6-30-2020

Effects of Emailed Prompts on Teachers’ Verbal Prompt Delivery

Hao-Jan Luh
University of Connecticut - Storrs, hao-jan.luh@uconn.edu

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Decades of research has shown that teachers’ classroom management practices are critical for students’ performance in class. Despite the development, evaluation, and dissemination of classroom management practices, teachers struggle to implement these practices and need implementation supports. To address this issue, there has been a growth of implementation strategies for teachers in the literature. However, a need for effective, efficient, and socially valid implementation supports persists. Emailed prompting is a feasible, ongoing implementation strategy for classroom management practices. Previous studies have examined its effects on the implementation of the Good Behavior Game and responsive behavioral strategies. This study extended these research lines by evaluating the effectiveness of emailed prompting on teachers’ delivery of verbal prompts for increasing students’ target behavior in an alternative setting. To examine the effectiveness of emailed prompts, an A-B-C multiple baseline across participants design was conducted, which included a baseline phase, a didactic training phase, and an emailed prompts phase. Due to COVID-19, not all phases were completed. Student outcomes and social validity were also evaluated.

*Keywords: classroom management practices, treatment fidelity, implementation supports, emailed prompts, verbal prompts*
Effects of Emailed Prompts on Teachers’ Verbal Prompt Delivery

Hao-Jan Luh

B.S., National Taiwan University, 2009
M.A., University of Connecticut, 2018

A Dissertation
Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy
at the
University of Connecticut
2020
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Doctor of Philosophy Dissertation

Effects of Emailed Prompts on Teachers’ Verbal Prompt Delivery

Presented by

Hao-Jan Luh, B.S., M.Ed., M.A.

Major Advisor

Lisa Sanetti

Associate Advisor

Brandi Simonsen

Associate Advisor

Melissa Collier-Meek

University of Connecticut
2020
Acknowledgements

This is the hardest part of the dissertation, as I can never describe how grateful I am to each wonderful individual during this journey. Especially, to my advisor, Dr. Lisa Sanetti, thank you for your guidance on my dissertation and graduate training. This project would not have been possible without the rigorous scholarly training and mentorship you have provided.

I must also extend thanks to Dr. Mel Collier-Meek, for your inspiring work about emailed prompts and insightful feedback on my dissertation project; Dr. Brandi Simonsen, for your training on classroom management and support throughout my graduate training; Dr. Sandy Chafouleas, for your doctoral seminar and intellectually stimulating feedback; and Dr. Susannah Everett, for your encouragement and constructive suggestions.

I would also like to thank my internship and practicum supervisors, especially Mrs. Maricel McMahon and Dr. Gail Loughlin Rogers, for their support. In particular, thank you to Gail, for sharing your valuable experience and providing constructive feedback. Thank you to the participating teachers and classes for their help without whom I could not have completed this work. I am also fortunate to have supportive colleagues at UConn. In particular, to Dr. Sarah Wilkinson, thank you for your helpful resources and insight, to the soon-to-be Dr. Johanna deLeyer-Tiarks, I can’t be more fortunate to have you as a graduate fellow, and to Hannah Perry, for your dedication to the study. I also want to acknowledge the generous grant and scholarship support provided by the Society for the Study of School Psychology Dissertation Grant Award program and the Neag School Scholarships.

Finally, to my mother and father, thank you for your unconditional support. I was able to complete the study because there is home for me. To my brother, friends, and teachers in Taiwan
and Seattle: thank you for always being there for me. I could complete my study because I knew I could rely on you for social support.

I dedicate this dissertation to everyone who has supported me in this journey. I hope to pay it forward by supporting others on their individual journeys and through contributions to the larger field of School Psychology.
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Chapter I: Introduction

In recent years, teacher attrition has received increasing attention (Boyd et al., 2011; Hughes, 2012). According to a survey report by the National Center for Education Statistics (2014), during the 2011-2012 school year, approximately sixteen percent of 3,377,900 teachers in public schools in the United States left their positions. Of the 16%, 8% moved to new schools and the other 8% left teaching. Such a teacher turnover rate is problematic. To begin with, it is expensive to recruit and train new teachers (Haynes, 2014; Kim, Shin, Tsukayama, & Park, 2020). It was estimated that teacher turnover cost the United States at least $1 billion between 2008 and 2009 (Haynes, 2014). In Connecticut alone, the cost of teacher attrition was estimated between $1 million and $2.2 million (Haynes, 2014). More importantly, empirical data have shown that teacher attrition can have negative impact on student learning (Ronfeldt, Loeb, & Wyckoff, 2013). In addition to direct effect on individual students, teacher attrition may compromise the rapport and the sense of community, which can further interfere with student learning (Kim et al., 2020; Ronfeldt, et al., 2013). Given these detrimental consequences of teacher attrition, studies have emphasized the need for investigating stressors behind teacher attrition (Kim et al., 2020; Martin, Sass, & Schmitt, 2012).

Teachers’ stress can lead to lower self-efficacy, reduced job satisfaction, impaired physical and mental health, burnout, and eventually, attrition (Herman et al., 2020; Kim et al., 2020). Among tasks teachers face, managing student behavior can be a major stressor (Clunies-Ross, Little, & Kienhuis, 2008; Brunsting, Sreckovic, & Lane, 2014; Haydon, Stevens, & Leko, 2018), as teachers have reported to feel unprepared for behavior management (Flower, McKenna, & Haring, 2017). Even special education teachers, who might receive more training on behavior management, have also reported stress when they cope with individual students’
behavioral needs (Gebbie, Ceglowski, Taylor, & Miels, 2012; Haydon et al., 2018). To address stress resulting from behavior management, research about behavior management is crucial.

To improve student behavior as well as to lower teacher stress and attrition, over the past decades, researchers and educators have invested resources in evidence-based practices for managing student behaviors (e.g., Epstein, Atkins, Cullinan, Kutash, & Weaver, 2008; Simonsen & Myers, 2015). Among these endeavors, classroom management practices have received ample attention and support (e.g., Reinke, Lewis-Palmer, & Merrell, 2008; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008; Simonsen et al., 2014). However, accumulating studies have indicated that teachers continuously fail to use the evidence-based practices in the classrooms, urging the needs for implementation supports (Long, Sanetti, Lark, & Connolly, 2018; Sanetti, Williamson, Long, & Kratochwill, 2018).

In response to the needs for implementing evidence-based classroom management practices with fidelity, implementation supports have been developed (Sanetti & Collier-Meek, 2015). However, these supports, including professional development training and school-based consultation, have shown varied effectiveness on teachers’ improvement in classroom management (Sanetti & Collier-Meek, 2015). For example, research has indicated limited effectiveness of one-time, in-service training as professional development (Joyce & Showers, 2002). Performance feedback as part of school consultation has received considerable research support, but it is time and resource intensive (Fallon, Collier-Meek, Kurtz, & DeFouw, 2018). There remains a need for investigation on other types of implementation supports that teachers can use to deliver evidence-based classroom practices.

**Statement of the Problem**
To support teachers and improve students’ learning, evidence-based classroom management practices are needed (Simonsen et al., 2008; Simonsen & Myers, 2015). Research has shown that the development of the practices alone is not enough, as teachers continuously face difficulties in delivering the practices with fidelity (Long et al, 2018; Sanetti et al., 2018; VanLone, 2018). A hierarchy of implementation supports has been developed to help teachers deliver evidence-based classroom management practices when they face challenges (Simonsen et al., 2013; Sanetti & Collier-Meek, 2015). Among the strategies, limited research has focused on ongoing and feasible implementation supports (Collier-Meek et al., 2017; Fallon et al., 2018; Sanetti & Collier-Meek, 2015). This study was conducted to extend the research line about ongoing and feasible implementation supports for teachers’ classroom management.
Chapter II: Review of the Literature

Classroom Management Practices

Importance of classroom management practices. In school, student behaviors are shaped during their interactions with teachers and others (Epstein et al., 2008). Teachers’ interactions with students predict their academic performance (Allen, Pianta, Gregory, Mikami, & Lun, 2011; Cadima, Leal, & Burchinal, 2010), social skills (Luckner, & Pianta, 2011; Mashburn et al., 2008), and classroom rule compliance (Hughes, Luo, Kwok, & Loyd, 2008). Specifically, results of decades of research suggest that teachers’ classroom management plays an important role in teacher-student interactions and teachers’ ability to proactively address student problems (Epstein et al., 2008; Wubbels et al., 2015). In 2008, Epstein and colleagues published a practice guide on decreasing problematic behavior in the classroom. Based on classroom studies, the authors pointed out that effective classroom management practices have moderate to strong effects on reducing disruptive or off-task behaviors (e.g. Lohrmann, & Talerico, 2004; Newcomer & Lewis 2004; Sutherland, Adler, & Gunter, 2003) and promoting academic engagement (e.g. Dunlap, 1994; Nelson, Johnson, & Marchand-Martella, 1996). In contrast, research results demonstrate that when ineffective classroom management practices are implemented, not only does incidence of students’ disruptive behavior maintain or increase, their academic achievement might also be impaired (Kern, Delaney, Clarke, Dunlap, & Childs, 2001; Lewis, Romi, Qui, & Katz, 2005). Indeed, when teachers spend a significant amount of time on students’ disruptive behavior, their class instruction is likely to be interrupted, which might have a negative impact on students’ academic performance (Reinke, Stormont, Herman, & Newcomer, 2014; Simonsen et al., 2013; Simonsen et al., 2014; Stronge, Ward, & Grant, 2011). Therefore, to effectively increase students’ academic engagement and decrease their disruptive
behaviors, teachers are encouraged to adopt and implement classroom management practices that are evidence-based (Epstein et al., 2008).

**Evidence-based classroom management strategies.** Given the impact of classroom management on student behaviors, teachers need to incorporate effective classroom management strategies into their daily practice (Mitchell, Hirn, & Lewis, 2017). Systematic literature reviews have identified evidence-based classroom management strategies that can improve student behavior (Simonsen et al., 2008; Simonsen et al., 2014). Simonsen et al. (2008) categorized these practices into five critical features of classroom management, including (a) maximizing structure and predictability (i.e., arranging physical environment and class activities to decrease distraction); (b) posting, teaching, reviewing, monitoring, and reinforcing expectations (i.e., establishing classroom expectations and reinforcing the expectations); (c) actively engaging students in observable ways (i.e., providing students with opportunities to participate in class activities); (d) using a continuum of strategies to acknowledge appropriate behavior (i.e., reinforcing students’ expected behaviors); and (e) using a continuum of strategies to respond to inappropriate behavior (i.e. addressing students’ inappropriate behavior with various strategies such as error correction and response cost). Informed by the research findings, the U.S. Office of Special Education Programs has published a guide that can be used as initial training material for teachers to learn about the practices (Simonsen et al., 2015). This document lists three types of classroom interventions and supports: (a) foundations, which include strategies such as arranging physical environment as well as establishing and reinforcing predictable classroom routines and expectations; (b) prevention strategies, which are used to increase students’ expected behavior as well as to prevent problem behavior, including active supervision, prompts, opportunities to respond, contingent praise, and precorrections; and (c) response strategies, which are used to
address students’ inappropriate behavior, including specific corrections, planned ignoring, providing differential reinforcement, and using response cost (Simonsen et al., 2015).

*Classroom management practices in alternative education settings.* Researchers have pointed out the need for implementing evidence-based classroom management practices in alternative settings (Farkas, Simonsen, Migdole, Donovan, Clemens, & Cicchese, 2012; Flower, McDaniel, & Jolivette, 2011; Miller, George, & Fogt, 2005; Saborine & Pennington 2015; Simonsen & Sugai, 2013). To support students with more severe behavioral challenges, these settings typically have a lower staff-to-student ratio as well as more intensive student supports and progress monitoring (Fallon & Feinberg, 2017). In a review by Saborine and Pennington (2015), when teachers implemented evidence-based classroom management practices in these settings, such as differential reinforcement, group contingency, or response cost, students engaged in fewer problem behaviors. However, most of the practices described in this review target individual students rather than the whole class. Simonsen and Sugai (2013) described the use of class-wide evidence-based practices for students with higher risk behaviors. The authors suggested the integration of social skills instructions as well as student recognition systems in the classrooms within alternative settings. As students in these settings are at higher risk for challenging behavior, the authors also pointed out that intensified classroom management practices, such as providing additional prompting, may be needed. However, research on effective classroom management practices in these settings remains limited (Flower, McDaniel, & Jolivette, 2011). Also, as aforementioned, past research has mostly focused on individualized, behavioral responsive strategies instead of classwide preventative ones (Flower et al., 2011; Saborine & Pennington 2015), warranting more investigation on the potential effectiveness of simple, preventative classroom management practices in these settings.
Prompts for student behavior as a classroom management practice. Compared to reactive classroom management practices, preventative strategies can be used to quickly prevent problem behavior as well as shape the environment that triggers problem behavior (Kern & Clemens, 2007). As a prevention strategy, teachers’ prompts can be defined as “reminders that are provided before a behavior is expected that describes what is expected” (Simonsen et al., 2015, p. 14). Prompts have been utilized as a strategy to increase students’ target behaviors and have many forms, such as visual, gestural, modeling, and physical guidance (Fallon et al., 2018; Simonsen & Myers, 2015). The functional relations between prompts as a classroom management practice and students’ behaviors have been established in previous studies (Ennis, Royer, Lane, & Griffith, 2017; Faul et al., 2012). DePry and Sugai (2002) investigated the effectiveness of an intervention package that included teacher prompting, active supervision, and daily data review on student behavior. The results indicated an effectiveness of this package on decreasing students’ minor behavioral incidents. In another study by Gena (2006), the researcher increased the social initiations by students with autism and their responding to peer initiations through the combination of social praise and prompting provided by shadow teachers. Wilder and Atwell (2006) further explored the stand-alone effects of prompts provided by parents, instructional assistants, or research assistants on students’ compliant behavior in a multiple baseline across participant study. The results suggested that although two students needed more support, four of six students responded to the prompts and increased compliant behavior. With a single-subject alternating treatment design, Faul and colleagues (2012) examined teacher-delivered prompting as a stand-alone strategy to reduce two students’ off-task behavior in general education. Through alternating treatment design, the researchers showed that the students engaged in less off-task behavior when prompting was provided. Overall, these studies have
supported the use of prompts as a classroom management practice to promote students’
performance in class.

**Implementation of classroom management practices.** Despite the development,
evaluation, and dissemination of evidence-based classroom management strategies, many
teachers struggle to implement these practices with adequate treatment fidelity (Long et al, 2018;
Sanetti et al., 2018; VanLone, 2018). For example, even after teachers receive didactic training
that involves verbal description about introduced practices, they may still engage in the practices
with insufficient or variable fidelity (Collier-Meek, Fallon, & DeFouw, 2017; Sterling-Turner,
Watson, & Moore, 2002; Sterling-Turner, Watson, Wildmon, Watkins, & Little, 2001). In fact,
without continuing implementation supports, after the first weeks of intervention
implementation, many teachers’ treatment fidelity usually declines and becomes unstable
(Collier-Meek et al., 2013; Mouzakitis, Coddin, & Tryon, 2015; Gilbertson, Witt, Singletary, &
VanDerHeyden, 2007). In other words, although teachers may gain knowledge through didactic
training, one-time training might not be effective as expected for long term fidelity (Joyce &
Showers, 2002; Reinke, Stormont, Herman, & Newcomer, 2014).

**Implementation of preventative classroom management practices in alternative
settings.** For teachers in alternative education settings, implementing preventative classroom
management practices with fidelity may be particularly challenging as their training focuses
more on reactive strategies (Byrne, 2015; Oliver & Reschly, 2010). Empirical research on this
topic has been limited, but baseline data from a few studies have suggested that teachers in these
settings need further support regarding providing preventative practices (Byrne, 2015; Dufrene,
**Treatment fidelity and student outcomes.** Insufficient fidelity in classroom management practices is problematic due to the documented association between fidelity and student outcomes (e.g. Burke, Oats, Ringle, Fichtner, & DelGaudio, 2011; Long et al., 2018; Rathel, Drasgow, Brown, & Marshall, 2013; Reinke et al., 2008). In a multiple-baseline design study that examined the effects of implementation support on teachers’ implementation of classroom management practices and student disruptive behaviors, results showed that all classrooms had lower rates of teacher praise and higher occurrences of student disruptive behaviors until implementation support was introduced (Reinke et al., 2008). Long and colleagues (2018) also showed that when teachers’ fidelity of classroom management practices was insufficient, class disruptions persisted. In terms of the relation between treatment fidelity and students’ academic performance, lower frequency of specific praise along with lower student academic engagement were also documented before participating teachers started to receive implementation supports (Rathel et al., 2013).

**Fidelity of prompts for student behavior.** Studies have shown that frequent prompts are more effective for increasing on-task behavior among students with severe intellectual disability (e.g. Lancioni, Dijkstra, O'Reilly, Groeneweg, & Van den Hof, 2000; Lancioni et al., 2001). The researchers in these studies compared the effects of frequent prompts (i.e., prompts delivered at 30 s intervals) and nonfrequent prompts (i.e., prompts delivered 1.5-2 min intervals) on participants’ percentages of correct task steps and on-task behavior. Across these two studies, most participants increased on-task behavior and completed higher percentages of correct task steps when they received more frequent prompts. In another study by Falcomata, Ringdahl, Christensen, and Boelter (2010), when compared to less frequent prompts (rate = 0.2 prompts per min), frequent prompts (rate = 2.0 prompts per min) led to higher response from an individual
with disabilities. Although there is no systematic review or meta-analysis of ideal rates of prompts for target behavior, these studies indicate higher rates (e.g. rate = 2.0 prompts per min) lead to higher occurrence of target behaviors compared with lower rates of prompts (e.g. rate = 0.2 prompts per min).

In addition to the rate of verbal prompts, the guide published by the U.S. Office of Special Education Programs (Simonsen et al., 2015) also specifies key components of prompting. First, the prompts need to be delivered prior to the occurrence of target behavior. Second, the target student(s) needs to recognize and comprehend the prompts. Third, when a prompt is delivered, the students need to detect the delivery. Fourth, the prompts need to be specific and explicit to the target behavior. More specifically, even when a verbal prompt is presented before target behavior, to be a quality prompt, it needs to be (a) understandable; (b) observable; and (c) specific and explicit to student(s).

**Need for ongoing, feasible implementation supports.** In recognition of implementation issues teachers encounter, researchers have developed a number of ongoing strategies that can be used to support the implementation of classroom management practices (Sanetti & Collier-Meek, 2015). The increasing number of implementation strategies has led to the question regarding strategy selection and application (Simonsen et al., 2013; Sanetti & Collier-Meek, 2015). Among current implementation strategies, performance feedback is an intensive implementation strategy that has received a large amount of research scrutiny (Cavanaugh, 2013; Fallon, Collier-Meek, Maggin, Sanetti, & Johnson, 2015; Sanetti & Collier-Meek, 2015). However, research has shown that the levels of support each teacher needs vary, as some teachers may only need low-to-moderate-intensive implementation supports (Sanetti & Collier-Meek, 2015; Simonsen & Myers, 2015). Furthermore, implementation support providers such as school psychologists have
reported in a national survey that they usually do not have enough time to provide intensive supports (Cochrane & Laux, 2008). Of the developed implementation support strategies, few have been categorized as low intensity (Sanetti & Collier-Meek, 2015). The development and evaluation of ongoing, more feasible implementation supports is therefore warranted (Collier-Meek, Fallon, & DeFouw, 2013; Reinke et al., 2014).

**Emailed Prompts**

**Theoretical base of prompting as an implementation support.** Collier-Meek and colleagues (2017) propose a behavioral analytic framework for conceptualizing treatment fidelity and how it can be supported. In this framework, treatment fidelity is an implementation behavior that is occasioned by antecedents and maintained by consequences. Through the lens of applied behavior analysis (ABA), as an antecedent strategy, prompting is a proactive implementation support strategy for class-wide interventions (Fallon et al., 2018). As aforementioned, in the ABA framework, prompts refer to “supplementary antecedent stimuli used to occasion a correct response in the presence of a discriminative stimulus that will eventually control the behavior” (Cooper, Heron, & Heward, 2007, p. 417). In other words, prompts can be viewed as an antecedent strategy to remind recipients to engage in the desired behaviors, which also includes teachers’ implementation behavior (Fallon et al, 2018).

**Evidence of prompting as an implementation support.** Evidence has accumulated on the effectiveness of using prompts as an implementation support in educational settings. In previous studies, when prompts were incorporated in packages with other implementation supports, teachers’ treatment fidelity increased (Petscher & Bailey, 2006; Simonsen et al., 2014). Petscher and Bailey (2006) examined the effects of an intervention package that includes prompts from a pager, self-monitoring, and feedback on teachers’ implementation of a token
economy. Although the intervention package improved intervention implementation across participants, the isolated effect of prompting was not clear, as the prompts were removed after the teachers’ fidelity stabilized. In another study, Simonsen et al. (2014) examined the effects of training, self-monitoring, self-management, and weekly emailed prompts on teachers’ use of specific praise. Prompts were introduced with self-management when the use of training and self-monitoring as Tier-1 supports did not increase the participants’ specific praise rate. For teachers who received prompts and self-management, their specific praise rates increased. However, as in the Petscher and Bailey (2006) study, the specific effects of prompts were not examined in this study. In their conclusion, Simonsen et al. (2014) indicated the need for researching implementation approaches that are effective, efficient, and socially valid for the implementation of classroom management. Results from both studies warrant future research about the isolated effects of prompting on teacher behavior.

**Emailed prompts as a stand-alone implementation support.** Based on the theoretical foundation and evidence of using prompts to support teachers’ implementation behaviors, researchers have isolated prompts as an implementation support, with a focus on its effectiveness on teachers’ implementation behaviors (Collier-Meek, Fallon, & DeFouw, 2013; Fallon et al., 2018). In these studies, effects of emailed prompts following didactic training on the implementation of the Good Behavior Game were examined. The researchers first used didactic training to increase the participating teachers’ knowledge and skills of delivering the intervention. After receiving didactic training, when teachers’ fidelity levels were low, they started to receive daily, automated emailed prompts that included a time-stamped read receipt, a reminder of intervention steps, and a quick guide on how to implement the Good Behavior Game. Results from these studies indicated that upon receiving emailed prompts, most
participating teachers increased their treatment fidelity of the intervention. In addition, Collier-Meek and colleagues (2017) also evaluated the effectiveness of daily emailed prompts on teachers’ delivery of two responsive behavioral strategies, praise and corrective statements. The results indicated an effect of emailed prompts on the implementation behaviors demonstrated by two of three teachers. In terms of the social validity of the implementation support, the teachers rated emailed prompts as acceptable and feasible (Collier-Meek et al., 2017; Collier-Meek et al., 2018), which further indicated the potential of emailed prompting as a feasible implementation support strategy. These studies indicate the potential of using emailed prompts to improve teachers’ adherence and quality of classroom management strategies.

Examining emailed prompts to improve classroom management practices. As discussed above, a feasible and ongoing support is needed for the implementation of classroom management practices. At the time of this research proposal, only two published studies have investigated the stand-alone effects of emailed prompts as an implementation support (Collier-Meek et al., 2017; Fallon et al., 2018). These studies focused on teachers’ implementation of the Good Behavior Game as well as responsive behavioral strategies and indicated future directions of examining the effectiveness of emailed prompts on other educational practices. Given the importance of classroom management, further research is needed to examine the effects of emailed prompts on teachers’ implementation of other evidence-based classroom management practices.

Statement of Purpose

Treatment fidelity is critical in the implementation of evidence-based classroom management practices (Kennedy, Hirsch, Rodgers, Bruce, & Lloyd, 2017; Sanetti et al., 2018). Multiple implementation supports have been developed to improve educators’ treatment fidelity
to classroom management practices (Sanetti & Collier-Meek, 2015; Simonsen et al., 2014). However, there remains a need for investigating the effectiveness of feasible implementation supports. In previous studies, emailed prompts improved teachers’ treatment fidelity to the implementation of classwide behavioral interventions, including the Good Behavior Game as well as responsive behavioral strategies (Collier-Meek et al., 2017; Fallon et al., 2018). The purpose of this study was to examine the effect of emailed prompts, a feasible and continuous implementation support, on one classroom management strategy, teachers’ verbal prompting for student behavior. Student outcomes and social validity of emailed prompts were examined.

**Research Questions and Hypotheses**

**Research question 1.** Will emailed prompts increase teachers’ rate of verbal prompts?

**Hypothesis 1.** Teachers’ rate of verbal prompts will increase after they are provided with emailed prompts.

**Research question 2.** Will emailed prompts increase teachers’ quality of verbal prompts?

**Hypothesis 2.** Teachers’ quality of verbal prompts will increase after they are provided with emailed prompts.

**Research question 3.** Will observer ratings of students’ academic engagement increase after emailed prompts are introduced?

**Hypothesis 3.** As the rate and quality of teachers’ verbal prompts increase, observer ratings of students’ academic engagement will increase.

**Research question 4.** Will observer ratings of students’ disruptive behavior decrease after emailed prompts are introduced?

**Hypothesis 4.** As the rate and quality of teachers’ verbal prompts increase, observer ratings of students’ disruptive behavior will decrease.
Research question 5. Will teachers rate emailed prompts as a socially valid support for improving their delivery of verbal prompts?

Hypothesis 5. Teachers will rate emailed prompts as a socially valid support for improving their delivery of verbal prompts.
Chapter III: Methods

Participants

This study was conducted in the Northeast region of the United States of America. The setting was a school that provides academic and life skills training for students between 3-and-21-years-old with autism spectrum disorders and/or other diagnoses, such as seizure disorders, identified genetic syndromes, and metabolic disorders. The researcher received permission from the school district to contact the student at the school. The University of Connecticut’s Human Subjects Institutional Review Board approved the study procedures before the researcher started to recruited participants. Participants were three school teachers and their classes. Each classroom included include 5-10 students between 10-and-18-years-old. Most students received one-to-one paraprofessional support. An adapted Teacher Demographic Form (Sanetti & Long, 2012) was used to obtain information regarding the teachers’ demographic information (See Appendix C). Classroom demographic information can be found in Table 1.

All three teachers identified themselves as female and White American. None of the teachers identified themselves as Hispanic or Latino. Teacher A was 51 years old and had 27 years of teaching experience. She had a Master’s/Specialist degree and teaching certifications in general and special education. During her teacher preparation program, she completed a course and received supervision to implement research-based classroom and behavior management strategies. Since beginning teaching, she has had spent at least 10 days in formal professional development activities related to classroom and behavior management strategies. She indicated that her participation in the activities has improved her ability to effectively implement the strategies. Her classroom, hereafter referred to as Classroom A, contained 8 students and there were eight paraprofessionals or additional teachers to support students.
Teacher B was 32 years old and had five years of experience teaching. She had a B.A./B.S. degree and teaching certifications in special education. During her teacher preparation program, she did not complete any courses devoted entirely to classroom management and did not receive supervision on implementing classroom or behavior management strategies. Since she began to teach, she has spent at least five days in formal professional development activities related to classroom and behavior management strategies. She indicated that her participation in the activities has improved her ability to effectively implement the strategies. Her classroom, hereafter referred to as Classroom B, contained six students and, on average, five paraprofessionals or additional teachers to support students.

Teacher C was 58 years old and had 36 years of teaching experience. She had a Master’s/Specialist degree and teaching certifications in general and special education. During her teacher preparation program, she received information about classroom management as part of other course(s), but she did not receive supervision or adequate information about effectively implementing research-based classroom and behavior management strategies. Since beginning teaching, she has had spent at least 10 days in formal professional development activities related to classroom and behavior management strategies. She indicated that her participation in the activities has improved her ability to effectively implement the strategies. Her classroom, hereafter referred to as Classroom C, contained six students and between two and four paraprofessionals or additional teachers to support students. Students in all three classrooms receive special education services.

**Consultant and Data Collectors**

The researcher of this study served as a consultant for the participating teachers. The researcher and a graduate student from school psychology collected data for this study. The data
collectors in this study completed training in the study procedure, direct observation, and verbal prompting prior to consultation and data collection. The researcher and the data collector completed inter-observer agreement (IOA) for classroom observations before and during data collection.

**Measures and Materials**

As in previous studies that examined the effectiveness of emailed prompts on classroom management practices (Collier-Meek et al., 2017; Fallon et al., 2018), two levels of independent variables were included in this study: (a) consultant’s emailed prompts for teacher implementation behaviors and (b) teachers’ delivery of verbal prompts for student behaviors. The dependent variables were (a) teachers’ rate and quality of verbal prompts; (b) students’ academic engagement and disruptive behavior; and (c) social validity. Procedural fidelity of this study was also documented.

**Direct observation of teacher verbal prompts.** Prior to data collection, the consultant first identified class activities for observation sessions. Based on the information, direct observation occurred during these class activities two to three times per week. To follow What Works Clearinghouse standards for inter-observer agreement in single case design studies (Kratcochwill et al., 2010), two data collectors conducted direct observation together at least 20% of each phase. The data collectors observed the teachers’ delivery of verbal prompts with an event recording procedure for 15 minutes that was divided into 15 1-min intervals to estimate the rate and quality of the prompts. Most observation sessions \( n = 34 \) were 15 min long. Six sessions were less than 15 min (four were 14 min; 1 was 13 min, and 1 was 12 min). When a participating teacher ended a session earlier due to change of schedule or when a student left the classroom during an observational interval, only the intervals during the session were included in
analyses. The occurrence of verbal prompts in this study was only recorded when participating teachers verbally provided the class or individual students with (a) reminders of classwide expectations or rules, e.g. “Johnny, remember to use quiet voice when other people are answering the questions” or (b) reminders that were consistent with classwide expectations, e.g. “Remember to raise your hand if you want my attention.” Other antecedent strategies such demands, instructions, choices, and opportunities to respond were not recorded as verbal prompts in this study.

To train the data collector on the delivery and documentation of verbal prompts, the researcher used a Verbal Prompting Training Protocol (Appendix B). The form included key components adapted from the U.S. Office of Special Education Programs guide (Simonsen et al., 2015) as well as examples and non-examples of verbal prompts defined in this study. A Systematic Direct Observation Form (Appendix D) was used to document teachers’ delivery of the verbal prompts, i.e. rate and quality of the prompts. The form had been adapted from unpublished measures on the implementation of classroom management practices (Sanetti, Collier-Meek, & Kratochwill, 2013; Sanetti, Long, & Kratochwill, 2012a; Sanetti, Long, & Kratochwill, 2012b).

Rate. In this study, data collectors used the Systematic Direct Observation Form (Appendix C) to record the frequency of verbal prompts provided by participating teachers. The data collectors tally marked the occurrence of the prompts in each 1-min interval. After each observation session, the researcher calculated the rate of the prompts by dividing the total occurrences by the number of minutes of the session. For example, if the teacher delivered 21 prompts during the 15-minute observation session, the rate would be 1.4 prompts per minute.
Quality. In line with the U.S. Office of Special Education Programs guide (Simonsen et al., 2015), the observers measured the quality of prompt delivery by documenting whether the prompts were (a) understandable; (b) observable; and (c) specific and explicit to student(s). The observers manually marked the quality under each prompt occurrence on the Systematic Direct Observation Form. Each quality indicator was worth one point. After each observation session, the researcher divided the points by the occurrence of prompts in the observation session to calculate the averaged quality of prompting occurred in the session. For example, if a participating teacher delivered 15 verbal prompts and obtained a total of 33 points on the quality domain in an observation session, she would receive 2.2 (33 divided by 15) quality points for the session. Additionally, the percentage of prompts that were rated a 3, 2, and 1 for each observation was documented to provide another metric of variation across observation sessions.

Direct observation of student behaviors. To answer the second research question about student outcomes, students’ academic engagement and disruptive behavior were also documented. Student behaviors were recorded on the Systematic Direct Observation Form using momentary time sampling. Students were observed in a fixed order across seats, e.g. first student in first row and then second student in first row, etc. (Briesch, Hemphill, Volpe, & Daniels, 2014). Two or three times a week, data collectors directly observed the students with a momentary time sampling procedure for 15 min that was divided into 15-sec intervals to estimate the percentages of intervals students’ academic engagement and disruptive behaviors. Following the procedure of momentary time sampling (Hintze, Volpe, & Shapiro, 2002), at the end of each interval, data collectors used the Systematic Direct Observation Form to note if the target student was academically engaged or engaging in disruptive behavior. The definitions of academic engagement and disruptive behavior are adapted from Direct Behavior Rating Single Item Scales.
by Chafouleas and colleagues (2010). Academic engagement was defined as students’ active or passive participation in classroom activities, such as listening to the teacher, silently looking at activity material, answering questions, or discussing activity-related content. Disruptive behavior was defined as behaviors that interrupt classroom activities, such as leaving seat, interrupting other students, engaging in aggressive behaviors, and commenting on things that were unrelated to the classroom activities.

**Audio recording of teacher verbal prompts.** In addition to the observation form, the data collectors also audio-taped the observation sessions. After the sessions, the researcher used the audio clips to verify data collectors’ documentation of teacher verbal prompt for reliability.

**Interobserver agreement (IOA).** Data collectors practiced with video clips about teachers’ (a) rate and quality of verbal prompts as well as (b) students’ academic engagement and disruptive behavior. The data collector reached 90% of IOA with the researcher’s rating before on-site data collection.

During on-site data collection, a second rater was present for an average of 40.91% in baseline phase observations (Teacher/Classroom A = 50.00%, Teacher/Classroom B = 28.57%, Teacher/Classroom C = 45.56%), 25.00% of didactic training phase observations (Teacher/Classroom A = 20.00%, Teacher/Classroom B = 25.00%, Teacher/Classroom C = 33.33%), and 50.00% of emailed prompts phase observations (Teacher/Classroom A = 50.00%, Teacher/Classroom B = 50.00%), for an average of 37.50% across all study phases and teachers/classrooms (see Table 3).

As the data were recorded in 1-min intervals for teacher behavior, the associated IOA was calculated using a mean count-per-interval procedure (Cooper et al., 2007). In this procedure, the sum of IOA across all intervals was divided by the total number of observation
intervals. Across all teachers, the mean level of agreement for prompt rate was 98.33% during baseline phase observations, 100.00% during didactic training phase observations, and 100.00% during emailed prompts phase observations. The mean level of agreement for prompt quality was 97.50% during baseline phase observations, 100.00% during didactic training phase observations, and 100.00% during emailed prompts phase observations (see Table 4).

Given that the data for student behaviors was recorded with momentary time sampling, the IOA for student behavior data were calculated using an interval-by-interval procedure (Cooper et al., 2007). More specifically, the researcher divided the number of intervals in which both data collectors agreed on the occurrence of the target behavior by the number of observation intervals that involved both data collectors. Across all classrooms, the mean level of agreement for academic engagement was 91.11% during baseline phase observations, 91.11% during didactic training phase observations, and 88.10% during emailed prompts phase observations. The mean level of agreement for disruptive behavior was 97.41% during baseline phase observations, 95.00% during didactic training phase observations, and 96.43% during emailed prompts phase observations (see Table 4).

**Social validity.** To answer the fifth research question about whether the participants viewed verbal prompting, didactic training, and emailed prompts as socially valid, the teachers completed a social validity form (Appendix E) adapted from the Usage Rating Profile- Intervention Revised (Briesch, Chafouleas, Neugebauer, & Riley-Tillman, 2013). Four out of six domains from the URP-IR were used to assess the social validity of verbal prompts, including the implementer’s acceptability, understanding, feasibility, and system support, as these domains are relevant to prompt delivery in the classroom. The validation study of the subscales has shown internal consistency reliabilities ($\alpha = .85 - .96$) and validity evidence (Briesch et al., 2013). As
the original URP-IR measures only the social validity of teachers’ verbal prompts in this study, additional items adapted from unpublished measured in the study by Collier-Meek and colleagues (2017) were added to evaluate the social validity of emailed prompts and didactic training.

Procedural fidelity. Consultation checklists were used during initial meetings prior to implementation support (Appendix F) and didactic training meetings with participating teachers (Appendix G). These forms were filled out by the consultant. The dissemination of emailed prompts was documented through Boomerang for Gmail. As Table 9 shows, the procedural fidelity was 100% across the meetings.

Design

The researcher obtained approvals from the Institutional Review Board at the University of Connecticut and consent from the school before conducting this study. To examine the effect of emailed prompts on teacher treatment fidelity and student outcomes, an A-B-C multiple baseline across participants design was used in this study. Three phases were included in this design: (a) baseline (teacher prompt baseline and student outcome baseline); (b) didactic training on verbal prompts; and (c) emailed prompts. All participating teachers were randomly assigned to baseline order. The sequence of participants’ entry to didactic training and emailed prompts phases was staggered. At baseline, each teacher’s use of verbal prompting as well as students’ behavior were documented without any implementation support. After three to five data points were collected during baseline, the participants started to receive didactic training on the delivery of verbal prompting in a staggered fashion. When the participant’s rate was below 2.00 prompts per minute across three data points, emailed prompts was introduced sequentially to each
participating teacher. The criteria of 2.00 prompts per minute was selected based on previous studies (Lancioni et al., 2000, 2001).

Procedures

**Pre-baseline.** The Pre-baseline phase included observer training and teacher recruitment.

**Observer training.** The researcher provided training about the study procedure, the observation form, and prompting to the data collector in one training session. The researcher first introduced the study procedure to the data collector and use the Verbal Prompting Training Protocol to provide the definitions (Appendix C) and examples of verbal prompts the data collectors need to document. The researcher also provided the Systematic Direct Observation Form (Appendix D) to the data collector to train her on the data collection of teacher and student behaviors. To conclude the training, the data collector used three to five classroom videos to practice data collection. To conclude the meeting, additional three to five classroom videos were used for IOA measure. The data collector reached 90% of IOA with the researcher’s rating before on-site data collection.

**Recruiting.** The researcher met with a school psychologist at the participating school to determine potential participating teachers. After a list of potential participants was determined, the researcher recruited three teachers in this study. To be screened into the study, the participating teachers would need to have established classroom rules or expectations. Classrooms that did not have expectations or rules in place were not recruited. The researcher first met with each participating teacher at pre-baseline meeting to explain the purpose of this study, obtain teacher consent, disseminate parent notification forms, and schedule following meetings and observation times. Participating teachers received a Teacher Demographics Form (Appendix A), which included the teachers’ demographics information. The teachers completed
most of the questions outside the meeting except for a question regarding their current classroom
rules or expectations (Appendix B), which was completed during the meeting. After the
researcher collected the forms, the researcher sent the teachers an email to verify if the teachers
needed to add or edit information regarding their classroom rules or expectations.

Each teacher provided information about their classroom expectations or rules. In
Classroom A, the expectations were (a) use your words; (b) quiet voice; (c) eyes watching; and
(d) body still. In Classroom B, the expectations were (a) respect property; (b) have safe hands
and feet; (c) do your best; and (d) follow directions. In Classroom C, the expectations were (a) be
a nice friend; (b) have safe behavior; (c) walk in the classroom and hallway; (d) accept feedback;
and (e) wait patiently. For each classroom, the researcher collaborated with the teachers to
develop examples and non-examples for the expectations. The list of classroom expectations is
presented in Table 2.

As participating students received individualized educational supports from
paraprofessionals most of the day, the researcher identified activities that would last at least 15
minutes in which the teachers provided classwide instructions, which were used to schedule
consistent observation times for each teacher throughout the study. Teacher A and Teacher B
were observed during their morning meetings. Teacher C was observed during her math sessions
in the morning.

Baseline. During baseline, data collectors started collecting student behavioral data and
documenting the teachers’ usage of verbal prompts two to three times a week. The consultant did
not provide any information regarding effective classroom management to the teachers at this
phase. Based on previous research (Lancioni et al., 2000, 2001), teachers who provided students
with verbal prompts below a rate of 2.0 times per minute during this phase would receive
didactic training in the next phase. Teachers who provided verbal prompts at or above a rate of 2.0 times per minute were screened out of this study and would receive the guide by Simonsen et al. (2015) at the end of the study. All participating teachers entered the didactic training phase.

**Didactic training.** To ensure that each participating teacher understood how to deliver verbal prompts that were aligned with expected behaviors for the class and individual students, after baseline, the consultant provided each teacher with didactic training about verbal prompts in a staggered fashion. The teachers received Appendix C regarding the delivery of verbal prompts, adapted from the U.S. Office of Special Education Programs guide (Simonsen et al., 2015). The training lasted between 10 and 30 min (Teacher A = 27 min; Teacher B = 17 min; Teacher C = 10 min). The procedure of the training is provided in Appendix C. After the training, data collectors started observing the teachers’ implementation of the practices in class for treatment fidelity data (i.e., rate and quality of verbal prompt delivery) two to three times a week. Student behavior data continued to be collected through direct observation two to three times a week for 15 min. Based on previous research (Lancioni et al., 2000, 2001), teachers who provided students with verbal prompts below a rate of 2.00 per minute during this phase would receive emailed prompts. Teachers who provided verbal prompts at or above a rate of 2.0 times per minute would continue to be observed throughout the study. Teacher A and Teacher B entered the emailed prompts phase. Although Teacher C was eligible for the emailed prompts phase, she did not enter the phase because the participating school was closed due to the outbreak of the COVID-19.

**Emailed prompts.** As in previous studies (Collier-Meek et al., 2017; Fallon et al., 2018), this study examined the effectiveness of emailed prompts on teachers’ treatment fidelity (i.e. rate and quality of verbal prompts). After data were collected during the didactic training phase,
emailed prompts were introduced in a staggered manner. Two teachers received an automated prompt about verbal prompts Monday through Friday at 7 am. As shown in Emailed Prompt Examples (Appendix H to Appendix K) that were adapted from previous studies (Collier-Meek et al., 2017; Fallon et al., 2018; Simonsen & Freeman, 2014), the emailed prompts included randomized reminders of using frequent prompts, how to deliver verbal prompts, key components, examples and non-examples. Examples and nonexamples of verbal prompting were adapted according to each teacher’s classroom rules or expectations. An introductory email prompt (Appendix L) was provided when participating teachers entered this phase.

Preprogramed emails with a read-receipt stamp were sent to the participants daily through Boomerang for Gmail in the morning. After the participants open the e-mail, the researcher received a read-receipt to document the percentage of teachers’ opening the emailed prompts. Data collectors conducted direct observations on student behavior and teachers’ treatment fidelity two to three times per week during this phase. Four data points were collected for Teacher B and two data points were collected for Teacher A before the school was closed. According to the read-receipts, Teacher A’s fidelity to opening the emails was 50.00%. Teacher B’s fidelity to opening the emails was 100%. Due to the low fidelity for Teacher A to opening the emailed prompts, the researcher reached out to ask if she had received the emails. Teacher A reported to have received all the emails and read them. After data collection was discontinued due to school shutdown, social validity was measured with the URP-IR.

Analysis

**Treatment fidelity and student outcomes.** Visual analysis was conducted to determine the effectiveness of emailed prompts on the participants’ treatment fidelity and the classroom outcomes (Kratochwill et al., 2010). Improvement Rate Difference (IRD; Parker, Vannest, &
Brown, 2009) was used to evaluate the effect size of didactic training and emailed prompts. IRD was calculated as treatment point that exceeded all points in baseline deducted by baseline point that equaled or exceeded any point in the intervention phase, i.e. emailed prompting phase (Parker et al., 2009). As research has indicated, IRD “can be used to help judge performance change over a series of three or more AB contrasts” (Parker et al., 2009, p. 147), which fits the design of this study. IRD has adequate correlations with other effect size indicators, such as Pearson’s $R^2$ and percent non-overlapping data (PND), and higher discriminability compared to PND. For interpretation of IRD, a value above .70 is interpreted as highly effective, between .50 and .70 is moderately effective, and a value below .50 suggests a small effect.

**Social validity.** Descriptive statistics of social validity data generated with the adapted URP-IR form are presented (see the Results section).
Chapter IV: Results

The results of this study are presented in this section. Visual analysis, descriptive data, and effect size estimates are provided to answer the research questions. There are three types of dependent variables, including teacher outcomes, class outcomes, and social validity. Unfortunately, due to the outbreak of COVID-19, only two datapoints were collected for Teacher B in the emailed prompts phase. In addition, despite the need for emailed prompts, Teacher C did not receive emailed prompts before the school was closed.

Teacher Outcomes

**Research question 1. Will emailed prompts increase teachers’ rate of verbal prompts?** Based on previous literature regarding emailed prompting (Collier-Meek et al., 2017; Fallon et al., 2018), it was hypothesized that emailed prompts would increase teachers’ rate of verbal prompt delivery. The results are presented in Table 5. Visual analysis of teachers’ rate of verbal prompt delivery is presented in Figure 1. because Teacher C did not receive any emailed prompts prior to school shutdown, no data are provided in the emailed prompts phase for Teacher C.

**Teacher A.** During baseline, Teacher A delivered verbal prompts at an average rate of 0.47 times per minute ($SD = 0.16$, range = 0.33-0.60). During the didactic training phase, she delivered verbal prompts at an average rate of 0.41 times per minute ($SD = 0.25$, range = 0.40-0.73). During the emailed prompts phase, she delivered verbal prompts at an average rate of 0.54 times per minute ($SD = 0.22$, range = 0.40-0.73). As seen in Figure 1, visual analysis did not show clear changes in level or variability between the baseline phase and the didactic training. More specifically, although there was an immediate increase in level following the training, a decreasing trend followed within the didactic training phase, resulting in a negative effect size
(IRD = -0.80). There was no clear level change between the didactic training phase and the emailed prompts phase, either (IRD = -0.35). However, whereas a decreasing trend of rate was shown within the didactic training phase, a more stable trend was shown within the emailed prompts phase.

**Teacher B.** During baseline, Teacher B delivered verbal prompts at an average rate of 0.04 times per minute ($SD = 0.05$, range = 0.00-0.13). During the didactic training phase, she delivered verbal prompts at an average rate of 0.15 times per minute ($SD = 0.05$, $SD = 0.06$, range = 0.07-0.21). During the emailed prompts phase, she delivered verbal prompts at an average rate of 0.49 times per minute ($SD = 0.40$, range = 0.20-0.77). As seen in Figure 1, between the baseline phase and the didactic training phase, visual analysis revealed a minimal change in level and no clear change in trend and variability, with a small effect size (IRD = 0.07). Immediate but minimal changes in level and trend were noticeable between these two phases. In the emailed prompts phase, both the level and trend of her verbal prompt delivery increased, but the effect size between the didactic training phase and the emailed prompts phase remained small (IRD = 0.10). There were larger, immediate changes in trend and level at the beginning of the emailed prompts phase, but due to school closure, no further data points were collected.

**Teacher C.** During baseline, Teacher C delivered verbal prompts at an average rate of 0.06 times per minute ($SD = 0.07$, range = 0.00-0.20). During the didactic training phase, she delivered verbal prompts at an average rate of 0.22 times per minute ($SD = 0.03$, range = 0.20-0.26). There was a minimal change in level between the baseline phase and the didactic training phase, with a small effect size (IRD = 0.24). The variability was low within each phase. There was no overall or immediate change in trend and variability between the two phases.
Research question 2. Will emailed prompts increase teachers’ quality of verbal prompts? It was hypothesized that teachers’ quality of verbal prompts would increase after they were provided with emailed prompts. The results are presented in Table 6. Visual analysis of teachers’ rate of verbal prompt delivery is presented in Figure 2. Due to school shutdown, no data were collected in the emailed prompts phase for Teacher C.

Teacher A. During baseline, Teacher A obtained an averaged of 2.49 quality points per observation session ($SD = 0.61$, range = 1.60-3.00). During the didactic training phase, she obtained an averaged of 2.73 quality points per observation session ($SD = 0.25$, range = 2.33-3.00). During the emailed prompts phase, she obtained an average of 2.67 quality points per observation session ($SD = 0.35$, range = 2.31-3.00). Visual analysis did not show any positive level changes across the baseline phase, didactic training phase (IRD = -0.75), and the emailed prompts phase (IRD = -1.00). Although the first quality point in the didactic training phase and the emailed prompts phase was higher than the last point in the preceding phase (i.e., baseline and the didactic training phase), no immediacy of change in level, trend, or variability was evident (i.e. three data points). In all three phases, downward trends were consistently present.

Teacher B. During baseline, Teacher A obtained an average of 0.93 quality points per observation session ($SD = 1.17$, range = 0.00-2.50). During the didactic training phase, she obtained an average of 2.50 quality points per observation session ($SD = 0.58$, range = 2.00-3.00). During the emailed prompts phase, she obtained an average of 2.90 quality points per observation session ($SD = 0.14$, range = 2.80-3.00). Changes of quality points were evident in level, trend, and variability between the baseline phase and the didactic training phase. Overall, Teacher B obtained higher quality points during the didactic training, but the effect size was small (IRD = 0.07). Visual analysis showed immediate changes of higher level and increasing
trend. It should be noted that Teacher B was at a rate of 0.00 for three data points before she entered the didactic training phase, which likely inflated the changes. There were no overall or immediate changes between the didactic training phase and the emailed prompts phase (IRD = -0.50).

**Teacher C.** During baseline, Teacher C obtained an averaged of 1.00 quality point per observation session ($SD = 1.16$, range = 0.00-2.50). During the didactic training phase, she obtained an average of 2.89 quality points per observation session ($SD = 0.19$, range = 2.67-3.00). Visual analysis showed a clear change in level and variability between the baseline phase and the didactic training phase. Compared to the baseline phase, Teacher C had a higher level and more stable trend of rate in the didactic training phase (IRD = 1.00). An immediate change in level was also shown after Teacher C entered the didactic training phase. However, it should be noted that Teacher C was at a rate of 0.00 for three data points before she entered the didactic training phase, which likely inflated the changes.

In summary, visual analysis suggested that all participating teachers met criteria for implementation supports, as the levels of prompt rate were low. Their prompt quality was also variable. Visual analysis also showed that although most teachers responded to didactic training, the effects were limited. Inconsistent with the research hypotheses, for the limited data points collected, the effects of emailed prompts were minimal in visual analysis, descriptive data, and effect size estimates.

**Classroom Outcomes**

**Research question 3. Will observer ratings of students’ academic engagement increase after emailed prompts are introduced?** It was hypothesized that as the rate and quality of teachers’ verbal prompts increase, observer ratings of students’ academic engagement
would increase. The results are presented in Table 7 and Figure 3. Teacher C did not receive any emailed prompts prior to school shutdown. Therefore, no discussion of students’ academic engagement relative to emailed prompts is provide for Classroom C.

**Classroom A.** During baseline, students in Classroom A were academically engaged for an average of 50.00% of observed intervals (SD = 0.18, range = 3.00%-75.00%). During the didactic training phase, they were academically engaged for an average of 48.24% of observed intervals (SD = 0.12, range = 34.55%-66.67%). During the emailed prompts phase, they were on-task for an average of 59.68% of observed intervals (SD = 0.21, range = 37.04%-85.00%). The levels, trends, and variabilities are similar across all three phases. More specifically, downward trends are consistently seen within each phase. Immediate changes in levels are observed at the beginning of the didactic training phase and the emailed prompts phase. In other words, higher levels (i.e., means) of academic engagement are evident at the beginning these two phases, followed by downward trends within both phases.

**Classroom B.** During baseline, students in Classroom B were academically engaged for an average of 66.69% of observed intervals (SD = 0.05, range = 60.00%-76.67%). During the didactic training phase, students were academically engaged for an average of 71.25% of observed intervals (SD = 0.12, range = 60.00%-87.04%). During the emailed prompts phase, students were on-task for an average of 70.12% of observed intervals (SD = 0.21, range = 61.40%-78.85%). The levels, trends, and variabilities are similar across all three phases. More specifically, increasing trends are consistently seen within each phase. There is no clear overall change in level, trend, or variability across the phases. No immediate change is shown between adjacent phases.
Classroom C. During baseline, students in Classroom C were academically engaged for an average of 84.39% of observed intervals ($SD = 0.09$, range = 66.67%-95.00%). During the didactic training phase, students were academically engaged for an average of 90.56% of observed intervals ($SD = 0.14$, range = 75.00%-100.00%). An immediate level change is observed in the didactic training phase.

Research question 4. Will observer ratings of students’ disruptive behavior decrease after emailed prompts are introduced? It was hypothesized that as the rate and quality of teachers’ verbal prompts increase, observer ratings of students’ disruptive behavior would decrease. The results are presented in Table 8 and Figure 3. Teacher C did not receive any emailed prompts prior to school shutdown. Therefore, no discussion of students’ disruptive behavior relative to emailed prompts is provide for Classroom C.

Classroom A. During baseline, students in Classroom A were disruptive for an average of 10.83% of observed intervals ($SD = 0.06$, range = 1.67%-15.00%). During the didactic training phase for Teacher A, students were disruptive for an average of 18.45% of observed intervals ($SD = 0.11$, range = 6.67%-31.67%). During the emailed prompts phase for Teacher A, students were disruptive for an average of 18.06% of observed intervals ($SD = 0.14$, range = 8.33%-39.89%). Visual analysis reveals similar levels, trends, and variabilities across all three phases. More specifically, increasing trends are observed within all three phases. No immediate change is shown between adjacent phases.

Classroom B. During baseline, students in Classroom B were disruptive for an average of 9.29% of observed intervals ($SD = 0.05$, range = 1.67%-15.00%). During the didactic training phase, students were disruptive for an average of 8.13% of observed intervals ($SD = 0.06$, range = 1.79%-16.67%). During the emailed prompts phase for Teacher A, students were disruptive for
an average of 12.37% of observed intervals ($SD = 0.15$, range = 1.92%-22.81%). The levels, trends, and variabilities are similar across all three phases. There are no clear overall changes in level, trend, or variability across the phases. No immediate change is shown between adjacent phases.

**Classroom C.** During baseline, students in Classroom C were disruptive for an average of 3.18% of observed intervals ($SD = 0.05$, range = 0.00%-15.00%). During the didactic training phase for Teacher C, students were disruptive for an average of 1.67% of observed intervals ($SD = 0.02$, range = 0.00%-3.33%). Visual analysis reveals similar levels, trends, and variabilities across all three phases. More specifically, flat trends are observed within both phases. No immediate change is shown between these two phases.

In summary, visual analysis, descriptive statistics, and effect size estimates did not suggest any evident effects of either didactic training or emailed prompts for teachers on student outcomes.

**Social Validity**

**Research question 5.** Will teachers rate emailed prompts as a socially valid support for improving their delivery of verbal prompts? It was hypothesized that teachers would rate emailed prompts as a socially valid support for improving their delivery of verbal prompts.

As presented in Table 10, the teachers rated verbal prompting as socially valid, with a mean of 5.15 for acceptability ($SD = 0.82$), 5.11 for understanding ($SD = 0.78$), 5.11 for feasibility ($SD = 0.68$), and 3.22 for system support ($SD = 1.20$). The mean of 3.22 for system support indicated that teachers did not perceive a need for support to deliver verbal prompts. Overall, the teachers rated the didactic training as very acceptable ($M = 5.17; SD = 0.75$), very understandable ($M = 5.33; SD = 0.58$), and very feasible ($M = 5.67; SD = 0.58$). They also
reported that they would not need additional support after the training, with a mean of 2.67 ($SD = 1.53$). In terms of emailed prompts, Teacher A and Teacher B rated the implementation as acceptable ($M = 4.75; SD = 0.50$), understandable ($M = 5.00; SD = 0.00$), and feasible ($M = 5.00; SD = 0.00$). Their mean rating on additional support was 4.00 ($SD = 1.42$). Both Teacher A and B indicated that they would require more system support. Teacher C did not receive emailed prompts and did not answer questions regarding this support. Additionally, Teacher A reported that she was concerned about prompt dependency for students with autism, as some of her students could be reliant on her verbal prompts. She also indicated the need to variate the types of prompts she provided in the classroom, such as gestural prompt. Teacher B reported that she just started receiving the emailed prompts and did not have the change to receive more emails. Teacher C reported that as a veteran teacher, she was familiar with verbal prompts. She also pointed out that the didactic training served as a helpful reminder for her to prompt students in her classroom.
Chapter V: Discussion

Over decades, resources have been poured into the development of evidence-based classroom management practices. However, teachers struggle to implement these practices, which significantly limits intervention outcomes (Long et al., 2018; Sanetti et al., 2018). One-time, in-service training has been used to support teachers to implement these practices, but research has shown that this kind of training is mostly ineffective for professional development (Joyce & Showers, 2002). On the other hand, performance feedback, an implementation support that has received research support, requires a large amount of time for consultants and teachers, which may not be feasible in many settings (Fallon et al., 2018). Teachers need implementation supports that are both ongoing and feasible. With an A-B-C multiple baseline across participants design, the researcher evaluated the effects of emailed prompts, a feasible, ongoing implementation support on teachers’ delivery of verbal prompts about their classroom rules and expectations. The participating teachers received a sequence of implementation supports, i.e., didactic training and daily emailed prompts, about how to deliver verbal prompts regarding classroom expectations or rules. In addition to teachers’ verbal prompt delivery, the researcher also examined student outcomes and social validity.

The focus of this study was the effect of emailed prompts on teachers’ rate and quality of verbal prompt delivery. Data gleaned with the multiple-baseline design indicated minimal effects of emailed prompts for participating teachers. During baseline, all teachers delivered verbal prompts at rates lower than 0.5 per minute, which met the criteria for implementation supports. In the didactic training phase, Teacher A’s verbal prompt rate remained low and gradually decreased. Teacher B and Teacher C responded to the didactic training with slightly higher rates of verbal prompt rate, but the rate remained low. In line with previous studies (Collier-Meek et
al., 2017; Sterling-Turner et al., 2002; Sterling-Turner et al., 2001), visual analysis of data substantiated the need for implementation supports beyond didactic training for classroom management practices—emailed prompts. After entering the emailed prompts phase, the participating teachers responded differently to emailed prompts. For Teacher A, only the trend of her prompt rate (i.e., slope) increased. For Teacher B, both her level of prompt rate (i.e., mean) and the trend of prompt rate (i.e., slope) increased. Unfortunately, no sufficient amount of data could show three demonstrations of changes in teachers’ prompt rate. Although the result was not optimal, it was not surprising. In previous studies that evaluated the stand-alone effects of emailed prompts, not all participating teachers increased their fidelity to the intervention (Collier-Meek et al., 2017; Fallon et al., 2018). Among teachers who responded to the support, the effects were small to modest. As suggested by previous studies (Collier-Meek et al., 2017; Fallon et al., 2018), for teachers who did not respond to emailed prompts, further supports such as emailed performance feedback may be needed.

In terms of the effects of emailed prompts on teachers’ quality of verbal prompt delivery, baseline data also showed the need for implementation supports for all participating teachers. During baseline, the participating teachers delivered verbal prompts with either downward trends (i.e., slope) or unstable quality (i.e., fluctuation around the mean). In the didactic training phase, participating teachers’ levels (i.e., means) of quality points increased. There were no clear effects of emailed prompts on Teacher A’s and Teacher B’s quality, suggesting no functional relation between emailed prompts and teachers’ verbal prompt quality. As discussed, the result is not surprising given that not all teachers responded to emailed prompts in previous studies (Collier-Meek et al., 2017; Fallon et al., 2018). Additionally, the results were confined by the number of available data points due to school shutdown.
In addition to the discontinuation of the study, there were other factors that might have limited the changes across phases. First, as suggested from previous studies (Collier-Meek et al., 2017; Fallon et al., 2018), the effectiveness of emailed prompts differ across teachers. According to prior studies, small to moderate effects of emailed prompts might be seen on teachers’ implementation behaviors. The results from this current study were consistent with results from these previous studies, as participating teachers responded differently to the emailed prompts. To support teachers who did not respond to emailed prompts as expected, further implementation support such as emailed performance feedback might be needed. Second, according to read receipts, Teacher A’s fidelity to opening the emailed prompts was low. Although the Teacher reported to have read all the emails, the low fidelity resulted from potential technical issues might have limited the effects of emailed prompts on her prompt delivery. Third, Teacher A expressed concerns about prompt dependency, which might result in her low response to the implementation supports. Briefly, she was concerned that her students might became overly dependent on her prompts to engage in expected behaviors. Given that many students in the participating classes had individualized behavior support plans, the concerns about prompt dependency was valid. However, all the participating teachers were expected to deliver verbal prompts about classroom expectations instead of prompting target behaviors specified in the students’ behavior support plans. As such, the concern was not shared by all participating teachers in the didactic training meetings. The different perspectives from the participating teachers might result in the different patterns across teachers.

In addition to teachers’ verbal prompt delivery, the researcher also examined student outcomes. The researcher hypothesized that students would be more academically engaged and less disruptive when teachers delivered higher rate and quality of verbal prompts about their
classroom rules. However, results did not indicate any changes on either academic engagement or disruptive behaviors in the observed intervals. Three reasons might have contributed to the results. First, the student outcomes reflected the limited effects of implementation supports for teachers’ verbal prompt delivery. It was hypothesized that students would show higher percentage of academic engagement and lower percentage of disruptive behaviors during observation sessions when the participating teachers delivered verbal prompts at higher rate and with better quality. As shown, the effects of didactic training on teachers’ verbal prompt delivery was limited. Without sufficient changes in teacher behavior, changes in student outcomes are unlikely. Second, most students at the site receive intensive support, e.g. one-to-one paraprofessional supports, per their individualized education programs. The results indicated that verbal prompts from teachers alone might not be sufficient to significantly improve students’ behaviors. A combination of evidence-based classroom management practices, such as prompts and specific feedback, might be more effective. Additionally, as many students receive one-to-one paraprofessional support in this setting, prompts provided by paraprofessionals might also needed to be considered in future studies. Third, for most classroom observation sessions, students in the classrooms were disruptive for fewer than 20% of observed intervals. Given the nature of the setting, floor effect might have also contributed to the limited results.

As aforementioned, it is also important to examine the social validity of these implementation supports. Data gleaned with the adapted URP-IR indicated that the teachers rated verbal prompting and didactic training as acceptable, feasible, understandable, and not requiring significant system support. For Teacher A and Teacher B, who received emailed prompts, the implementation support was acceptable, feasible, and understandable as well. As discussed, there is a need for feasible, ongoing implementation support (Collier-Meek et al., 2017; Fallon et al.,
Although only two participating teachers were able to complete the social validity measure about emailed prompts, in line with previous studies (Collier-Meek et al., 2017; Fallon et al., 2018), the finding showed that emailed prompts can be used as an ongoing, feasible implementation support for teachers. However, it should be noted that the two teachers still indicated the need for consultative support beyond emailed prompts. One potential reason is that the teachers did not receive enough email prompts, as expressed by Teacher B. Also, as aforementioned, different implementation supports might be needed (Sanetti & Collier-Meek, 2015; Simonsen & Myers, 2015).

**Limitations**

Although the researcher attempted to conduct the study following the What Works Clearinghouse standards for single case design studies (Kratochwill et al., 2010), due to limited resources and the nature of applied research in school settings, the researcher faced several limitations regarding the study design and implementation.

First, participants were not fully blinded to the study procedure, which posed potential threats to internal validity of the study. In line with research ethics, the researcher informed the participating teachers the title and the procedure of this study. Due to the physical setting of the school and schedule of the classes, the participating teachers were also aware of being observed during the observation sessions. However, previous studies have indicated that teachers’ reactivity to observers does not influence treatment integrity (Codd, Livanis, Pace, & Vaca, 2008). Second, the researcher himself facilitated the meetings with the teachers and served as one of the two data collectors, and thus was not blind to the study purpose and procedure. To address this issue, the researcher conducted systematic direct observation with operational definition of target behaviors. The main data collector (i.e., the other school psychology student)
was not informed of any phase changes in this study. IOA data were also collected and calculated to minimize experimenter bias and observer drift (Cooper, Heron, & Heward, 2007).

Third, there is no current measure developed for rate and quality of verbal prompts for classroom expectations. The lack of validated measure posed a threat to the internal validity of this study as well. To address this threat, the systematic direct observation data collection form was adapted from previous studies to align with current literature about verbal prompts and student behaviors. Nevertheless, more studies on the measure of teachers’ verbal prompts about classroom expectations are still needed.

In addition to the design and measurement of the study, there were also variables that were beyond the researcher’s control in this applied research. Due to the unexpected school shutdown, data collection was discontinued. Without sufficient data points, it was not possible to demonstrate experimental effects. Further, the number of students in classroom observations was not controlled, which potentially impacted teacher and student interaction in the observation sessions. The number of students across observation sessions fluctuated when students were absent or when they received one-to-one educational services outside the classroom such as occupational therapy or speech therapy. The fluctuating number of students in the classroom might change the rate and quality of verbal prompts the participating teachers delivered as well as student outcomes. Additionally, as discussed in previous articles about emailed implementation supports, the effectiveness of implementation supports might be influenced by teachers’ fidelity to reading the emails. For example, the documented difference of fidelity between Teacher A and Teacher B might have resulted in the different results. Further, although the researcher documented whether the teachers opened the emails, it remained unknown if the participants carefully read the emails.
There are also threats to external validity of the study. As aforementioned, the school setting is different from other public-school settings. All teachers received training in special education. On the one hand, their acceptance and familiarity with classroom management support might be higher from general education teachers (Flower et al., 2017). As reported by participating teachers, two of them had received training in classroom or behavioral management during their teacher preparation programs and all of them had participated in professional development activities about classroom management. On the other hand, as aforementioned, the participating teachers might also be more resistant to provide verbal prompts due to concerns about prompt dependency. Similarly, the participating classrooms are also different from general education schools in size, staff support, and characteristics of students. For example, the participating teachers did not just provide classwide activities. They also supervised paraprofessionals to deliver individualized supports to the students. In other words, prompts about classroom expectations might be more naturally delivered through all classroom staff in this setting. Replication is needed in other types of school settings.

**Directions for Future Research**

With the results and limitations, directions for future research are discussed below. To begin with, it is imperative that future studies re-examine the effects of didactic training and emailed prompts on teachers’ delivery of verbal prompts. Data collection was discontinued because the school was closed for an indefinite period of time. The results from this study will serve as a foundation for future studies to collect more data for evaluation. Further, given that not all participating teachers respond to emailed prompts, future studies are also encouraged to compare teachers’ verbal prompt delivery across didactic training, emailed prompts, and more intensive supports, such as emailed performance feedback. The results will inform both
researchers and practitioners on types of supports they could provide to teachers when implementation supports are needed. Additionally, follow-up phases or prompt fading phases might be added to determine the maintenance effect of emailed prompts after the support is withdrawn.

One potential limitation as discussed is a lack of past research on teachers’ rate and quality of verbal prompts delivery about classroom expectations. Given that the current literature and guidelines have suggested the benefits of using prompts to promote behaviors that meet classroom expectations, it is imperative that researchers collect more empirical data on this topic. For example, it is encouraged that researchers compare the different rate and quality of prompts about classroom expectations on student behavior. In addition, to investigate the effectiveness of prompts on student behavior, more validated measures are also needed. Although the researcher used systematic direct observation that was aligned with the literature, further development and validation of measures about verbal prompts will support future research in this topic.

As aforementioned, the study was conducted with special education teachers and students with disabilities. It will be helpful to evaluate the effects of emailed prompts on other evidence-based classroom managements that teachers could use in this type of setting. For example, some teachers were observed providing more specific feedback about classroom expectations after receiving didactic training and emailed prompts, but no data were collected on this behavior. Future research may extend previous study about emailed prompts on specific feedback by looking into the effects of this implementation support on special education teachers’ use of specific feedback about classroom expectations. Also, since many students in this type of setting receive paraprofessional support, researchers may also consider examining the effectiveness of
emailed prompts on other classroom staff. For example, future research can examine the effects of emailed prompts for paraprofessional to deliver verbal prompts to their students.

Conclusion

The main purpose of this study was to evaluate the effects of emailed prompting as an implementation support. Results did not suggest functional relations between emailed prompting and teachers’ verbal prompt delivery or student outcomes. The researcher faced several issues when conducting the studies, including school shutdown. In spite of the limitations, the results from this study substantiated the need for implementation supports in the classroom setting. More specifically, the study can inform the current literature regarding the limitation of didactic training and the effects of emailed prompts as a feasible, ongoing implementation support for teachers to use evidence-based classroom management practices. Additionally, given the scarcity of literature on teachers’ rate and quality of verbal prompts about classroom expectations, this study served as an initial endeavor to look into how to support teachers to deliver verbal prompts as a classroom management practice. Future studies are encouraged to investigate the effects of emailed prompts on teachers’ verbal prompt delivery and other classroom management practices as well as to replicate the study.
References


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Forman, S. G., Shapiro, E. S., Codd, R. S., Gonzales, J. E., Reddy, L. A., Rosenfield, S. A., ...
doi.10.1007/s10643-011-0486-5.
doi:10.1007/s10864-007-9043-0.


doi:10.1177/1098300713492856


Figures and Tables
Table 1

*Characteristics of participating classrooms*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Class A</th>
<th>Class B</th>
<th>Class C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of enrolled students</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Male Students</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Female Students</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Black or African American</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Two or more races</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>White</td>
<td>7</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Hispanic Origin</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Students who receive special education services</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Number of paraprofessionals</td>
<td>7</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>
### Table 2

**Classroom expectations**

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Expectations</th>
<th>Examples</th>
<th>Non-examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>Use your words</td>
<td>Using words verbally (loud enough) or on the communicator for sensory</td>
<td>Grabbing staff hands; grounding</td>
</tr>
<tr>
<td></td>
<td>Quiet voice</td>
<td>Talking at a conversation/inside volume</td>
<td>Yelling; scripting video sounds</td>
</tr>
<tr>
<td></td>
<td>Eyes watching</td>
<td>Watching the teacher or lead person</td>
<td>Eyes closed; head down</td>
</tr>
<tr>
<td></td>
<td>Body Still</td>
<td>Hands down or by their side</td>
<td>Reaching out; tapping</td>
</tr>
<tr>
<td>B</td>
<td>Respect property</td>
<td>Using classroom materials appropriately</td>
<td>Ripping up paper; breaking pencils</td>
</tr>
<tr>
<td></td>
<td>Have safe hands and feet</td>
<td>When upset, keeping hands and feet to self</td>
<td>Kicking; hitting; touching others</td>
</tr>
<tr>
<td></td>
<td>Do your best</td>
<td>Completing work; asking for help; trying to complete work</td>
<td>Screaming “I can’t do it!”; Refusal; Opt-out</td>
</tr>
<tr>
<td></td>
<td>Follow directions</td>
<td>Do what the staff say (verbal, gesture, written)</td>
<td>Refusal</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>Be a nice friend</td>
<td>Talking nicely to peers; sharing things; taking turns</td>
<td>Teasing others</td>
</tr>
<tr>
<td></td>
<td>Have safe behavior</td>
<td>Respecting property; hands to self, staying in group/building</td>
<td>Hitting things; throwing iPad; leaving building without permission</td>
</tr>
<tr>
<td></td>
<td>Walk in the classroom (and hallway)</td>
<td>Walking in the hallway and the classroom</td>
<td>Running or twirling in the classroom</td>
</tr>
<tr>
<td></td>
<td>Accept Feedback</td>
<td>Accepting losing points on contract; fixing mistakes on worksheets</td>
<td>Shouting; banging table after receiving feedback</td>
</tr>
<tr>
<td></td>
<td>Wait patiently</td>
<td>Feet on floor; quiet mouth; quiet body</td>
<td>Asking questions; leaving seat; tapping table</td>
</tr>
</tbody>
</table>
Table 3

*Number and percent of sessions during which a second rater was present across teachers, phases, and conditions*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Baseline</th>
<th>Didactic Training</th>
<th>Emailed Prompts</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Obs. with 2nd Rater</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Total Number of Obs.</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Percent of Obs. with 2nd Rater</td>
<td>50.00%</td>
<td>20.00%</td>
<td>50.00%</td>
<td>38.46%</td>
</tr>
<tr>
<td>Teacher B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Obs. with 2nd Rater</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Total Number of Obs.</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Percent of Obs. with 2nd Rater</td>
<td>28.57%</td>
<td>25.00%</td>
<td>50.00%</td>
<td>30.77%</td>
</tr>
<tr>
<td>Teacher C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Obs. with 2nd Rater</td>
<td>5</td>
<td>1</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Total Number of Obs.</td>
<td>11</td>
<td>3</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>Percent of Obs. with 2nd Rater</td>
<td>45.56%</td>
<td>33.33%</td>
<td>-</td>
<td>42.86%</td>
</tr>
<tr>
<td>Across All Teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Obs. with 2nd Rater</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Total Number of Obs.</td>
<td>22</td>
<td>12</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>Percent of Obs. with 2nd Rater</td>
<td>40.91%</td>
<td>25.00%</td>
<td>50.00%</td>
<td>37.50%</td>
</tr>
</tbody>
</table>

*Note.* Data for Teacher C were not collected during school closure.
Table 4

*Inter-observer agreement (IOA) data on all observed variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Baseline</th>
<th>Didactic Training</th>
<th>Emailed Prompts</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Verbal Prompting- Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher A</td>
<td>93.33</td>
<td>100.00</td>
<td>100.00</td>
<td>97.67</td>
</tr>
<tr>
<td>Teacher B</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Teacher C</td>
<td>98.67</td>
<td>100.00</td>
<td>-</td>
<td>98.89</td>
</tr>
<tr>
<td>Teacher Verbal Prompting- Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher A</td>
<td>93.33</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Teacher B</td>
<td>96.67</td>
<td>100.00</td>
<td>100.00</td>
<td>97.67</td>
</tr>
<tr>
<td>Teacher C</td>
<td>98.67</td>
<td>100.00</td>
<td>-</td>
<td>98.89</td>
</tr>
<tr>
<td>Student- Academic Engagement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom A</td>
<td>80.00</td>
<td>88.33</td>
<td>85.00</td>
<td>83.67</td>
</tr>
<tr>
<td>Classroom B</td>
<td>85.83</td>
<td>91.67</td>
<td>95.83</td>
<td>89.47</td>
</tr>
<tr>
<td>Classroom C</td>
<td>97.67</td>
<td>93.33</td>
<td>-</td>
<td>96.94</td>
</tr>
<tr>
<td>Student- Disruptive Behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom A</td>
<td>100.00</td>
<td>95.00</td>
<td>97.50</td>
<td>95.00</td>
</tr>
<tr>
<td>Classroom B</td>
<td>99.17</td>
<td>93.33</td>
<td>93.75</td>
<td>95.61</td>
</tr>
<tr>
<td>Classroom C</td>
<td>97.50</td>
<td>96.67</td>
<td>-</td>
<td>98.89</td>
</tr>
</tbody>
</table>

*Note.* IOA data are presented as means across IOA sessions. Data for Teacher C were not collected during school closure.
Table 5

*Verbal prompt rate, presented as rate per minute, across teachers and phases*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Baseline</th>
<th>Didactic Training</th>
<th>Emailed Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher A</td>
<td>Mean</td>
<td>0.47</td>
<td>0.41</td>
</tr>
<tr>
<td></td>
<td>(SD)</td>
<td>(0.16)</td>
<td>(0.25)</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>0.33-0.60</td>
<td>0.06-0.73</td>
</tr>
<tr>
<td></td>
<td>Effect size (IRD)</td>
<td>-</td>
<td>-0.80</td>
</tr>
<tr>
<td>Teacher B</td>
<td>Mean</td>
<td>0.04</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>(SD)</td>
<td>(0.05)</td>
<td>(0.07)</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>0.00-0.13</td>
<td>0.07-0.21</td>
</tr>
<tr>
<td></td>
<td>Effect size (IRD)</td>
<td>-</td>
<td>0.07</td>
</tr>
<tr>
<td>Teacher C</td>
<td>Mean</td>
<td>0.06</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td>(SD)</td>
<td>(0.07)</td>
<td>(0.03)</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>0.00-0.20</td>
<td>0.20-0.26</td>
</tr>
<tr>
<td></td>
<td>Effect size (IRD)</td>
<td>-</td>
<td>0.24</td>
</tr>
</tbody>
</table>

*Note.* Effect size estimates were not calculated for baseline phases. Data for Teacher C were not collected during school closure. IRD = Improvement Rate Difference
Table 6

Verbal prompt quality, presented as point per number of prompts, across teachers and phases

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Baseline</th>
<th>Didactic Training</th>
<th>Emailed Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher A</td>
<td>Mean</td>
<td>2.49</td>
<td>2.73</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.16)</td>
<td>(0.25)</td>
<td>(0.23)</td>
</tr>
<tr>
<td>Range</td>
<td>1.60-3.00</td>
<td>2.33-3.00</td>
<td>2.31-3.00</td>
</tr>
<tr>
<td>Effect size (IRD)</td>
<td>-</td>
<td>-0.75</td>
<td>-1.00</td>
</tr>
<tr>
<td>Teacher B</td>
<td>Mean</td>
<td>0.93</td>
<td>2.50</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.05)</td>
<td>(0.07)</td>
<td>(0.40)</td>
</tr>
<tr>
<td>Range</td>
<td>0.00-2.50</td>
<td>2.00-3.00</td>
<td>2.80-3.00</td>
</tr>
<tr>
<td>Effect size (IRD)</td>
<td>-</td>
<td>0.07</td>
<td>-0.50</td>
</tr>
<tr>
<td>Teacher C</td>
<td>Mean</td>
<td>1.00</td>
<td>2.89</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.07)</td>
<td>(0.03)</td>
<td>-</td>
</tr>
<tr>
<td>Range</td>
<td>0.00-2.50</td>
<td>2.67-3.00</td>
<td>-</td>
</tr>
<tr>
<td>Effect size (IRD)</td>
<td>-</td>
<td>1.00</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. Effect size estimates were not calculated for baseline phases. Data for Teacher C were not collected during school closure. IRD = Improvement Rate Difference.
Table 7

**Academic engagement: Class-wide levels across phases across classrooms and phases**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Baseline</th>
<th>Didactic Training</th>
<th>Emailed Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher A</td>
<td>50.00%</td>
<td>48.24%</td>
<td>59.68%</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.19)</td>
<td>(0.12)</td>
<td>(0.21)</td>
</tr>
<tr>
<td>Range</td>
<td>30.00%-75.00%</td>
<td>34.5%-66.67%</td>
<td>37.04%-85.00%</td>
</tr>
<tr>
<td>Effect Size (IRD)</td>
<td>-</td>
<td>0.25</td>
<td>-0.55</td>
</tr>
<tr>
<td>Teacher B</td>
<td>66.69%</td>
<td>71.25%</td>
<td>70.12%</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.05)</td>
<td>(0.11)</td>
<td>(0.12)</td>
</tr>
<tr>
<td>Range</td>
<td>60.00%-76.67%</td>
<td>60.00%-87.04%</td>
<td>61.40%-78.85%</td>
</tr>
<tr>
<td>Effect Size (IRD)</td>
<td>-</td>
<td>-0.75</td>
<td>-0.75</td>
</tr>
<tr>
<td>Teacher C</td>
<td>84.39%</td>
<td>90.56%</td>
<td>-</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.09)</td>
<td>(0.14)</td>
<td>-</td>
</tr>
<tr>
<td>Range</td>
<td>66.67%-95.00%</td>
<td>75.00%-100.00%</td>
<td>-</td>
</tr>
<tr>
<td>Effect Size (IRD)</td>
<td>-</td>
<td>-0.24</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note.** Academic engagement is expressed as a percent of intervals in which the behavior was observed. Effect size estimates were not calculated for baseline phases. Data for Teacher C were not collected during school closure. IRD = Improvement Rate Difference
Table 8

*Disruptive behavior: Class-wide levels across phases across classrooms and phases*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Baseline</th>
<th>Didactic Training</th>
<th>Emailed Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>10.83%</td>
<td>18.45%</td>
<td>18.06%</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.06)</td>
<td>(0.11)</td>
<td>(0.14)</td>
</tr>
<tr>
<td>Range</td>
<td>1.67%-15.00%</td>
<td>6.67%-31.67%</td>
<td>8.33%-38.89%</td>
</tr>
<tr>
<td>Effect size (IRD)</td>
<td>-</td>
<td>-1.00</td>
<td>-1.00</td>
</tr>
<tr>
<td>Classroom B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>9.29%</td>
<td>8.13%</td>
<td>12.37%</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.05)</td>
<td>(0.06)</td>
<td>(0.15)</td>
</tr>
<tr>
<td>Range</td>
<td>1.67%-15.00%</td>
<td>1.79%-16.67%</td>
<td>1.92%-22.81%</td>
</tr>
<tr>
<td>Effect size (IRD)</td>
<td>-</td>
<td>-1.00</td>
<td>-1.00</td>
</tr>
<tr>
<td>Classroom C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3.18%</td>
<td>1.67%</td>
<td>-</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.16)</td>
<td>(0.17)</td>
<td>-</td>
</tr>
<tr>
<td>Range</td>
<td>0.00%-15.00%</td>
<td>0.00%-3.33%</td>
<td>-</td>
</tr>
<tr>
<td>Effect size (IRD)</td>
<td>-</td>
<td>-0.64</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* Disruptive behavior is expressed as a percent of intervals in which the behavior was observed. Effect size estimates were not calculated for baseline phases. Data for Teacher C were not collected during school closure. IRD = Improvement Rate Difference
Table 9

*Procedural integrity data for study meetings and trainings*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Introductory Meeting</th>
<th>Didactic Training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Steps Delivered</td>
<td>Steps Delivered</td>
</tr>
<tr>
<td></td>
<td>According to</td>
<td>According to</td>
</tr>
<tr>
<td></td>
<td>Meeting Protocol</td>
<td>Meeting Protocol</td>
</tr>
<tr>
<td>Teacher A</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Teacher B</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Teacher C</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 10

**URP-IR social validity data about verbal prompting across teachers**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Acceptability</th>
<th>Understanding</th>
<th>Feasibility</th>
<th>System Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teacher A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.89</td>
<td>5.00</td>
<td>5.16</td>
<td>2.67</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.78)</td>
<td>(0.00)</td>
<td>(0.41)</td>
<td>(0.58)</td>
</tr>
<tr>
<td><strong>Teacher B</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.56</td>
<td>4.33</td>
<td>4.50</td>
<td>4.00</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.53)</td>
<td>(0.58)</td>
<td>(0.55)</td>
<td>(1.00)</td>
</tr>
<tr>
<td><strong>Teacher C</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>6.00</td>
<td>6.00</td>
<td>5.67</td>
<td>3.00</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.52)</td>
<td>(1.73)</td>
</tr>
<tr>
<td><strong>All Teachers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>5.15</td>
<td>5.11</td>
<td>5.11</td>
<td>3.22</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.82)</td>
<td>(0.78)</td>
<td>(0.68)</td>
<td>(1.20)</td>
</tr>
</tbody>
</table>

*Note. URP-IR = Usage Rating Profile-Intervention Revised; Measure uses a 6-point Likert scale (1 = strongly disagree to 6 = strongly agree); Acceptability scale is composed of nine items; Understanding scale is composed of three items; Feasibility scale is composed of six items; System Support scale is composed of three items.*
Figure 1. Verbal prompt rate observed across teachers.
Figure 2. Verbal prompt quality observed across teachers.
Figure 3. Percent of intervals academic engagement and disruptive observed across classrooms.
Appendices
Appendix A: Teacher Consent Form

Consent Form for Participation in a Research Study

**Principal Investigator:** Lisa M. H. Sanetti, PhD
**Student Researcher:** Hao-Jan Luh, M.A., M.Ed.
**Study Title:** Effects of Emailed Prompts on Teachers’ Verbal Prompt Delivery

**Overview of the Research**

You are being asked to provide consent to participate in a research study. Participation is voluntary. You can say yes or no. If you say yes now you can still change your mind later. Some key points to consider are summarized in this overview, but you should consider all of the information in this document carefully before making your decision.

This research is being done to determine if emailed prompts can increase teachers’ verbal prompt delivery about classroom rules or expectations.

Participation will involve three meetings (15-20 minutes each) followed by two minutes of your time per day for reading emailed prompts or performance feedback about 15 weeks. You will also be observed for 15 minutes two to three days a week over approximately 20 weeks, including a one-month follow-up, but it may take more or less time.

You will be asked to complete documents about your demographic information, classroom rules or expectations, and the implementation supports you will have received, be trained in verbal prompt delivery, and read emailed prompts and performance feedback. You and your students will also be observed during class activities. During the observed activities, your verbal instruction will be audiotaped only for the calculation of inter-observer agreement between data collectors.

The principal risk of participating in this study is associated with audiotaping. Potentially, if the audio files are stolen or misplaced, they might be listened to by people who were not part of the research team. However, we will follow strict procedures to secure the audio files. In addition, you might feel anxious meeting with the student researcher as well as being observed or audiotaped during class activities. It might also be inconvenient for you to spend time in the meetings and reading the emails. Risks are described in more detail later in this form.

There may also be benefits from participation. If emailed prompts are effective, you may experience an improvement in your classroom management as well as an improved student
behavior; but this is not guaranteed. This research may also result in information in terms of supporting teachers to use effective classroom management practices.

A more detailed description of this research follows.

**Introduction**

You are invited to participate in a dissertation research study about how to help teachers deliver verbal prompts to students. Specifically, the study will look at the effects of emailed prompts on teachers’ verbal prompt delivery about classroom rules or expectations. This study is being conducted by Hao-Jan Luh, MA and supervised by Lisa Sanetti, PhD, both from the University of Connecticut’s Neag School of Education.

**Why is this study being done?**

We are conducting this study to evaluate ways to support teachers’ verbal prompt delivery and how verbal prompts influence students’ level of academic engagement and disruptive behavior. Information gathered will help to provide recommendations regarding how to support teacher to use verbal prompts. A secondary purpose is to evaluate how verbal prompts may increase students’ academic engagement and decrease disruptive behavior.

**What are the study procedures? What will I be asked to do?**

If you agree to take part in this study, you will be asked to do the following:

- **Questionnaires and rating forms:** If you consent to participate, we will collect some information about you. You will be asked to complete a demographics and information form as well as a classroom rules/expectation form at the beginning of the study, and a survey about the implementation support strategies you receive at the end of the study.
- **Screening:** Only teachers who already have classroom rules or expectations in place will be included. If a teacher delivers verbal prompts about the rules more than 2 times per minute in average across observation sessions, the teacher will be excluded.
- **Meetings:** During the course of the study, you will participate in up to two meetings with the student researcher, each lasting approximately 15-20 minutes. Meetings will be scheduled at a time and place that is convenient for you.
  - During the first meeting, the student researcher will review the study procedures and ask for information about your classroom rules or expectations.
  - During the second meeting, the student researcher will provide a brief training lasting 15-20 minutes about verbal prompting.
  - During the third meeting, the student researcher will schedule follow up observations with you and provide a social validity form for you to complete.
If you complete the full study, you will receive reports with student outcome and data that you may find helpful and informative. These reports will not be shared with anyone else (unless you choose to share them).

- **Email Prompts**: You will receive brief daily emailed prompts at 7am. You will be asked to read the prompts and allow the read receipts to be sent back to the student researcher. It will take about less than 1-2 minutes to read each email.

- **Email Performance Feedback**: Like the email prompts, you will receive brief daily emailed performance feedback based on previous observation sessions at 7am. You will be asked to read the emails and allow the read receipts to be sent back to the student researcher. It will take about less than 1-2 minutes to read each email.

- **Observations**: Student researcher(s) will observe in the classroom two to three days per week at a consistent time. These observations will each be 15 minutes. Data will be collected on student outcomes and your delivery of verbal prompts. In addition, the data collectors will audiotape while they observe. The audio files will be used to determine the reliability of student researchers’ data collection. You will be asked to sign a Photo/Video release form regarding audiotaping. You will not be required to do anything differently during these observations. The student researcher will also contact you once after the final meeting to schedule one-month follow up-observations, if time permits in the school year. The study is expected to last approximately 15 weeks, plus the follow-up data collection, which may take 3 to 5 weeks.

**What other options are there?**

You may continue addressing classroom student behavior needs the way you have been or utilize school-based resources to obtain additional support in addressing class-wide behavior needs.

**What are the risks or inconveniences of the study?**

The risks associated with participation in the study are minimal, but you may experience low levels of anxiety during the meeting, observations, and when your instruction is audiotaped. In addition, there are potential social risks, if the audio files are stolen or misplaced, and listened to by people outside of authorized research personnel. However, we have a strict plan for file transfer (e.g., locked cases, locked cabinets, encrypted cloud-based server) and you may immediately terminate any activity at any time, without penalty. Inconveniences may include time to meet with the student researcher and complete the intervention implementation-related tasks, e.g. reading emails and answering the questionnaires.

**What are the benefits of the study?**

Benefits to participating in this study include potentially (a) increasing your confidence and competence in managing your classroom, (b) increasing your student(s)’ academic engagement, and (c) decreasing disruptive behavior in your classroom as a result of your verbal prompt.
delivery. Furthermore, this study will extend the research literature on implementation support for classroom behavior management.

**Will I receive payment for participation? Are there costs to participate?**

There are no costs and you will not be paid to be in this study.

**How will my personal information be protected?**

The following procedures will be used to protect the confidentiality of your data. Research records will be labeled with an assigned ID number. A master key that links names and codes will be maintained in a separate and secure location. Paper-based data will be stored inside a locked file cabinet inside a locked office suite in the Department of Educational Psychology at the University of Connecticut. All electronic files (e.g., emails, audio files, database, spreadsheet, etc.) containing identifiable information will be password protected and only be accessible to the student researcher and project investigator. Electronic versions of documents for each teacher participant will be saved with codes (i.e., “Teacher” in place of name) for all identifying information. Any computer hosting such files will also have password protection to prevent access by unauthorized users. Only the student-researcher, principal investigator, and graduate students completing inter-observer agreement will have access to the passwords.

At the conclusion of this study, the researchers may publish their findings. Information will be presented in summary format and you will not be identified in any publications or presentations. We will refer to the school as a school located in the Northeast for students with behavioral, communicative, and neurological disorders. The master key, all raw and electronic data, except audio files, will be maintained at least 7 years after the end of the project; data will be maintained longer if necessary to complete publication of results. In other words, de-identified data may be retained indefinitely. The audio files will be destroyed as soon as reliability of observational prompt data is determined.

You should also know that the UConn Institutional Review Board (IRB) and Research Compliance Services may inspect study records as part of its auditing program, but these reviews will only focus on the researchers and not on your responses or involvement. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

We will do our best to protect the confidentiality of the information we gather from you but we cannot guarantee 100% confidentiality. Your confidentiality will be maintained to the degree permitted by the technology used. Specifically, no guarantees can be made regarding the interception of data sent via the Internet by any third parties.

If, during the course of this research study, a UConn employee suspects that a minor (under the age of 18) has been abused, neglected, or placed at imminent risk of serious harm, it will be reported directly to the Department of Children and Families (DCF) or a law enforcement agency.

**Can I stop being in the study and what are my rights?**
You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time for any reason. There are no penalties or consequences of any kind if you decide that you do not want to participate. You do not have to answer any question that you do not want to answer during meetings or while completing surveys.

**Whom do I contact if I have questions about the study?**

Take as long as you would like before you make a decision. We will be happy to answer any questions you have about this study. If you have further questions about this study or if you have a research-related problem, you may contact the student investigator, Hao-Jan Luh (206-484-2296) or the supervising investigator, Lisa Sanetti (860-486-2747). If you have any questions concerning your rights as a research participant, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802.

**Documentation of Consent:**

I have read this form and decided that I will participate in the project described above. Its general purposes, the particulars of involvement and possible risks and inconveniences have been explained to my satisfaction. I understand that I can withdraw at any time. My signature also indicates that I have received a copy of this consent form.

---

Participant Signature: __________________ Print Name: __________________ Date: ____________

Signature of Person Obtaining Consent: __________________ Print Name: __________________ Date: ____________
Appendix B: Parental Notification Form

/Parental Notification Form Regarding Participation in a Research Study

**Principal Investigator:** Lisa M. H. Sanetti, PhD  
**Student Researcher:** Hao-Jan Luh, M.A., M.Ed.  
**Study Title:** Effects of Emailed Prompts on Teachers’ Verbal Prompt Delivery

**Introduction/Why is this study being done?**

Researchers from the University of Connecticut are conducting a research study at your child’s school. This form will give you the information you will need to understand why this study is being done and what you need to do if you DO NOT want your child to participate. We encourage you to take some time to read about the study and to discuss it with your child. We also encourage you to ask questions now and at any time. If you decide to allow your child to participate, no further action is required. Your child will automatically be enrolled in the study. However, if you decide that you DO NOT want your child to participate or if you decide later that you would rather not have your child’s data be used in the study, please sign the attached form and return it to your child’s teacher by 1/28/2020. This study is being conducted by Hao-Jan Luh, MA, MEd, and supervised by Lisa Sanetti, PhD, both from the University of Connecticut’s Neag School of Education.

**What are the study procedures? What will my child be asked to do?**

If you give permission for your child to participate, we will collect some information.

- We will meet with your child’s teacher, provide them with supports related to classroom management practices, and ask them to complete questions about their demographic information and the supports we provided.
- Throughout the study, data on teachers’ use of verbal prompting and every student in the classroom’s behavior will be collected through direct observation on a form up to five times per week (but typically two to three times a week) in the classroom. Each observation will be 15 minutes. Data collected on student behavior will be academic engagement (are they on task?) and disruptive behavior (are they engaging in problem behavior?).
- During the observations, the observer(s) will also audiotape the teacher’s verbal instructions.
- Your child will not miss any instructional time when we gather information.
- If specific inclusion criteria for teacher participation are not met, your child’s participation in the study will end.
If you agree to allow your child to participate in this study, you are agreeing to let your child be observed in the classroom and for observation data to be collected on their behavior. The data will not be able to be directly connected to your child as we will rotate which child is being observed every 15 seconds.

**If you DO NOT want your child to participate, what will he/she do instead?**

If you do not want your child to participate, we will work with school administrators to determine what is most appropriate for your child to do instead of participating in the study.

**What are the risks or inconveniences of the study?**

We believe there are no known risks to your child because of his/her participation in the research study. As the data from the surveys will be aggregated and observational data will be collected at the class-wide level, we do not believe that there are any additional known risks to your child; however, if your child is reactive to having unfamiliar people in the classroom, they may experience low levels of anxiety. All participants may immediately terminate any activity at any time, without penalty.

**What are the benefits of the study?**

The potential benefits of your child’s teacher participating in this study include decreasing levels of problem behavior and increasing levels of appropriate behavior in your child’s classroom as a result of the teacher’s classroom management improving. This study will also extend the literature on supporting teachers’ implementation of verbal prompts.

**How will my child’s information be protected?**

The following procedures will be used to protect the confidentiality of your child’s information. No identifying information about your child will be collected. The researchers will keep all study records locked in a secure location (i.e., a locked file cabinet in a locked office in the Department of Education Psychology at the University of Connecticut). Data will be locked in this secure location the same day it is collected from the school. Audio files will be stored on an encrypted cloud-based server entered and accessed on password-protected computers only accessible to research staff. The audio files will be reviewed by project staff only and will only be used for this research; they will not be reviewed by anyone outside of the project staff.

Research records will be labeled with a two-digit code. A master key that links teacher names and codes will be maintained in a separate and secure location and will be accessed by the principal investigator and relevant project staff only. The master key will be destroyed after 7 years, unless these data are necessary to complete publication of the results. The audiotapes will be destroyed as soon as reliability of observational prompt data is determined. All electronic files (e.g., database, spreadsheet, etc.) will be de-identified and be password protected. Electronic data will be stored on an encrypted cloud-based server and any computer hosting such files will also have password protection to prevent access by unauthorized users. Only the members of the research staff will have
access to the passwords. At the conclusion of this study, the researchers may publish their findings. Information will be presented in summary format and your child will not be identified in any publications or presentations.

We will do our best to protect the confidentiality of the information we gather but we cannot guarantee 100% confidentiality. No information will be reported back to the school or school administrator without your child’s teacher’s expressed written consent. We will do our best to protect the confidentiality of the information we gather from you but we cannot guarantee 100% confidentiality.

You should also know that the UConn Institutional Review Board (IRB) and Research Compliance Services may inspect study records as part of its auditing program, but these reviews will only focus on the researchers and not on your child’s responses or involvement. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

Can my child stop being in the study and what are my and my child’s rights?

Your child does not have to be in this study if you do not want him/her to participate. If you decide to allow your child to be in the study, but later change your mind, you may withdraw your child at any time. Even if your child has completed the study, you may decide NOT to have your child’s data used in the study. There are no penalties or consequences of any kind if you decide that you DO NOT want your child to participate.

Whom do I contact if I have questions about the study?

We will be happy to answer any question you have about this study. If you have further questions about this project or if you have a research-related problem, you may contact the student investigator, Hao-Jan Luh (206-484-2296) or the supervising investigator, Lisa Sanetti (860-486-2747). If you have any questions concerning your child’s rights as a research participant, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802.
Parental Notification Form Regarding Participation in a Research Study

Principal Investigator: Lisa M. H. Sanetti, PhD
Student Researcher: Hao-Jan Luh, M.A., M.Ed.
Study Title: Effects of Emailed Prompts on Teachers’ Verbal Prompt Delivery

Notification of Refusal:
I have read this form and decided that I DO NOT give permission for my child to participate in the study described above. My signature also indicates that I have received a copy of this parental notification form. Please return this form to the child’s teacher by 1/28/2020.

____________________  Print Child’s Name:

____________________  ______________________  ______________________
Parent/Guardian’s Signature:  Print Name:  Date:

Relationship (e.g. mother, father, guardian): ________________________________
Appendix C: Teacher Demographics Form

Thank you for participating in this project. Please note that all names on this and other forms will be removed and replaced with an ID number. Names will not be shared with anyone outside this project.

TEACHER INFORMATION

Name: ___________________________ Today’s Date: _______________________
First                  Middle Initial                   Last               Month       Day       Year
School: ___________________________ E-mail: ___________________________

Birthdate: ___________________________
Month       Day       Year

Please indicate your gender: ☐ Male ☐ Female ☐ Prefer not to answer

Ethnicity: ☐ Hispanic or Latino ☐ Not Hispanic or Latino

Race:
☐ White ☐ American Indian or Alaskan Native
☐ Black or African American ☐ Native Hawaiian or Other Pacific Islander
☐ Asian ☐ I prefer not to provide an answer

How many years of teaching experience do you have? ________________________________

On average, how many students are present in your classroom at one time? ______________

On average, not counting yourself, how many teachers/paraprofessionals are present in your classroom at one time? ______________

Please indicate whether you have special and/or general education certification:
☐ General education certification ☐ General & special education certifications
☐ Special education certification ☐ Not currently certified

What is your highest level of education completed? (check one)
☐ High School/GED ☐ Master’s/Specialist
☐ Associate’s ☐ Master’s plus ______ credits
☐ B.A./B.S. ☐ Doctorate (e.g., PhD, JD)
During your teacher preparation program, did you complete a course devoted entirely to classroom management or did you receive information about classroom management as part of other courses? (check one)

- I took a course devoted primarily to classroom management
- I received information about classroom management as part of other course(s)
- Both, I took a course devoted primarily to classroom management and I received information about classroom management as part of other course(s)
- I did not take a course devoted primarily to classroom management or receive information about classroom management as part of other course(s)

During your teacher preparation program, did you receive supervised, school-based practice and feedback on implementing classroom or behavior management strategies? (check one)

- Yes
- No

During your teacher preparation program, did you receive adequate information and school-based practice to effectively implement research-based classroom and behavior management strategies? (check one)

- No
- No-Strongly disagree
- No-Disagree
- Yes
- Yes-Agree
- Yes-Strongly Agree

Have you participated in formal professional development activities related to classroom and behavior management since beginning teaching (i.e., in-service training or workshop)? (check one)

- Yes
- No

Which is the best estimate of the amount of time spent participating in formal professional development activities related to classroom and behavior management since beginning teaching?

- None
- <1 day
- 1 day
- 2-3 days
- 4-5 days
- 5-10 days
- >10 days
Did your participation in formal professional development activities improve your ability to effectively implement research-based classroom and behavior management strategies?

☐ Strongly disagree
☐ Disagree
☐ Agree
☐ Strongly Agree
☐ Not applicable, have not participated in formal professional development activities related to classroom and behavior management

Thank you for completing the form!
Appendix D: Classroom Rules or Expectations

Do you currently have any classroom rules or expectations, if yes, what are the rules or expectations? Please also provide some examples and non-examples.

☐ No, I do not have any classroom rules or expectations
☐ Yes, I have classroom rules or expectations as below:

1) Expectation: _____________________________________________________
   a. Example: _____________________________________________________
   b. Non-example: _________________________________________________

2) Expectation: _____________________________________________________
   a. Example: _____________________________________________________
   b. Non-example: _________________________________________________

3) Expectation: _____________________________________________________
   a. Example: _____________________________________________________
   b. Non-example: _________________________________________________

4) Expectation: _____________________________________________________
   a. Example: _____________________________________________________
   b. Non-example: _________________________________________________

5) Expectation: _____________________________________________________
   a. Example: _____________________________________________________
   b. Non-example: _________________________________________________

6) Expectation: _____________________________________________________
   a. Example: _____________________________________________________
   b. Non-example: _________________________________________________
Appendix E: Verbal Prompting Training Protocol

Verbal Prompting Training Protocol

Materials:
- Training protocol and integrity sheet
- Blank SDO forms

Advance Preparation:
- Inform the teacher that she/he may wish to bring a sheet of current classroom rules or expectations in her/his classroom.

Step 1: Explain session purpose

- Explain that you are meeting to look at the intervention (verbal prompting) and practice its implementation.
- Provide an overview of Didactic Training by briefly describing steps including review of the intervention.
- Discuss the goals for Didactic Training: increasing the implementers’ implementation skills and confidence regarding verbal prompts delivery.

Step 2: Didactic training

- Provide an overview of the intervention, its purpose in supporting student outcomes and a rationale for its effectiveness. Throughout, encourage the implementers’ active involvement by asking questions about implementation, use of the step, and answering any questions.
- Definition of verbal prompts: Verbal reminders that are provided before a behavior is expected that describes what is expected. In this study, verbal prompts do not include instructions, choices, and opportunities to respond.
- Key components
  - Preventative: take place before the behavior response occurs
  - Understandable: the prompt must be understood by the student
  - Observable: the student(s) must distinguish when the prompt is present
  - Specific and explicit: describe the expected behavior (and link to the appropriate expectation)
- Examples
  - Before the class transitions, states, “Johnny, remember to use quiet voice.”
  - Verbally review classroom expectations or rules after students are seated.
- Non-Examples
  - Prior to asking students to complete a task, stating “Do a good job” or gives a thumb’s up signal.
  - Providing only the “Nos”, such as “No running”, instead of describing the desired behavior
  - Asking questions for students to answer, such as “Johnny, what is the weather like today?”
• Providing opportunities for students to respond, such as “Who can tell me how to answer this math question?”
• Providing choices to students, such as “Do you want to complete math worksheet or reading time now?”

☐ Research has indicated that the use of verbal prompting has been associated with:
  • Increases in on-task behavior and task completion
  • Decreases in off-task behavior and disruptive behavior

☐ Review each skill/step needed to implement the intervention, providing detailed instructions on how to carry out each skill/step, including any intervention materials needed.

• For the purposes of this study, 3 to 5 class-wide expectations and prompts for each expectation will be defined first. Examples and non-examples will be listed for clarity. Teachers are expected to provide prompts regarding classwide rules or expectations.

• Expected Behaviors

7) Expectation: ____________________________________________________
   a. Example: _________________________________________________
   b. Non-example: _____________________________________________

8) Expectation: __________________________________________________
   a. Example: _________________________________________________
   b. Non-example: _____________________________________________

9) Expectation: __________________________________________________
   a. Example: _________________________________________________
   b. Non-example: _____________________________________________

10) Expectation: _____________________________________________
    a. Example: _________________________________________________
    b. Non-example: _____________________________________________

11) Expectation: _____________________________________________
    a. Example: _________________________________________________
    b. Non-example: _____________________________________________

12) Expectation: _____________________________________________
    a. Example: _________________________________________________
    b. Non-example: _____________________________________________

• After the expectations and prompts are defined, use the prompts during the target class activity.
### Step 3: Answer implementer’s questions
- Ask the implementer if he/she has any questions or concerns about the intervention or its implementation.
- Address these questions and concerns the best as you can based on intervention research and your experience.

### Step 4: Review intervention logistics
- Review each of the sections of the intervention logistics handout with the implementer
  - Address questions as they arise

### Step 5: Provide information about future emailed prompting
- Describe the purpose of emailed prompting
- Ask teachers to read the prompts after they receive the emails
- Ask teachers to allow read-receipts for documentation

### Step 6: Close the session
- Revisit the consultation goals and evaluate if those goals have been met through Didactic Training.
  - If the teacher has not met the goals and would like to continue in the study, schedule a second training session.
- Ask if the implementer has any questions.
- Provide positive feedback to the implementer about his/her participation in Didactic Training.
Appendix F: Systematic Direct Observation Form

Systematic Direct Observation Form

<table>
<thead>
<tr>
<th>Date:</th>
<th>Teacher ID:</th>
<th>Observer ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Time:</td>
<td>End Time:</td>
<td>IOA?</td>
</tr>
<tr>
<td>Session #:</td>
<td>Subject:</td>
<td></td>
</tr>
</tbody>
</table>

**Student Behavior**

1. **Academic engagement (AE):** Students’ active or passive participation in classroom activities, such as listening to the teacher, silently looking at activity material, answering questions, or discussing activity-related content.
2. **Disruptive Behavior:** Students’ behaviors that interrupt classroom activities, such as leaving seat, interrupting other students, engaging in aggressive behaviors, and commenting on things that are unrelated to the classroom activities.

**Teacher Practices**

**Verbal Prompts:** Verbal reminders of expected behavior that are provided before a target behavior occurs. Verbal prompts do not include praises, directions, instructions, choices, and opportunities to respond. Teachers are expected to provide prompts regarding classwide rules or expectations.

Quality indicators of verbal prompts:

- a. Understandable: the prompt must be understood by the student
- b. Observable: the student must distinguish when the prompt is present
- c. Specific: describe the expected behavior (and link to the appropriate expectation)

**Classroom rules/expectations in the teacher’s classroom** (will be filled out after teacher training)

1. 
2. 
3. 
4. 
5. 

<table>
<thead>
<tr>
<th>Student</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Total</th>
<th>IOA Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTS AE</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTS Disruptive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Event Verbal Prompt</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understandable</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Observable</td>
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<td></td>
</tr>
<tr>
<td>Specific/explicit</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Effects of Emailed Prompts on Teachers’ Verbal Prompts

<table>
<thead>
<tr>
<th></th>
<th>Student 4</th>
<th>Student 5</th>
<th>Student 6</th>
<th>Total</th>
<th>IOA Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MTS</strong></td>
<td>AE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MTS</strong></td>
<td>Disruptive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Event</strong></td>
<td>Verbal Prompt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Understandable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Observable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Specific/explicit</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Student 7</th>
<th>Student 8</th>
<th>Student 9</th>
<th>Total</th>
<th>IOA Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MTS</strong></td>
<td>AE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MTS</strong></td>
<td>Disruptive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Event</strong></td>
<td>Verbal Prompt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Understandable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Observable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Specific/explicit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Student 9</th>
<th>Student 10</th>
<th>Student 11</th>
<th>Total</th>
<th>IOA Sum</th>
</tr>
</thead>
<tbody>
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<td><strong>MTS</strong></td>
<td>AE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MTS</strong></td>
<td>Disruptive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Event</strong></td>
<td>Verbal Prompt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Understandable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Observable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Specific/explicit</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### SUMMARY TABLES:

#### Student Behavior

<table>
<thead>
<tr>
<th></th>
<th>Total # of intervals</th>
<th>Total # of intervals in observation session</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Engagement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disruptive Behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Verbal Prompt (total)

<table>
<thead>
<tr>
<th></th>
<th>Total # of statements</th>
<th>Total # of minutes in observation session</th>
<th>Rate per minute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### TREATMENT FIDELITY:

**Rate**

\[
\text{occurrence(s) per minute}
\]

#### Quality

<table>
<thead>
<tr>
<th></th>
<th>All three indicators are present</th>
<th>Two indicators are present</th>
<th>One indicator is present</th>
<th>1 or 0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>____ 3</td>
<td>____ 2</td>
<td>____ 1</td>
<td>1 or 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>%</th>
<th>%</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>____ %</td>
<td>____ %</td>
<td>____ %</td>
<td>0 to 100</td>
</tr>
</tbody>
</table>

Indicators: understandable, observable, as well as specific and explicit
Appendix G: Social Validity Measure

(Adapted from the Usage Rating Profile-Intervention Revised [URP-IR]; Chafouleas, Briesch, Neugebauer, & Riley-Tillman, 2011; Collier-Meek et al., 2016)

Name: ____________________________________ Date: ____________________

I. Please indicate how much you agree with the following questions about using verbal prompts about classroom rules in your classroom.

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>This intervention is an effective choice for addressing a variety of problems.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>I would need additional resources to carry out this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>I would be able to allocate my time to implement this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>I understand how to use this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>A positive home-school relationship is needed to implement this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>I am knowledgeable about the intervention procedures.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>The intervention is a fair way to handle the child’s behavior problem.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>The total time required to implement the intervention procedures would be manageable.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>I would not be interested in implementing this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>My administrator would be supportive of my use of this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>I would have positive attitudes about implementing this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>This intervention is a good way to handle the child’s behavior problem.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Preparation of materials needed for this intervention would be minimal.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Use of this intervention would be consistent with the mission of my school</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Parental collaboration is required in order to use this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Implementation of this intervention is well matched to what is expected in my job.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Material resources needed for this intervention are reasonable.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>I would implement this intervention with a good deal of enthusiasm.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>This intervention is too complex to carry out accurately.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>These intervention procedures are consistent with the way things are done in my system.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>This intervention would not be disruptive to other students.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>I would be committed to carrying out this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>The intervention procedures easily fit in with my current practices.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>I would need consultative support to implement this intervention.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
**II. Please indicate how much you agree with the following questions about receiving antecedent prompting from the student investigator.**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.</td>
<td>I liked the procedures used in antecedent prompting.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>31.</td>
<td>I have the skills needed to receive antecedent prompting.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>32.</td>
<td>The amount of time required to receive antecedent prompting was reasonable.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>33.</td>
<td>I would need consultative support to receive antecedent prompting again.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>34.</td>
<td>I would not be interested in receiving antecedent prompting again.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**III. Please indicate how much you agree with the following questions about receiving didactic training from the student investigator.**
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.</td>
<td>I liked the procedures used in direct intervention training.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>36.</td>
<td>I have the skills needed to receive direct intervention training.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>37.</td>
<td>The amount of time required to receive direct intervention training was reasonable.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>38.</td>
<td>I would need consultative support to receive direct intervention training again.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>39.</td>
<td>I would not be interested in receiving direct intervention training again.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

45. What other feedback would you like to provide about the intervention and/or receiving antecedent prompting and didactic training.

________________________________________________________________________________________________________________________________________

________________________________________________________________________________________________________________________________________

________________________________________________________________________________________________________________________________________

Thank you!
Appendix H: Introductory Meeting Procedural Integrity

<table>
<thead>
<tr>
<th>Meeting Components</th>
<th>Occurrence</th>
<th>Non-occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Opening salutation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Explain session purpose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Provide an overview of the intervention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Review the content of the intervention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Answer implementer’s question</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Review intervention logistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Arrange for time to collect Teacher Demographics Form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Determine preferred method of communication (i.e., email or text message)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Answer teacher questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Confirm time/date of first observation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Determine time/date of next meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Closing salutation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix I: Didactic Training Procedural Integrity

<table>
<thead>
<tr>
<th>Meeting Components</th>
<th>Occurrence</th>
<th>Non-occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Opening salutation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Explain session purpose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Provide didactic training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Define verbal prompts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Review examples of verbal prompts for classroom expectations/rules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Answer implementer’s questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Review intervention logistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Provide information about emailed prompting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Describe the purpose of emailed prompting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Ask teachers to read the emails</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Ask teachers to allow read-receipts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Closing salutation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix J: Emailed Prompt Example 1

Good morning!

Frequent verbal prompts are associated with positive outcomes, including increased expected behaviors and decreased problem behavior! Throughout the day, please try to provide as many verbal prompts about your classroom rules/expectations as possible. I am including one key component of verbal prompting. I will include the other components in future emails throughout this and next week. Stay tuned!

- **Preventative**: must take place before the behavior response occurs
  - Example: Before the class transitions, states, “Everyone, remember to use quiet voice.”
  - Nonexample:
    - After Johnny shouts out in class, stating “Johnny, please use quiet voice.” (It is a correction, not a prompt.)
    - Seeing Johnny using quiet voice and saying, “I like that you’re using quiet voice, Johnny” (It is a praise, not a prompt.)
Appendix K: Emailed Prompt Example 2

Hi (Teacher Name),

As promised, this is a daily reminder about verbal prompting! Again, please remember to frequently provide verbal prompts to your students about classroom rules. This email includes one key component about verbal prompting that will help students follow your classroom rules/expectations.

- **Understandable**: Please make sure the prompts you provide are understandable for your target audience, whether they are for the whole class or individual students.

  □ Example: Stating taught classroom rule, ”Remember to use quiet voice in class”

  □ Nonexample: When delivering prompts, using vocabulary or gestures that students don’t understand.
Appendix L: Emailed Prompt Example 3

Hello (Teacher name)!

Throughout the day, please verbally prompt your students to follow classroom expectations/rules to promote expected behaviors. Using observable verbal prompts help students do what you want them to do.

- **Observable**: the student(s) must distinguish when the prompt is present
  - Example: Pointing at the classroom rule poster and verbally going over each rule
  - Nonexample:
    - Pointing to visual cue about “keep hands to self” without verbally illustrating the expected behavior.
    - Delivering prompts to a student from a distance with inaudible volume
      (Students may not be able to tell that you are presenting a prompt)
Appendix M: Emailed Prompt Example 4

Good morning!

In addition to preventative, understandable, and observable, please also remember that the prompts you provide should be specific/explicit. That is, the prompts are supposed to describe the classroom rules/expectations.

- Example: State “Remember to stay in your seat” when the morning meeting starts.
- Nonexample: Prior to asking students to complete a task, stating “Do a good job” or gives a thumb’s up signal. (It can be more specific and explicit by stating what behavior you expect to see)

If you have any questions, please feel free to reach out!
Appendix N: Introduction Email for the Emailed Prompting

Hello, XXX (Teacher name),

Happy Monday! As we discussed, throughout this and next weeks, I will be sending out reminders about using verbal prompts. Please read the emails and allow the automatic read-receipts!

If you have any questions, please just email me back!

Best,

(Researcher’s name)
## Appendix O: Research Question Matrix

<table>
<thead>
<tr>
<th>Primary Research Questions</th>
<th>Hypotheses</th>
<th>Data to be Collected</th>
<th>Data Analysis Procedure</th>
<th>What Data Would Expect to Answer Research Questions (Decision Rules)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Will emailed prompts increase teachers’ rate of verbal prompts?</td>
<td>After receiving emailed prompts, teachers will increase the level of rate of verbal prompts.</td>
<td>Rate of verbal prompts will be collected with a Systematic Direct Observation Form using event coding procedure.</td>
<td>Visual analysis procedures will be used to determine level, trend, and variability within each phase and across phases, as well as the immediacy of the effect between the baseline and first implementation support phase. The Improvement Rate Difference will be used to measure the effect size.</td>
<td>Direct observation of rate data collected based on a rubric will increase without additional implementation supports.</td>
</tr>
<tr>
<td>2. Will emailed prompts increase teachers’ quality of verbal prompts?</td>
<td>After receiving emailed prompts, teachers will increase the level of quality of verbal prompts.</td>
<td>Quality of verbal prompts will be collected with a Systematic Direct Observation Form</td>
<td>Visual analysis procedures of the average of quality indicator in each observation session</td>
<td>Given that there is no research on the quality of verbal prompts using the quality indicators in this</td>
</tr>
</tbody>
</table>
### Secondary Research Question

<p>| 1. Will students’ academic engagement increase after emailed prompts are introduced? | As the rate and quality of teachers’ verbal prompts increase, observer ratings of students’ academic engagement will increase. | Students’ academic engagement will be documented with a momentary time sampling procedure via the Systematic Direct Observation Form. | Visual analysis procedures will be used to determine level, trend, and variability within each phase and across phases, as well as the immediacy of the effect between the baseline and first implementation support phase. The Improvement Rate Difference will be used to measure the effect size. | An increase in level, trend, and a decrease of variability are expected after emailed prompts are introduced. |</p>
<table>
<thead>
<tr>
<th>2. Will students’ disruptive behavior decrease after emailed prompts are introduced?</th>
<th>As the rate and quality of teachers’ verbal prompts increase, observer ratings of students’ disruptive behavior will decrease.</th>
<th>Students’ disruptive behavior will be documented with a momentary time sampling procedure via the Systematic Direct Observation Form.</th>
<th>Visual analysis procedures will be used to determine level, trend, and variability within each phase and across phases, as well as the immediacy of the effect between the baseline and first implementation support phase. The Improvement Rate Difference will be used to measure the effect size.</th>
<th>A decrease in level, trend, and variability is expected after emailed prompts are introduced.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Will teachers rate emailed prompts as a socially valid support for improving their implementation of evidence-based classroom management strategies?</td>
<td>Teachers will rate emailed prompts as a socially valid support for improving their delivery of verbal prompts.</td>
<td>A social validity form adapted from the Usage Rating Profile-Intervention Revised will be completed by participating teachers at the end of the study.</td>
<td>Descriptive statistics (e.g., mean, standard deviation) will be calculated.</td>
<td>Mean scores for acceptability, understanding, feasibility, and system support subscales at or above 5.0 (“Agree”) will indicate that the teachers rate emailed prompts as socially valid.</td>
</tr>
</tbody>
</table>
Appendix P: Logic Model

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Activities</th>
<th>Outputs</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Studies regarding classroom management practices, implementation strategies, teacher prompts, and emailed-prompts</td>
<td>• Reviewing literature in classroom management practices and implementation supports</td>
<td>• Training manuals for verbal prompt delivery</td>
<td>• Available resources to evaluate rate and quality of verbal prompt delivery</td>
</tr>
<tr>
<td>• Manuals for classroom management practices</td>
<td>• Developing and revising research proposal</td>
<td>• Manuals for data collection on treatment fidelity</td>
<td>• Manuals for verbal prompts plans</td>
</tr>
<tr>
<td>• Project team with sufficient expertise on classroom management practices and data collection</td>
<td>• Obtaining feedback from experts in classroom management practices and emailed prompts</td>
<td>• Data about student outcomes and teacher treatment fidelity</td>
<td>• Emailed prompts for verbal prompts plans</td>
</tr>
<tr>
<td>• Potential funding for data collectors and participating teachers</td>
<td>• Training teachers and data collectors</td>
<td>• Dissertation</td>
<td>• Trained teachers to deliver verbal prompts</td>
</tr>
<tr>
<td>• Technology supports for emailed prompts and videos for interobserver agreement</td>
<td>• Conducting study and collecting data</td>
<td>• Project publications, presentations, and materials</td>
<td>• Contribution to research on implementation science and classroom management practices</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Short-Term</th>
<th>Medium-Term</th>
<th>Long-Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvements</td>
<td>Adoption and improvement of emailed prompts for classroom management practices</td>
<td>Increased level of treatment fidelity demonstrated by teachers</td>
<td>More research effort in classroom management practices and implementation science</td>
</tr>
<tr>
<td></td>
<td>Maximized implementation quality of classroom management practices</td>
<td>Grant application to replicate the study in various settings and interventions</td>
<td>Improved students’ academic and behavioral outcomes</td>
</tr>
</tbody>
</table>