s) of each student’s problem behavior and to confirm the student’s eligibility. A preference assessment was also conducted to determine preferred activities to include during the intervention phase.

**Functional behavior assessment.** Once consent was obtained from teachers and parents, the researcher conducted an FBA to ensure that the problem behavior was maintained by a social-communicative function. The researcher interviewed each teacher using an indirect FBA tool, the Prevent-Teach-Reinforce Assessment (PTR-A; Dunlap et al., 2010). The PTR-A is school focused and contained questions designed to establish operational definitions of the problem behaviors, identify potential routines or time periods, and identify antecedents and consequences of a student’s target problem behavior.

Completing the interview took approximately 30 min for each teacher. The researcher also observed the potential student participants for approximately 15 min of an academic time period in which problem behavior was reported to occur at a high rate, to gather data on antecedents and consequences of problem behavior. During observations, the researcher used an ABC observation form (Appendix I) to corroborate assessment information gathered through the teacher interviews using the PTR-A and identify hypothesized functions of student problem behavior. Only students whose problem behavior was hypothesized to be maintained by a social-communicative function moved on to the next phase of FBA. Eight students were initially screened using the ABC observation form, three were moved on to the next phase of the FBA and then chosen to participate in the study. Based on the results from the initial FBA it was hypothesized that Michel’s problem behavior functioned as gaining attention and access to tangibles, Buster’s problem behavior functioned as gaining access to attention and Oscar’s problem behavior functioned as gaining attention from adults.
A modified trial-based functional analysis was conducted in the classroom environment during naturally occurring instructional time to test hypothesized behavioral functions (Bloom, Iwata, Fritz, Roscoe, & Carreau, 2001) with instruction and prompting provided by the PI. Throughout academic time, the teacher conducted test trials following a control trial. Each trial lasted a maximum 4 min, where each segment lasted 2 min, unless ended prematurely due to problem behavior. During control segments, the establishing operation was absent (i.e., the reinforcer was freely available, and no demands were placed) and the problem behavior did not result in any consequences. During the test segment, the establishing operation was present and problem behavior resulted in the designated consequence. Data were recorded on the functional analysis datasheet (Appendix F).

Attention conditions were conducted during an activity that required teacher attention or assistance, such as teacher-led group instruction or teacher assistance during independent reading. The teacher delivered noncontingent attention for the control, then diverted her attention to another task or student during the test segment. The teacher returned her attention (e.g., offered help, provided redirection back to task, or delivered other comments or gestures) to the student, ending the test segment, contingent on problem behavior.

Escape conditions were conducted during an activity in which peer involvement and was associated with high rates of the student’s problem behavior, such as individual circle time. For Oscar, whose behavior was hypothesized to be maintained by escape from peers during the control condition, the student was sitting by himself, with no peers and the researcher recorded whether the problem behavior occurred within 2 min, ending the trial when the problem behavior occurred. During the test condition, a peer approached Oscar. If problem behavior occurred the peer moved away from Oscar. For Michael and Buster, during the test condition the teacher
presented a task demand, and if problem behavior occurred, the task demand was removed, and the trial was terminated. During the control condition, the students were not given a task demand and the researcher recorded whether problem behavior occurred within 2 min. For each student, two or four trials were conducted per day for three to six trials (approximately, 12 to 16 min) for each condition across 1 to 3 days.

**Baseline.** During baseline, the teacher conducted her class as usual, implementing any ongoing classroom management strategies (e.g., transition warnings, reprimands, redirection, behavior specific praise), during which students participated in whole-group reading and independent seat-work as described in the setting. Observation and recording began when the students transition to the problematic academic time (e.g., sit down for math instruction) and ended when they began the transition to the next activity (e.g., line up to go to lunch). Each session lasted between 15 and 30 min.

**Teacher training and preference assessment.** Following baseline data collection, the researcher set up a time to meet with each individual teacher and conduct a 20-min teacher training on implementation of function-based self-monitoring intervention. The researcher constructed a PowerPoint presentation that provided a brief overview of FCT and SM and described the steps to implement function-based self-monitoring procedures. Following this, the PI modeled correct implementation of each step by asking the teacher to role-play as a student and modeled the appropriate implementation of each step (e.g., setting the timer, providing praise and corrective feedback when necessary and delivering a reinforcer). The researcher provided the teacher with an opportunity to demonstrate these skills. The teachers were required to demonstrate the implementation of the step with 100% accuracy before the intervention phase begins.
The researcher also conducted a multiple-stimulus without replacement assessment (MSWO; DeLeon & Iwata, 1996) before the intervention phase to identify preferred activities or items that could be used as reinforcers. A list of four possible activities was generated based on direct observations and teacher’s perceived acceptability and feasibility for use in the classroom setting. Activity cards were created for each activity and contained the written name of one activity centered in the middle of each card and was presented to the student by placing them at equal distances on the table. The researcher told the student to choose which activity he would like to work for. Following each selection, the researcher removed the chosen activity card and rearrange the remaining activity cards so that all the cards to the student's left of the chosen card were shifted one place to the right and the furthermost card on the student's right was moved to the furthermost place on his or her left. This procedure reduced the possibility that selections might be made based on the position of a card. This procedure continued until only one card remained on the table, with each selection trial removing one more activity card from the array. Students were not provided access to the activities following each selection. The researcher recorded the student's selection in rank order (1 to 4) for the activities presented.

**Student training.** The researcher and each teacher jointly provided 10-min functional communication training to the participating student. The functional communicative behavior, identified based on functional assessment, was taught to the participating students during this training. The functional communicative behavior (skills) allowed the student to access the same reinforcer as does the problem behavior. For instance, Oscar frequently screamed when other students would come near him during reading; he was taught to ask for space. The researcher discussed the importance of using behavior that everyone can understand. For example, the researcher told Oscar, “When you scream, we do not know what you want, so we can’t give you
what you want. Instead, you can ask for space and we can make sure you have enough space.”

After the rationale of using functional communication had been expressed, the researcher also provided hypothetical scenarios of the appropriate and inappropriate use of functional communicative behavior and asked them how the teacher would react. The students also chose an activity or item that was available in the classroom that they would like to work for during the training. For example, the researcher presented a scenario to the students of inappropriate and appropriate uses of target communicative behavior and asked if they would get the reinforcer or not. Following three consecutive training trials in which the student answered the scenario questions correctly, the students were taught to use SM. The researcher used a checklist to ensure that the FCT training was conducted correctly (Appendix I).

The researcher taught each participating student to self-monitor his behavior during a non-academic time period (i.e. lunch). The researcher described SM in a child friendly manner and explained how SM can help them in class and modeled how to use the SM procedures. For instance, the research told Buster, “During class you are going to keep track of your own behavior by circling a yes or no if you raised your hand when the timer buzzed. This will help you remember to raise your hand and we can make sure you get what you need”. Finally, the students practiced using the SM procedures during the target academic time period one day before the first intervention data collection session. The students must have been able to perform the SM skills 100% of the time to terminate the training. The training required 10 min.

**Function-based SM with FCT.** Each teacher reviewed class expectations and the SM procedures with the students immediately before the targeted time period. The teacher distributed the SM materials to the target students. The teacher provided a pencil, SM sheet, and timer that vibrated at predetermined intervals (e.g., 7 min). When providing these materials, the teacher
reminded the student to mark whether they used the functional communicative behavior when the timer buzzed (e.g., “Remember to raise your hand and mark whether you raised your hand when the timer vibrates.”). The teacher also set her own timer (GymBoss) to the same interval and started them both at the same time. The student recorded their behavior on the datasheet at the end of each interval. If the student did not independently use the communicative behavior and record his behavior, the teacher verbally prompted the student to do so. Each time the student used the functional communication skill at the end of the interval and recorded his behavior (independently or with a prompt), the teacher provided what was requested (function-based reinforcer) for 1-2 min, depending on the behavioral function and target skill. For example, when Oscar, whose problem behavior was found to be maintained by escape, used his functional communication skills to ask for space from peers, he was allowed to change his seat during whole group reading for 30 s. During the break, a visible timer was set to let the student know how much he had. When the timer went off the teacher instructed the student to return to his original seat. If the student engaged in problem behavior or refusal to return to work, the teacher provided a first/then statement to prompt the student to return to work. If the student engaged in problem behavior during or between SM intervals, the teacher withheld reinforcement by ignoring the student or reminding the student to use his target functional communication skill once the problem behavior stopped. At the end of the targeted activity time period, the teacher collected the SM materials and provided student with verbal praise for using the communicative behavior and SM sheet.

When the student successfully demonstrated the functional communicative behavior at 100% over three consecutive sessions, a fading procedure was implemented and the reinforcement schedule was systematically thinned by increasing the self-monitoring and
reinforcement interval by 2 min in the subsequent sessions (e.g., from 7 to 8 or 9 min). If the student failed to demonstrate the use of the target communicative behavior above 75% level and the problem behavior did not decrease by 50% from baseline levels over three consecutive sessions, the SM and functional reinforcement intervals were decreased by 2 min intervals in the subsequent 2-3 sessions (e.g., from 7 min to 6 min and then to 5 min). If the student continued to have difficulty using the communicative behavior at 100%, and the problem behavior did not decrease to below 50% of the baseline level, the DRA component was added to the function-based SM procedures.

**Function-based SM with FCT plus DRA.** During this phase, the same procedures that were used as in the first SM phase were implemented. In addition to the function-based SM that resulted in access to functional reinforcer that was contingent on the use of target communicative behavior, the participating students had access to an additional alternative reinforcer contingent on another alternative behavior (i.e., task engagement). The student was provided with a highly preferred reinforcer (determined by the preference assessment) for 5 min at the end of the target instructional time period when the student engaged in the required alternative behavior during the entire time period. If the alternative reinforcer served the same function as the functional reinforcer (e.g., the preferred reinforcer was an activity with teacher, and access to teacher attention was also the function of behavior), the second highest preferred item (i.e. computer) from the preference assessment was used.

The teacher reviewed the DRA criterion with the student at the beginning of the instructional time period by displaying the pre-written criterion on paper (e.g., “If you read 5 pages by the end of the class time, you can use the computer for 5 minutes.”) and provided a reminder every 15 min. The teacher told the student that he would continue to work for the
reward by using the communication skill and completing the SM sheet; however, he would now also be able to earn another reward if he completed the given task before the timer vibrates the last time. For example, the teacher said, “You are doing a great job raising your hand and completing the checklist; you will continue to work for coloring pages, if you can also finish all of your work before the timer vibrates the last time, you can play on the computer for 5 minutes!” Once the student successfully used the functional communicative behavior at 100% level over 3 consecutive sessions, and problem behavior decreased below 50% of baseline level, the function-based reinforcement schedule was be thinned by increasing the SM and reinforcement interval by 1 or 2 min in the subsequent sessions (e.g., from 7 to 8 min).

**Follow-up.** One follow-up probe was conducted for one participant 2 weeks after terminating intervention. The follow-up condition was the same as the baseline condition.
Results

Trial-Based FA

Figure 1 displays data from the trial based functional analysis. As shown in the figure, the problem behavior of two participants, Michael and Buster, was maintained by attention. For Michael, problem behavior occurred 10% of the control segments and 80% of the test segments during attention trials whereas problem behavior occurred 20% of the control segments and 0% of the test segments during escape trials. For Buster, problem behavior occurred 0% of the control segments and 100% of the test segments during attention trials whereas problem behavior 25% of the control segments and 0% of the test segments during attention trials. For Oscar, the data indicated that his problem behavior maintained by escape, in contradiction with the hypothesis generated by initial FBA. His problem behavior occurred 15% of the control segments and 35% the test segments during escape trials whereas problem behavior occurred 75% of the control segments and 5% during attention conditions, and 10% of the control segments and 0% of the test segments during automatic trials of the test segments during attention trials.

Preference Assessment

Figure 2 displays the percentage of times each item was chosen for each participant during the MSWO preference assessment. Percentages were calculated by dividing the number of times each item was chosen by the number of times it was presented. The data indicated that Michael chose the computer 100% of the times when it was presented (highly preferred), followed by stickers 36% of opportunities (moderately preferred) and plushies 7% of the time (least preferred). Buster’s most highly preferred activity was interaction with adults (i.e., fist bumps), as it was chosen 57% of opportunities; stickers were chosen 50% of the time, fidgets
(i.e. fidget spinners) 33% of the time, and teacher attention was the least preferred, being chosen 0% of opportunities. The data also showed that books were Oscar’s most highly preferred item (chosen 83% of opportunities), computer was moderately preferred (57% of opportunities), and teacher attention was the least preferred (chosen 7% of the time).

Functional Communicative Behavior

Figure 3 displays data on functional communicative behavior. As shown in the figure, function-based SM alone increased functional communicative behavior for two of the three participants, Oscar and Buster. For Oscar, his functional communicative behavior increased from 0% in baseline to 90% (range = 67-100%) in the first phase of intervention. His communicative behavior dramatically increased when the function-based SM was introduced and maintained at 100% during the last two consecutive sessions. For Buster, functional communicative behavior rarely occurred in baseline. However, when the function-based SM intervention was implemented, his functional communicative behavior increased to an average of 95.75% (range = 83-100%). Changes in his communicative behavior was immediate and maintained at 100% during the last three consecutive sessions. For Michael, the functional communicative behavior increased from 2.25% in baseline to 37.20% in the first phase of intervention. For Michael, the addition of DRA to the function-based SM further improved the target communicative behavior, from 37.20% to 95.75%. Immediate changes were observed in the functional communicative behavior of all student participants and the changes in behavior were stable within intervention components and over time.

Task Engagement and Problem Behavior

Figure 4 displays data on task engagement and problem behavior. As shown in the figure, the function-based SM intervention alone significantly increased task engagement and reduced
problem behavior for Buster and Oscar. However, for Michael, DRA was required to further improve his behavioral outcomes. His task engagement increased from 54% (25-62%) during function-based SM to 94% (93-95%) during function-based SM with DRA. When DRA was introduced, his task engagement immediately increased to 95%. Likewise, Michael’s problem behavior further decreased when DRA was added to function-based SM. His problem behavior was somewhat variable during the function-based SM alone condition. Oscar and Buster’s behaviors were stable throughout the entire intervention.

**Maintenance**

As shown in Figures 3 and 4, systematic fading of the intervention by increasing SM intervals by 1-2 min increments up to 7-11 min was successful, depending on the student's engagement in target behavior. These results demonstrate that the function-based SM intervention and the function-based SM with DRA could successfully be faded while maintaining the changes in functional communicative behavior, task-engagement, and problem behavior over time with minimal intervention. One follow-up probe conducted for Buster two weeks after terminating intervention showed that his improved target behaviors remained at the same levels as the intervention and fading phases.

**Social Validity**

Following fading, student and teacher participants were provided with social validity surveys and asked to answer the questions to evaluate how they rate the intervention. Students rated the function-based self-monitoring intervention highly in that they liked using self-monitoring. Overall, students rated their experience with the intervention as 2.6 out of 3 possible ratings, ranging from 1 to 3. It should be noted that when asked, Michael said he did not like the intervention because he already had a lot of work to do in class. Buster, on the other hand, chose
to use the intervention during non-targeted academic time periods and he rated the intervention highly. The results of the teacher social validity surveys indicated that the self-monitoring intervention was a highly acceptable and effective intervention they would suggest to other teachers, and that it would be appropriate for a variety of children and classrooms. Teachers also mentioned that this did not result in any negative side effects for children in their classroom. Teachers reported that it required the student to be accountable for their behavior, they liked that the intervention allowed students to have more frequent positive interactions with teachers. Overall, teachers rated their experience with this intervention as 5.6 out of 6 possible points, on average, ranging from 4 to 6 for Teacher 1 ($M = 5.7$) and from 5 to 6 for Teacher 2 ($M = 5.7$). Teacher 2 provided ratings of 6 for ($M = 6.0$) for Buster. Tables 3 and 4 display the results of the social validity surveys completed by students and teachers.

Table 3. Student Social Validity Survey Results

<table>
<thead>
<tr>
<th></th>
<th>Michael</th>
<th>Buster</th>
<th>Oscar</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The monitoring card helped me ask what I want and need more in class.</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td>2. The monitoring card was easy to learn.</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td>3. The monitoring card was easy to use during class.</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>4. I liked using the monitoring card.</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>5. I would use a monitoring card like this in the future.</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Mean</td>
<td>1.8</td>
<td>3.0</td>
<td>3.0</td>
<td>2.6</td>
</tr>
</tbody>
</table>
Table 4. Teacher Social Validity Survey (Modified IRP-15) Results

<table>
<thead>
<tr>
<th></th>
<th>Teacher 1 (Michael)</th>
<th>Teacher 1 (Buster)</th>
<th>Teacher 2 (Oscar)</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>This was an acceptable intervention for the problem behavior engaged in by the targeted students in my class.</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>2.</td>
<td>Most teachers would find this intervention appropriate for behavior problems.</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td>This intervention proved effective in changing the overall problem behavior and academic engagement for targeted students in my class.</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>4.</td>
<td>I would suggest use of this intervention to other teachers.</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>5.</td>
<td>The problem behavior was severe enough to warrant use of this intervention.</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>6.</td>
<td>Most teachers would find this intervention suitable for the behavior problems in their class.</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7.</td>
<td>I would be willing to use this intervention with other students.</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>8.</td>
<td>This intervention did NOT result in negative side effects for children in my class.</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>9.</td>
<td>This intervention would be appropriate for a variety of children and classrooms.</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>10.</td>
<td>The intervention was consistent with those I have used in classroom settings.</td>
<td>6</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>11.</td>
<td>This intervention was a fair way to handle the problem behavior in my classroom.</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>12.</td>
<td>This intervention was reasonable for the behavior problems in my classroom.</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>13.</td>
<td>I liked the procedures used in this intervention.</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>14.</td>
<td>This intervention was a good way to handle the problem behaviors in my classroom.</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>15.</td>
<td>Overall, this intervention was beneficial for the students in my classroom.</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Mean</td>
<td>5.7</td>
<td>6.0</td>
<td>5.9</td>
<td>5.6</td>
</tr>
</tbody>
</table>
Figure 1: Percentage of trials with problem behavior across control (black) and test (grey) trials for attention and escape conditions.
Figure 2. Percentage of times each item was chosen.
Figure 3. Percentage of functional communicative behavior across phases and participants.
Figure 4. Percentage of intervals with academic engagement (squares) and problem behavior (circles) across phases and participants.
Discussion

This study examined the extent to which function-based SM impacted functional communication, disruptive behavior, and academic engagement in three elementary students with disabilities. Further, this study evaluated whether the use of function-based SM alone would be sufficient to produce desirable outcomes, or whether adding DRA to function-based SM would be necessary. The results of this study indicated that the function-based SM alone was sufficient at increasing functional communicative skills and academic engagement and decreasing problem behavior for two participating students. In addition, one participant’s (Michael) target behavior did increase with the first component alone; however, supplementing it with DRA produced more pronounced changes in the levels of target behaviors. Furthermore, intervention outcomes maintained for all three participating students as the magnitude of the intervention (length of SM intervals) decreased.

The current study yielded two important new findings for the literature. First, it examined the utility of function-based SM for increasing functional communication skills. Previous studies examined the effects of function-based SM on behaviors such as task engagement, reduction of problem behavior, compliance, and work completion (Brooks et al., 2003). Second, the results indicate that a substantial increase in functional communicative behavior could result in an increase in academic engagement and overall performance of students with limited communicative skills in an educational setting (Hughes et al., 2002).

In addition, the results of this study are consistent with previous research. A functional relationship was established between the function-based SM intervention and the occurrence of functional communication, as well as between function-based SM intervention and disruptive behavior in the classroom setting (Koegel and Frea, 1993; Frea and Hughes, 1997). Social
validity was rated high, congruent with previous research on function-based SM conducted in the educational setting (Hughes, et al., 2012). Buster and Michael’s teacher reported that she really liked the intervention stating, “I like how it’s motivating for them to be aware of their behavior and choices.” She also hoped Buster would be able to use his newly acquired skills in his general education classroom, as Buster chose to use SM throughout his school day, indicating he liked the intervention. The teacher also mentioned that Michael shared with older peers (whole group reading) during a non-targeted academic time period, and his levels of disruptive behavior decreased and engagement in appropriate functional communicative behavior increased. Oscar’s teacher reported that he chose to use the intervention outside of the targeted academic period.

It should also be noted that the instructional assistants (IA) were not trained to implement function-based SM, and thus did not implement the intervention. Still, the teachers were able to implement the interventions with high treatment integrity without the IA’s assistance. In addition, the teachers were able to implement the interventions with minimal implementation support from the researcher (e.g., prompting) and did not frequently request performance feedback, indicating that the intervention was simple to use. In fact, feedback was only provided with Buster and Michael’s teacher to remind her to prompt Michael initially during the intervention. This supports that function-based SM can be used as an efficient and feasible intervention in the educational setting as it does not require much teacher time or effort to implement during instructional times, which increases the probability that the intervention would be implemented consistently and effectively (Wadsworth et al., 2015).

The behavior changes produced in the current study could be attributed to the participant’s increased attention towards his own behavior. Previously published literature indicates that learning is facilitated if individuals become aware of the dimensions of their own
behavior in response to learning tasks (Newman et al., 1996; Webber et al., 1993), suggesting that the components and structure of SM might be effective in attracting the learner’s attention in sustaining active engagement in the learning experiences.

The study also extends the literature by demonstrating that behavioral outcomes could be enhanced when function-based SM is supplemented with DRA (i.e., differential reinforcement of other alternative behavior, ‘task completion’). In two participating students, the DRA was successfully used in conjunction with function-based SM to bolster results obtained from function-based SM alone. As suggested by Rooker et al. (2013), using DRA in conjunction with FCT may promote the individuals who engage in problem behavior to use functional communicative skills more often.

**Implications for Practice**

The current research supports the use of function-based interventions as an effective intervention to decrease problem behavior and increase desirable behavior among students in an educational setting (Brooks et al., 2003). Given that SM has been used extensively without addressing the functions of problem behavior (Bruhn et al., 2015), classroom teachers and school-based teams should consider conducting FBA to identify functions of a student’s problem behavior and address the function during implementation which could help modify the SM intervention to support students with disabilities who engage in problem behavior and who have limited communication skills.

The findings from the study also suggest that simple function-based reinforcers (i.e., 30s to talk with the teacher, stickers) can be quickly and effectively delivered to students without interrupting the individual students or class academic times. If students significantly detracted from time spent on academic activities due to the activity provided during the break, the success
of use of this intervention is compromised, as it is less likely that the teacher would be able to implement with fidelity. In terms of a risk-benefit analysis, the brief time allotted to providing the reinforcer was significantly less than the time that would have been required to attend to problem behavior. Therefore, teachers and researchers should consider conducting preference assessments with students to determine effective, feasible, and socially acceptable reinforcers that can be earned for engaging in appropriate behavior.

**Limitations**

Several limitations should be noted. First, the generalizability of the findings for individuals with developmental disabilities is limited by the number and heterogeneity of the participants. All participants had a disability; specifically, one participant had a diagnosis of Autism and Dysgraphia, one was at risk for an Autism diagnosis, and one had a diagnosis of ADHD. Second, the topographies of problem behavior in the present study were mild to moderate in severity. Although Oscar engaged in aggression when he engaged in the targeted disruptive behavior, it was not often and not severe (i.e., pushing). It is likely that teachers would need additional training and implementation support in the form of expert-delivered performance feedback and coaching to implement the function-based SM for more serious topographies of problem behavior such as self-injury and aggression (for ethical and safety reasons). Verbal reminders in the form of restating what constitutes as appropriate functional communicative behavior was provided only when teachers expressed uncertainty and requested clarification.

Another limitation of the present study is that teachers were not explicitly asked to track student behavior. While they all prompted the students to use their SM sheet, they were not asked to record any data separate from the student. While they all were present in the classroom with the students and would often provide corrective feedback for student’s erroneous
identification of their own behavior, they did not change student identification of their own behavior. In addition, the way the opportunities provided to the participating students to engage in functional communication during baseline were not the same as the opportunities provided during the intervention phase.

Further, both teachers in the present study had several years of experience working with students with special needs, implementing intensive individualized interventions, and previously received district-wide training in behavior support. This level of experience may account for the high levels of treatment integrity and may limit generalizing the study outcomes to students in other educational settings. A confounding variable was reported to effect Buster’s behavior between session 8 and 9. Buster’s teacher reported that a member of Buster’s family had been hospitalized and his living situation had changed. Although, she did not note any significant differences in his behavior at school, it is possible that this change impacted his behavior. Additionally, Buster was permitted to use his SM sheets during non-target academic time periods. This may have affected his learning history and impacted his behavior during the target academic time period, as he had more opportunities throughout the day to access to the intervention than other participants.

Another confounding variable that should be noted for Michael is the intermittent reinforcement of disruptive behavior. Although attention for disruptive behaviors was limited in the classroom by the lead teacher and instructional assistant, he often accessed attention from other staff members. This could contribute to the lack of profound changes in targeted behavior noted in the first phase of the intervention. Although, staff discontinued providing attention after the researcher and teacher talked to staff members during baseline, the history of intermittent
reinforcement may still have impacted the effectiveness of the intervention and the student’s low ratings of the intervention on the social validity measure.

**Conclusion and Future Research**

Despite these limitations, the results of this study indicate the function-based SM with FCT was highly effective in improving the behavior of elementary students with disabilities. The current study was the first to examine the use of function-based SM with FCT to increase functional communicative behavior. Additionally, this study provides evidence that supplementing the intervention with differential reinforcement procedures is an effective way to increase the effectiveness of self-monitoring. Future research on function-based SM should continue to supplement it with other differential reinforcement procedures to assess their added effectiveness in a function-based SM intervention. In addition, future research should be done to examine the relative effects of FCT, self-monitoring, functional consequences in producing the desired results, and differential reinforcement, comparable with Hansen et al. (2014).

Future research should also examine the use of function-based SM with FCT with older populations (i.e., high school), as most previous research, with the inclusion of the current study, have implemented the intervention with elementary and middle school students. It would also be beneficial to evaluate the efficacy of this intervention with populations of individuals with other disabilities (e.g., emotional behavioral disorders).
References


Stahr, B., Cushing, D., Lane, K., & Fox, J. (2006). Efficacy of a function-based intervention in decreasing off-task behavior exhibited by a student with ADHD. *Journal of Positive
Behavior Interventions, 8, 201-211. doi:10.1177/10983007060080040301


Impact of Function-Based Self-Monitoring with Differential Reinforcement on Student Behavior

Pro #: 00035877

The Applied Behavior Analysis Program at the University of South Florida (USF) is currently recruiting children (grades kindergarten-8) and their teachers who might benefit from participating in a research study that provides training to use function-based self-monitoring to improve student behavior in the classroom setting. The proposed research study is to find out whether function-based self-monitoring alone or with differential reinforcement will increase functional communication, reduce problem behavior and increase on-task behavior in students with disabilities.

We are specifically seeking students who engage in problem behavior that is disruptive to classroom management include, talking out, getting up from their seat without permission, leaving designated areas, etc. Students must also be able to communicate their wants and needs, but do not do so consistently or effectively.

The time commitment for teachers to implement function-based self-monitoring alone and with differential reinforcement is expected to require approximately 35 min a day during an instructional timer period, 3-5 days a week. The implementation will occur during regularly scheduled classroom activities. During this time the students will participate in normally scheduled activities and record their behavior on a recording sheet.

It is estimated that this study will take 1 to 3 months to complete and will be conducted in the students’ classroom with the teacher providing all cues, reinforcement and rules.

If you have a student you believe would benefit from this intervention and would like additional information about this research study please contact your USF PBS Intern, Sydney Roulhac, at or e-mail her at

………………………………………………………………………………………………………………………………………………………………………………
Appendix B
Participant Referral Form

Student Initials & Grade: ________________ Date: ______________

1. Is the student diagnosed/classified with a disability?  □ Yes  □ No

2. How old is the student?  □ 11 □ 12 □ 13 □ 14 □ 15 □ 16 □ 17

3. Does the student engage in problem behavior that interrupts daily classroom activities and routines? (e.g., during academic activities, transitioning to a different class or activity?)
   □ Yes  □ No

4. What kind of problem behavior does the student display?  □ Noncompliance
   □ Tantrums  □ Delaying routines  □ Aggression  □ Other ________________

5. Can the student communicate verbally or with other communication mode?  □ Yes  □ No

6. Does the student have difficulty expressing wants and needs effectively?  □ Yes  □ No

7. Can the student follow simple one- to two-step directions (e.g., “Stand up”, “Pack your back and stand up”, “Sit down and put your hands in your lap”)?  □ Yes  □ No

8. When is the student’s problem behavior more likely to occur?
   □ In the morning  □ In the afternoon  □ During transitions
   □ During a specific activity (if checked, specify what activity: ________________)

9. Does the student’s problem behavior typically happen when others are around?
   □ Yes  □ No

10. Does the student’s problem behavior usually occur soon after you or others interact with him/her in some way, such as delivering an instruction or reprimand, walking away (ignoring) him/her, taking away a preferred item, requiring him/her to change activities, talking to someone else in his/her presence?  □ Yes  □ No

11. Does the behavior often occur when he/she has not received attention?  □ Yes  □ No

12. Does the behavior often occur when you take a particular item away from him/her or when you terminate a preferred leisure activity?  □ Yes  □ No
   (If yes indicate the item or activity: ________________)

13. Does the behavior often occur when (s)he is asked to complete a task?  □ Yes  □ No
Appendix C
Sample Self-Monitoring Sheet
(Function-Based Self-Monitoring without DRA)

Remember:
👉 If I raised my hand and make a check mark in the box when the timer buzzed, I will earn a coloring sheet!

<table>
<thead>
<tr>
<th>Intervals</th>
<th>Did I ask for a coloring sheet when the timer went off?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Y  N</td>
</tr>
<tr>
<td>2</td>
<td>Y  N</td>
</tr>
<tr>
<td>3</td>
<td>Y  N</td>
</tr>
<tr>
<td>4</td>
<td>Y  N</td>
</tr>
<tr>
<td>5</td>
<td>Y  N</td>
</tr>
<tr>
<td>6</td>
<td>Y  N</td>
</tr>
<tr>
<td>7</td>
<td>Y  N</td>
</tr>
<tr>
<td>8</td>
<td>Y  N</td>
</tr>
</tbody>
</table>

HOW MANY YESES DID I MARK?  
HOW MANY NOS DID I MARK?
Remember:

- If I raised my hand and make a check mark in the box when the timer buzzed, I will earn a coloring sheet!
- If I finished all of my work, I will earn 5 minutes of computer time at the end of class!

<table>
<thead>
<tr>
<th>Intervals</th>
<th>Did I ask for a coloring sheet when the timer went off?</th>
<th>Did I finish my work?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Y            N</td>
<td>Y         N</td>
</tr>
<tr>
<td>2</td>
<td>Y            N</td>
<td>Y         N</td>
</tr>
<tr>
<td>3</td>
<td>Y            N</td>
<td>Y         N</td>
</tr>
<tr>
<td>4</td>
<td>Y            N</td>
<td>Y         N</td>
</tr>
<tr>
<td>5</td>
<td>Y            N</td>
<td>Y         N</td>
</tr>
<tr>
<td>6</td>
<td>Y            N</td>
<td>Y         N</td>
</tr>
<tr>
<td>7</td>
<td>Y            N</td>
<td>Y         N</td>
</tr>
</tbody>
</table>

HOW MANY YESES DID I MARK?  

HOW MANY NOS DID I MARK?
Appendix D
FBA/PTR assessment

PTR ASSESSMENT: Prevent Component

1a. Are there times of the school day when problem behavior is most likely to occur? If yes, what are they?

___ Morning       ___ Before meals       ___ During meals       ___ After meals       ___ Arrival
___ Afternoon     ___                        ___                        ___                        ___  __________

Other: ________________________________

1b. Are there times of the school day when problem behavior is least likely to occur? If yes, what are they?

___ Morning       ___ Before meals       ___ During meals       ___ After meals       ___ Arrival
___ Afternoon     ___                        ___                        ___                        ___  __________

Other: ________________________________

2a. Are there specific activities when problem behavior is very likely to occur? If yes, what are they?

___ Reading/LA     ___ Writing          ___ Math                 ___ Science
___ Independent work ___ Small group work ___ Large group work ___ Riding the bus
___ One-on-one      ___ Computer        ___ Recess              ___ Lunch
___ Free time       ___ Peer/cooperative work ___ Centers          ___ Discussions/Q&A
___ Worksheets, seatwork ___                        ___ Specials (specify) ___ Transitions (specify)

Other: ________________________________

2b. Are there specific activities that cooperative and prosocial behavior is very likely to occur? What are they?

___ Reading/LA     ___ Writing          ___ Math                 ___ Science
___ Independent work ___ Small group work ___ Large group work ___ Riding the bus
___ One-on-one      ___ Computer        ___ Recess              ___ Lunch
___ Free time       ___ Peer/cooperative work ___ Centers          ___ Discussions/Q&A
___ Worksheets, seatwork ___                        ___ Specials (specify) ___ Transitions (specify)

Other: ________________________________

3a. Are there specific classmates or adults whose proximity is associated with a high likelihood of problem behavior? If so, who are they?

___ Peers          Specify: _________________________       ___ Bus driver
___ Teacher(s)     Specify: _________________________       ___ Parent
___ Paraprofessional(s) Specify: _________________________       ___ Other family member
___ Other school staff Specify: _________________________       (Specify) __________
3b. Are there *specific classmates or adults* whose proximity is associated with a high likelihood of cooperative and prosocial behavior? If so, who are they?

- ___ Peers
- ___ Teacher(s)
- ___ Paraprofessional(s)
- ___ Other school staff
- ___ Bus driver
- ___ Parent
- ___ Other family member (Specify)

Other: ____________________________________________

Specify: ____________________

Specify: ____________________

Specify: ____________________

Specify: ____________________

___ Peers
___ Teacher(s)
___ Paraprofessional(s)
___ Other school staff
___ Bus driver
___ Parent
___ Other family member (Specify)

4. Are there *specific circumstances* that are associated with a high likelihood of problem behavior?

- ___ Request to start task
- ___ Being told work is wrong
- ___ Reprimand or correction
- ___ Told “no”
- ___ Seated near specific peer
- ___ Peer teasing or comments
- ___ Change in schedule
- ___ Task too difficult
- ___ Task too long
- ___ Task is boring
- ___ Task is repetitive
- ___ (same task daily)
- ___ Novel task
- ___ Transition
- ___ End of preferred activity
- ___ Removal of preferred item
- ___ Start of non-preferred activity
- ___ Student is alone
- ___ ‘Down’ time (no task specified)
- ___ Teacher is attending to other students
- ___ Unstructured time

Other: ____________________________________________

5. Are there conditions in the *physical environment* that are associated with a high likelihood of problem behavior? For example, too warm or too cold, too crowded, too much noise, too chaotic, weather conditions….

- ___ Yes (specify) ______________________________________
- ___ No

6. Are there circumstances *unrelated to the school setting* that occur on some days and not other days that may make problem behavior more likely?

- ___ Illness
- ___ Allergies
- ___ Physical condition
- ___ Hormones or menstrual cycle
- ___ No medication
- ___ Change in medication
- ___ Hunger
- ___ Parties or social event
- ___ Change in diet
- ___ Drug/alcohol abuse
- ___ Bus conflict
- ___ Fatigue
- ___ Change in routine
- ___ Parent not home
- ___ Home conflict
- ___ Sleep deprivation
- ___ Stayed with non-custodial parent
- ___ Energy drink
- ___ Caffeine
- ___ Other: ______________________________________

Other: ____________________________________________

Any other comments not addressed in the *Prevent Component:*
**PTR ASSESSMENTS: Teach Component**

1. Does the *problem behavior* seem to be exhibited in order to *gain attention from peers*?
   - ___ Yes  *List the specific peers:__________________________________________*
   - ___ No

2. Does the *problem behavior* seem to be exhibited in order to *gain attention from adults*? If so, are there particular adults whose attention is solicited?
   - ___ Yes  *List the specific adults:__________________________________________*
   - ___ No

3. Does the *problem behavior* seem to be exhibited in order to *obtain objects* (toys or games, materials, food) from peers or adults?
   - ___ Yes  *List the specific objects:__________________________________________*
   - ___ No

4. Does the *problem behavior* seem to be exhibited in order to *delay a transition* from a preferred activity to a non-preferred activity?
   - ___ Yes  *List the specific transitions:______________________________________*
   - ___ No

5. Does the *problem behavior* seem to be exhibited in order to *terminate or delay* a non-preferred (difficult, boring, repetitive) task or activity?
   - ___ Yes  *List the specific non-preferred tasks or activities__________________________________*
   - ___ No

6. Does the *problem behavior* seem to be exhibited in order to *get away from* a nonpreferred classmate or adult?
   - ___ Yes  *List the specific peers or adults______________________________________*
   - ___ No

7. What *social skills(s)* could the student learn in order to reduce the likelihood of the *problem behavior* occurring in the future?
   - ___ Peer interaction
   - ___ Play skills
   - ___ Getting attention appropriately
   - ___ Joint or shared attention
   - ___ Sharing objects
   - ___ Sharing attention
   - ___ Conversation skills
   - ___ Making pro-social statements
   - ___ Taking turns
   - ___ Losing gracefully
   - ___ Waiting for reinforcement
   - ___ Accepting differences
8. What **problem-solving skill(s)** could the student learn in order to reduce the likelihood of the problem behavior occurring in the future?

<table>
<thead>
<tr>
<th></th>
<th>Recognizing need for help</th>
<th>Note-taking strategies</th>
<th>Staying engaged</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Asking for help</td>
<td>Assignment management</td>
<td>Working independently</td>
</tr>
<tr>
<td></td>
<td>Using visual supports to work independently</td>
<td>Working with a peer</td>
<td>Making an outline</td>
</tr>
<tr>
<td></td>
<td>Ignoring peers</td>
<td>Move ahead to easier items then go back to difficult items</td>
<td>Self-management</td>
</tr>
<tr>
<td></td>
<td>Graphic organizers</td>
<td></td>
<td>Making choices from several appropriate options</td>
</tr>
</tbody>
</table>

Others: ____________________________________________________________

9. What **communication skill(s)** could the student learn in order to reduce the likelihood of the problem behavior occurring in the future?

<table>
<thead>
<tr>
<th></th>
<th>Asking for a break</th>
<th>Raising hand for attention</th>
<th>Asking for help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expressing emotions (frustration, anger, hurt)</td>
<td>Requesting wants</td>
<td>Commenting</td>
</tr>
<tr>
<td></td>
<td>Requesting information</td>
<td>Rejecting</td>
<td>Responding to others</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Active listening</td>
<td></td>
</tr>
</tbody>
</table>

Others: ____________________________________________________________

Any other comments not addressed in the **Teach Component:**
**PTR ASSESSMENT: Reinforce Component**

1. What **consequence(s)** usually follow the student’s **problem behavior**?

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sent to time-out</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chair time-out</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head down</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sent to office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sent home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calming/Soothing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gave personal space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sent to behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistance given</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal redirect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay in activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity changed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity terminated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal reprimand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stated rules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical prompt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical restraint</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Removal of reinforcers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural consequences (Specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other:**

2. Does the student **enjoy praise** from teachers and other school staff? Does the student enjoy praise from some teachers more than others?

<table>
<thead>
<tr>
<th>Yes</th>
<th>List specific people</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

3. What is the likelihood of the student’s **appropriate behavior** (e.g., on-task behavior; cooperation; successful performance) resulting in acknowledgment or praise from teachers or other school staff?

<table>
<thead>
<tr>
<th>Very likely</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
</table>

4. What is the likelihood of the student’s **problem behavior** resulting in acknowledgment (e.g., reprimands, corrections) from teachers or other school staff?

<table>
<thead>
<tr>
<th>Very likely</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
</table>

5. What school-related items and activities are **most enjoyable** to the student? What items or activities could serve as special rewards?

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social interaction with adults</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social interaction with peers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing a game</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helping teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line leader</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Going to media center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensory activity (specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puzzles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Going outside</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Going for a walk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extra PE time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extra free time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video games</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching TV/video</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objects (Specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food (Specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other(s):**

Other(s):
Appendix E
Interval Recording Sheet (Researcher Use)

Student Behavior Recording Sheet

Participant: ____  Date: ____  Observer: ________  Phase: ________

Instructions: If the participant engages in functional communicative behavior (FCB) during each opportunity mark (+) if independent and (p) for prompted responses. Tally the number of times FCB occurs within the interval. Record the occurrence of (+) or nonoccurrence (-) using whole interval for task engagement (T.E.) or partial interval for problem behavior (P.B.)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00:10</td>
<td></td>
<td></td>
<td></td>
<td>08:10</td>
<td></td>
<td></td>
<td></td>
<td>17:20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:20</td>
<td></td>
<td></td>
<td></td>
<td>08:20</td>
<td></td>
<td></td>
<td></td>
<td>17:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:30</td>
<td></td>
<td></td>
<td></td>
<td>08:30</td>
<td></td>
<td></td>
<td></td>
<td>17:40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:40</td>
<td></td>
<td></td>
<td></td>
<td>08:40</td>
<td></td>
<td></td>
<td></td>
<td>17:50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:50</td>
<td></td>
<td></td>
<td></td>
<td>08:50</td>
<td></td>
<td></td>
<td></td>
<td>18:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:00</td>
<td></td>
<td></td>
<td></td>
<td>09:00</td>
<td></td>
<td></td>
<td></td>
<td>18:10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:10</td>
<td></td>
<td></td>
<td></td>
<td>09:10</td>
<td></td>
<td></td>
<td></td>
<td>18:20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:20</td>
<td></td>
<td></td>
<td></td>
<td>09:20</td>
<td></td>
<td></td>
<td></td>
<td>18:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:30</td>
<td></td>
<td></td>
<td></td>
<td>09:30</td>
<td></td>
<td></td>
<td></td>
<td>18:40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:40</td>
<td></td>
<td></td>
<td></td>
<td>09:40</td>
<td></td>
<td></td>
<td></td>
<td>18:50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:50</td>
<td></td>
<td></td>
<td></td>
<td>09:50</td>
<td></td>
<td></td>
<td></td>
<td>19:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02:00</td>
<td></td>
<td></td>
<td></td>
<td>10:00</td>
<td></td>
<td></td>
<td></td>
<td>19:10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02:10</td>
<td></td>
<td></td>
<td></td>
<td>10:10</td>
<td></td>
<td></td>
<td></td>
<td>19:20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02:20</td>
<td></td>
<td></td>
<td></td>
<td>10:20</td>
<td></td>
<td></td>
<td></td>
<td>19:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02:30</td>
<td></td>
<td></td>
<td></td>
<td>10:30</td>
<td></td>
<td></td>
<td></td>
<td>19:40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02:40</td>
<td></td>
<td></td>
<td></td>
<td>10:40</td>
<td></td>
<td></td>
<td></td>
<td>19:50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02:50</td>
<td></td>
<td></td>
<td></td>
<td>10:50</td>
<td></td>
<td></td>
<td></td>
<td>20:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03:00</td>
<td></td>
<td></td>
<td></td>
<td>11:00</td>
<td></td>
<td></td>
<td></td>
<td>20:10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>FCB</td>
<td>TE</td>
<td>PB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-----</td>
<td>----</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03:10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03:20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03:50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04:10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04:20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04:50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FCB: Number of (+)/Total opportunities = %
TE: Number of (+)/Total intervals = %
P: Number of (+)/Total intervals =

58
Appendix F

Trial-Based Functional Analysis Data Sheet

Conduct trials throughout the day over the course of a week. Each trial consists of two segments (control, then test). **Control:** (a) If no problem behavior (PB) by the end of two min, circle "-" and go to test. (b) If PB occurs before two min, circle "+," end segment immediately, and go to test. **Test:** (a) If no PB by the end of two min, circle (-) and end segment. (b) If PB occurs before two min, deliver specified consequence, circle "+," and end segment. Try to conduct 20 trials of each type, and summarize as % of each trial type with PB.

**Attention:**
Control: Stand near student; deliver noncontingent attention (pleasant conversation, no tasks).
Test: Stand near student but ignore (no tasks); deliver attention only following problem behavior.

**Escape:**
Control: Observe while no task demands are present.
Test: Deliver frequent prompts to engage in difficult work; remove work following problem behavior.

**Client:** ____________  **Start Date:** ____________  **End Date:** ____________

**Problem Behavior:**__________________________  **Failed Trials:**__________

**Observer:** Primary/Reliability (circle one)  **Therapist:**__________

<table>
<thead>
<tr>
<th>Trial</th>
<th>Attention Control</th>
<th>Attention Test</th>
<th>Escape Control</th>
<th>Escape Test</th>
<th>Tx Int</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
<tr>
<td>2</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
<tr>
<td>3</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
<tr>
<td>4</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
<tr>
<td>5</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
<tr>
<td>6</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
<tr>
<td>7</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
<tr>
<td>8</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
<tr>
<td>9</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
<tr>
<td>10</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>+ -</td>
<td>Y N</td>
</tr>
</tbody>
</table>

**% PB**

**PB Function** (check as many as you believe apply):

Attention ______  Escape ______  Unclear ____

*Only check unclear if you did not check any others.

*Adapted from 2007 The Florida Center on Self-injur*
Appendix G
Procedural Integrity Checklist

Observer: ______________ Date: ___________________ Student: ___________________

Function-Based Self-Monitoring without DRA

<table>
<thead>
<tr>
<th>Steps</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reviewed class expectations with student (e.g., “Remember to raise your hand when the timer goes off and you want a coloring sheet.”)</td>
<td>Yes/No</td>
</tr>
<tr>
<td>2. Gave student self-monitoring materials</td>
<td>Yes/No</td>
</tr>
<tr>
<td>3. Set the timer for 5 minutes</td>
<td>Yes/No</td>
</tr>
<tr>
<td>4. Reminded student to record her/his behavior every time the timer went off</td>
<td>Yes/No</td>
</tr>
<tr>
<td>5. Prompted student to use functional communicative behavior at the end of the interval if student did not use functional communicative behavior within 5 s</td>
<td>Yes/No/NA</td>
</tr>
<tr>
<td>6. Prompted student to record her/his behavior if student did not initiate marking on the self-recording sheet following the use of communicative behavior</td>
<td>Yes/No/NA</td>
</tr>
<tr>
<td>7. Withheld reinforcement when student engaged in problem behavior during or between self-monitoring intervals</td>
<td>Yes/No/NA</td>
</tr>
<tr>
<td>8. Provided praise for marking self-recording sheet, and delivered functional reinforcement if student used functional communicative behavior and marked self-recording sheet at the end of each interval</td>
<td>Yes/No</td>
</tr>
<tr>
<td>9. Reviewed the completed self-monitoring sheet at the end of the activity time period and provided verbal feedback on student behavior (e.g., “You marked all smiley faces! Great job completing your checklist and raising your hand!”)</td>
<td>Yes/No</td>
</tr>
<tr>
<td>10. Collected self-monitoring materials</td>
<td>Yes/No</td>
</tr>
</tbody>
</table>

Total Yes: _______

Percentage: _____% (Yes / total - NA)
## Function-Based Self-Monitoring with DRA

<table>
<thead>
<tr>
<th>Steps</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reviewed class expectations with student (e.g., “Remember to raise your hand when the timer goes off and you want a coloring sheet.”)</td>
<td>Yes/No</td>
</tr>
<tr>
<td>2. Gave student self-monitoring materials</td>
<td>Yes/No</td>
</tr>
<tr>
<td>3. Set the timer for 5 minutes</td>
<td>Yes/No</td>
</tr>
<tr>
<td>4. Reminded student to record her/his behavior every time the timer went off</td>
<td>Yes/No</td>
</tr>
<tr>
<td>5. Prompted student to use functional communicative behavior at the end of the interval if student did not use functional communicative behavior within 5 seconds</td>
<td>Yes/No/NA</td>
</tr>
<tr>
<td>6. Prompted student to record her/his behavior if student did not initiate marking on the self-recording sheet following the use of communicative behavior</td>
<td>Yes/No/NA</td>
</tr>
<tr>
<td>7. Withheld reinforcement when student engaged in problem behavior during or between self-monitoring intervals</td>
<td>Yes/No/NA</td>
</tr>
<tr>
<td>8. Provided praise for marking self-recording sheet, and delivered functional reinforcement if student used functional communicative behavior and marked self-recording sheet at the end of each interval</td>
<td>Yes/No</td>
</tr>
<tr>
<td>9. Reviewed the completed self-monitoring sheet at the end of the activity time period and provided verbal feedback on student behavior (e.g., “You marked all smiley faces! Great job completing your checklist and raising your hand!”)</td>
<td>Yes/No</td>
</tr>
<tr>
<td>10. Told student the amount of time engaged in activities or the number of tasks completed appropriately without problem behavior</td>
<td>Yes/No</td>
</tr>
<tr>
<td>11. Provided compliment for engagement in appropriate alternative behavior engaging in activities and tasks (e.g., “Wow, you completed all your work without any screaming!”) and provided preferred reinforcer for 3-5 minutes if student engaged in the alternative behavior throughout the time period without problem behavior</td>
<td>Yes/No</td>
</tr>
<tr>
<td>12. Collected self-monitoring materials</td>
<td>Yes/No</td>
</tr>
</tbody>
</table>

**Total Yes: ______**

**Percentage: ______% (Yes / total - NA)**
## Appendix H

### Teacher Social Validity Questionnaire

Adapted Version of the Intervention Rating Profile (IRP) -15

Teacher: ___________________    Date: _____________ _______________

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>This was an acceptable intervention for the student’s needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Most teachers would find this intervention appropriate for children with similar needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>This intervention proved effective in supporting the student’s needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>I would suggest the use of this intervention to other teachers.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>The student’s needs were severe enough to warrant use of this intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Most teachers would find this intervention suitable for the needs of this student.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>I would be willing to use this intervention in the classroom setting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>This intervention did not result in negative side effects for the child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>This intervention would be appropriate for a variety of children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>This intervention was consistent with those I have used in classroom settings.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>The intervention was a fair way to handle the child’s needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>This intervention was reasonable for the needs of the child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13</td>
<td>I liked the procedures used in this intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14</td>
<td>This intervention was a good way to handle this child’s needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>Overall, this intervention was beneficial for the child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total** (sum all points circled; higher scores indicate higher acceptability; range = 15-90)
Appendix I
Student Social Validity Questionnaire

1. The monitoring card helped me ask what I want and need more in class.
   
   1- Disagree       2- It was okay        3- Agree

2. The monitoring card was easy to learn.

   1- Disagree       2- It was okay        3- Agree

3. The monitoring card was easy to use during class.

   1- Disagree       2- It was okay        3- Agree

4. I liked using the monitoring card.

   1- Disagree       2- It was okay        3- Agree

5. I would use a monitoring card like this in the future.

   1- Disagree       2- It was okay        3- Agree
## Appendix J
### ABC Observation Form

<table>
<thead>
<tr>
<th>Student Name: ________</th>
<th>Observation Date: ________</th>
<th>Time: ____________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer: _____________</td>
<td>Activity: _________________</td>
<td>Class Period: _____</td>
</tr>
<tr>
<td>Target Problem Behavior:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANTECEDENT</th>
<th>BEHAVIOR</th>
<th>CONSEQUENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Observation Summary

1. Total Number of Occurrences of PB:

2. Identified Antecedents
   a. ______ (%)  
   b. ______ (%)  
   c. ______ (%)  
   d. ______ (%)  

2. Identified Consequences
   a. ______ (%)  
   b. ______ (%)  
   c. ______ (%)  
   d. ______ (%)  

3. Potential Function(s):
# Appendix K

Preference Assessment Datasheet

Participant No: ___________  Date: ________________

<table>
<thead>
<tr>
<th>Item List</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Functional Communication Training Procedural Checklist

<table>
<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introductions and overview of training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Explain what will be done during training session</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3. Explain why it is important to use functional communication skills</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4. Discuss alternative, functional communication skill student can use</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5. Explain that planned ignore student when they do not use functional communication skill.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6. Provide scenarios of engaging in functional communication with teacher.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7. Review what happened with student</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>8. Provide scenarios of not engaging in functional communication with teacher.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>9. Review what happened with student</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

# of “yes” _____ / total (9) * 100

Score: ___________%
Appendix M
County Letter of Approval

September 13, 2018

Ms. Sydney Roulhac
Department of Child and Family Studies
13301 Bruce B. Downs Blvd. MHC 2113A
Tampa, Florida 33612

Dear Ms. Roulhac:

Attached you will find an approval of your research study in [redacted] entitled, "Impact of Function based Self-Monitoring and Differentiated Reinforcement on Student Behavior."

The purpose of this study is to extend the current literature on self-monitoring by incorporating function-based intervention particularly, functional communication training (FCT) into self-monitoring to increase functional communicative behavior and academic engagement and decrease problem behavior in students with disabilities.

Your [redacted] MA, BCBA, Senior District Behavior Analyst, in the Office for Student Support Programs and Services.

We are always interested in the outcome of research conducted in our school system. When your study is complete, please forward a brief summary of your findings to the Office for Accountability, Research, and Measurement.

Sincerely,

[Signature]

Office for Accountability, Research, and Measurement

Attachments

xc: [redacted]
Appendix N
USF Institutional Review Board Letter of Approval

October 15, 2018

Sydney Roulhac
ABA-Applied Behavior Analysis 4202 E Fowler Ave.
Tampa, FL 33620

RE: Expedited Approval for Initial Review

IRB#: Pro00035877

Title: The Impact of Function Based Self-Monitoring and Differential Reinforcement on Student Behavior

Study Approval Period: 10/13/2018 to 10/13/2019

Dear Ms. Roulhac:

On 10/13/2018, the Institutional Review Board (IRB) reviewed and APPROVED the above application and all documents contained within, including those outlined below.

Approved Item(s): Protocol Document(s): Protocol,V1,09.19.2018

Consent/Assent Document(s)*:

TeacherConsent,v2,10.09.2018.pdf StudentAssent,V2,10.09.2018

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab. Please note, these consent/assent documents are valid until the consent document is amended and approved. Child Student (verbal) Assent is not a stamped form.

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve
only procedures listed in one or more of the categories outlined below. The IRB may review
research through the expedited review procedure authorized by 45CFR46.110. The research
proposed in this study is categorized under the following expedited review category:

(7) Research on individual or group characteristics or behavior (including, but not limited to,
research on perception, cognition, motivation, identity, language, communication, cultural
beliefs or practices, and social behavior) or research employing survey, interview, oral history,
focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

This research involving children as participants was approved under 45 CFR 46.404: Research
not involving greater than minimal risk to children is presented.

Requirements for Assent and/or Permission by Parents or Guardians: 45 CFR 46.408(c) Assent is
required of all children.

As the principal investigator of this study, it is your responsibility to conduct this study in
accordance with IRB policies and procedures and as approved by the IRB. Any changes to the
approved research must be submitted to the IRB for review and approval via an amendment.
Additionally, all unanticipated problems must be reported to the USF IRB within five (5)
business days.

We appreciate your dedication to the ethical conduct of human subject research at the University
of South Florida and your continued commitment to human research protections. If you have any
questions regarding this matter, please call 813-974-5638.

Sincerely,

Melissa Sloan, PhD, Vice Chairperson

USF Institutional Review Board