COMPARING THE EFFECTS OF ANTECEDENT-

BASED INTERVENTIONS ON TASK ENGAGEMENT

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COMPARING THE EFFECTS OF ANTECEDENT-BASED INTERVENTIONS ON TASK ENGAGEMENT

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Title of Study: COMPARING THE EFFECTS OF ANTECEDENT-BASED INTERVENTIONS ON TASK ENGAGEMENT

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Abstract: A small-n, multiple treatment reversal design was utilized across subjects to investigate the effects of teacher greetings upon latency to task engagement and levels of on-task behavior, replicating prior studies conducted by Allday and Pakurar (2007) and Allday, Bush, Ticknor, and Walker (2011), who studied junior high and high school departmentalized classrooms. Four subjects across three self-contained elementary school classrooms were identified as having difficulty both initially engaging and sustaining engagement with task demands upon re-entry to the classroom from extra-curricular classes. Researchers measured subject latency from teacher greeting until the subject's displayed five seconds of consecutive task engagement, then levels of on-task behavior were observed for a subsequent ten minute duration. Results diverged from the original studies, with teacher greetings reducing latency to task engagement and increasing levels of on-task behavior for one subject.

TABLE OF CONTENTS

Chapter Page

LIST OF TABLES

Table Page

Table 1

Inter-observer Agreement

Subject	Latency to Task Engagement Range	Latency to Task Engagement Average	On-Task Behavior Range	On-Task Behavior Average
1	96-100%	99%	72.5-97.5%	90%
2	69-100%	92%	57.5-95%	84%
3	63-100%	88%	82.5-100%	90%
4	88-100%	96%	77.5-97.5%	88%
Across Subjects	--	94%	--	88%

Table 2

Latency to Task Engagement Results

Subject	Teacher	Phase A Average	Phase A Range	Phase B Average	Phase B Range	Phase C Average	Phase B Range	Return to Phase A Average	Return to Phase A Range
1	A	66	42-116	46	18-77	37	12-80	50	27-80
2	A	62	14-125	48	15.5-83	56	13-93	--	--
3	B	56	43-80	33	16-86	49	9-122	--	--
4	C	27	12-81	21	19-22	43	23-62	--	--

Note. Latency measured in seconds

Table 3

On-Task Behavior Results (measured via percentages)

Subject	Teacher	Phase A Average	Phase A Range	Phase B Average	Phase B Range	Phase C Average	Phase C Range	Return to Phase A Average	Return to Phase A Range
1	A	85%	45-77.5%	54%	22.5-82.5%	87%	82-97.5%	42%	12.5-97.5%
2	A	67%	55-82.5%	64.5%	30-75%	54%	30-75%	--	--
3	B	57.5%	57.5-62.5%	67%	47.5-80%	54%	30-70%	--	--
4	C	71%	42-100%	77%	55-100%	75%	57-97.5%	--	--

Table 4

Latency to Task Engagement Effect Sizes

Subject	Phase A to B NAP	Phase A to B Confidence Intervals	Phase B to C NAP	Phase B to C Confidence Intervals	Phase C to A-2 NAP	Phase C to A-2 Confidence Intervals
1	0.35	-0.972 – 0.372	0.375	-0.922-0.422	0.6563	-0.311-0.936
2	0.44	-0.750-0.51	0.55	-0.572-0.772	--	--
3	0.1667	-1.375-0.041	0.5500	-0.501-0.701	--	--
4	0.625	-0.355-0.855	1	0.225-1.775	--	--

Table 5

On-Task Behavior Effect Sizes

Subject	Phase A to B NAP	Phase A to B Confidence Intervals	Phase B to C NAP	Phase B to C Confidence Intervals	Phase C to A-2 NAP	Phase C to A-2 Confidence Intervals
1	0.45	-0.772-0.572	0.95	0.228-1.572	0.2188	-1.275-0.15
2	0.44	-0.75-0.51	0.325	-1.022-0.322	--	--
3	0.6667	-0.375-1.041	0.25	-1.101-0.101	--	--
4	0.5938	-0.418-0.793	0.5	-0.755-0.755	--	--

LIST OF FIGURES

Figure Page

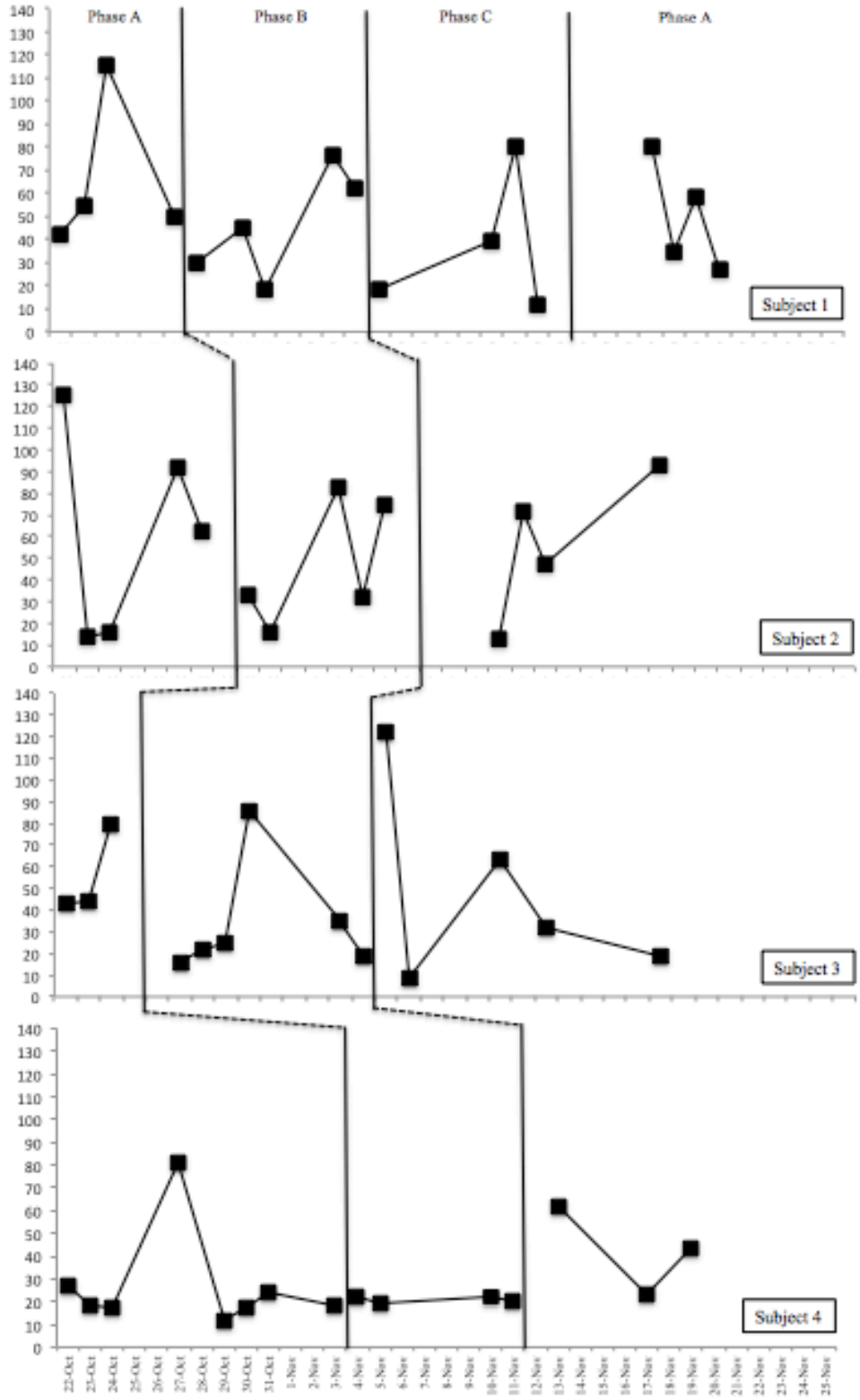

Figure 1. Latency to On-Task Engagement Measured in Seconds.

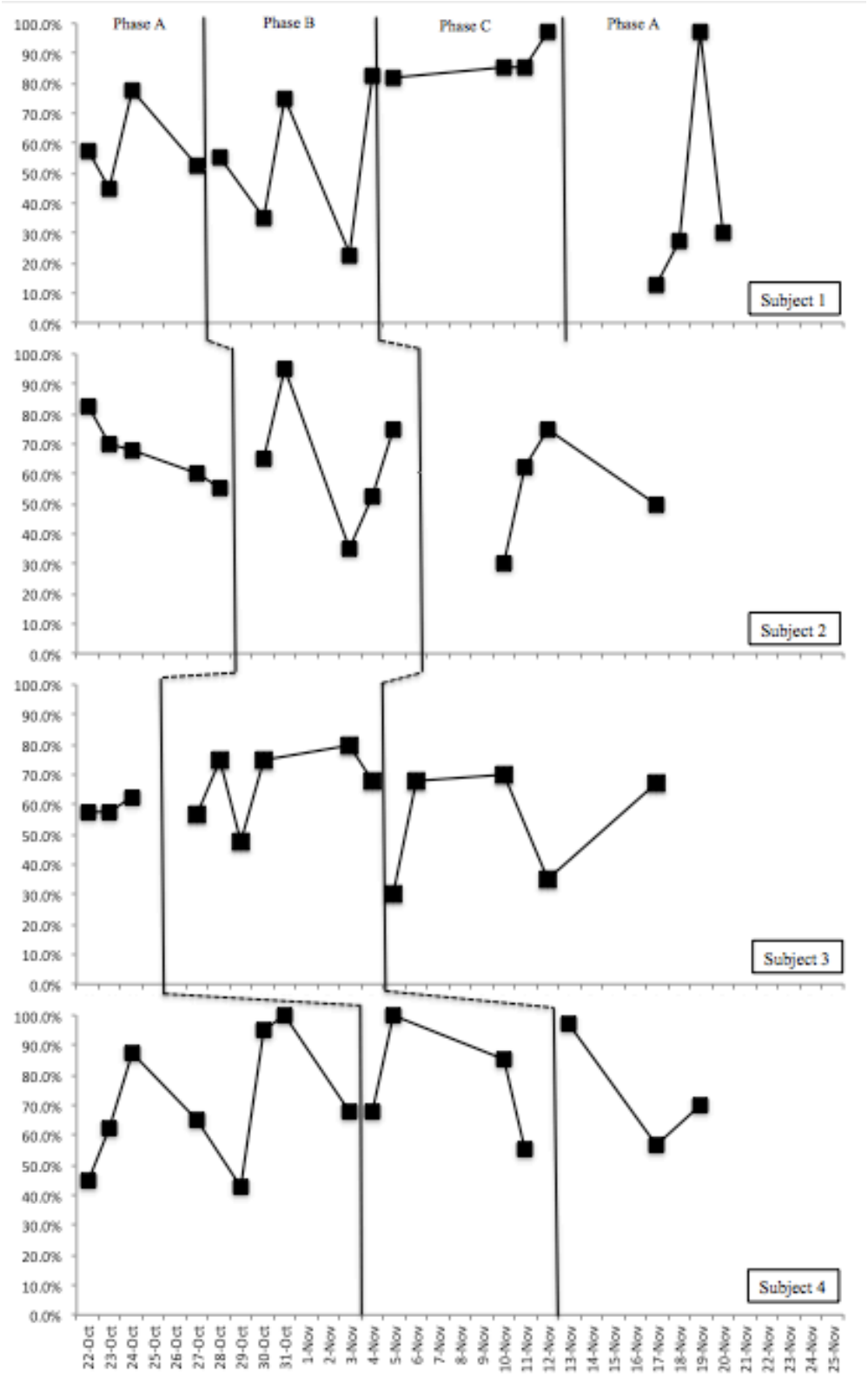

Figure 2. Percentage of On-Task Behavior During Ten Minute Duration Following Initial Task Engagement.

CHAPTER I

INTRODUCTION

One of the school psychologist's many roles is that of consultant, a role that requires provision of teacher support (Hanchon & Allen, 2013). One of the most challenging concerns teachers report is classroom behavior management, and teachers report feeling unsupported in this essential competency area (Reinke, Herman, & Sprick, 2011). Terminology for classroom management has varied between disciplines, however the National Association of School Psychologists has delineated four essential components to classroom management, including effective teaching, preventative and proactive strategies, correction techniques that are practical, and strategies both positive and supportive (2004). Applied behavior analysis simplifies these four factors into simply decreasing inappropriate student behavior while simultaneously increasing and shaping appropriate behavior through reinforcement and punishment within an ecological and antecedent context (Dunlap & Kern, 1996).

Effective Classroom Management

In order to maximize academic and emotional student success, effective classroom management must occur (Reinke et. al., 2011). Studies have linked effective classroom management to improved mathematics and reading scores, increased positive peer interactions, and overall student achievement (Freilberg, Huzinec, & Templeton, 2009; Wang, Haertel, &

Walbert, 2003; Wilson, Pianta, & Stuhlman, 2007). Conversely, off-task behavior can increase student and teacher stress, decreases classroom instruction time, and results in negative long-term academic and behavioral consequences (Ialongo, Poduska, Werthamer, & Kellam, 2001; Kellam, Ling, Merisca, Brown, & Ialongo, 1998; McCormick & Barnett, 2011; Weinstein, 2007; National Research Council, 2002).

On-Task Behavior and Task Engagement

On-task behavior and engagement are two common dependent variables in classroom management research, as academic learning is contingent upon student engagement in the associated learning task demand (Brophy & Good, 1984; Emmer and Stough, 2001). Both on-task behavior and task engagement refer to the stimulus-response relationship in which a teacher prompts a student via directions and the student demonstrates socially valid responses aligned with the prompt. Individual components of both constructs include orientation towards the task or teacher, complying with teacher instructions, and demonstrating nonverbal and verbal listening responses (Allday, Bush, Ticknor, & Waller, 2011; Allday & Pakurar, 2007). Both percentage of on-task behavior and latency to task engagement serve as valuable metrics when analyzing on-task behavior, as students who engage in tasks more quickly increase their instructional time and decrease opportunities to engage in incompatible, disruptive behaviors.

Non-contingent Reinforcement

A critical, yet under-investigated, aspect of the classroom management literature is the role of antecedent interventions. Rather, the literature on consequences, including reinforcers and punishers, is overrepresented (Dunlap & Kern, 1996). One type of antecedent interventions, non-contingent reinforcement, has shown success in reducing problematic behaviors (Carr, Severtson, & Lepper, 2009; Cooper, Heron, & Heward, 2007). Interventions with reduced time constraints and simple implementation, such as antecedent intervention, can result in higher teacher ratings

of treatment acceptability and can be easily embedded into the classroom. Arguably, such strategies should be attempted before a more exhaustive functional behavioral assessment is conducted (Elliot, Witt, Galvin, & Peterson, 1984). Teacher greetings, an uncomplicated form of non-contingent reinforcement, have proven to be effective in increasing levels of on-task behavior and decreasing latency to task engagement in junior high and high school students.

Research Questions and Hypotheses

The purpose of the present study was to not only replicate prior studies conducted by Allday et al., but extend these interventions to a younger population, administer the intervention upon re-entry to the classroom versus initial entry, and examine the multiple components of the teacher greeting (2007; 2011). Based on the Allday et al. existing studies of teacher greeting and task engagement, the following research questions were investigated:

(a) Will applying non-contingent attention in the form of a simple teacher greeting decrease latency to task engagement and increase on-task behavior?
(b) Will applying non-contingent attention in the form of a complex teacher greeting, similar to the one used in Allday and Pakurar's 2007 study, decrease latency to task engagement and on-task behavior?
(c) Which type of teacher greeting will yield a larger decrease in latency to task engagement between baseline and intervention phase?
(d) Which type of teacher greeting will yield a larger increase in on-task behavior between baseline and intervention phase?

It was hypothesized that both types of teacher greetings will yield increases in speed to task engagement and on-task behavior as compared to baseline levels of both variables. It was also hypothesized that the complex teacher greeting would yield larger decreases in latency to task engagement, as well as larger increases in on-task behavior, relative to the simple greeting.

CHAPTER II

REVIEW OF THE LITERATURE

Classroom Management

As the duties of a school psychologist continue to shift away from assessment and into more time spent in direct intervention and consultation, school psychologists should expect teacher support to be a critical aspect of their responsibilities (Anonymous, 2010; Hanchon & Allen, 2013; McGraw & Koonce, 2011). Both the fields of education and school psychology have struggled in an ongoing endeavor to discover a successful formula for effective classroom management that is both effective and easily implemented with fidelity. In a recent survey conducted by Reinke, Herman, and Sprick, over 200 teachers reported their most difficult challenge to be classroom behavior management (2011). Additionally, the teachers disclosed receiving inadequate support and training in regards to classroom management and desired additional training.

The language used to describe classroom management varies across disciplines and pedagogical backgrounds. Before empirical research in applied settings, teachers struggled to identify what strategies worked best for their individual classrooms, which was based on theory-driven ideas and unsystematic anecdotal evidence (Brophy, 1983). Academics attempted to delineate a clear definition for classroom management, despite differences across districts, grade levels, and individual classrooms. Emmer and Stough define classroom management as "actions

taken by the teacher to establish order, engage students, or elicit their cooperation," (2001, p. 103). The National Association of School Psychologists states classroom management occurs in the presence of four factors: effective teaching, proactive preventive strategies, practical corrective strategies, and positive supportive techniques (2004). Effective classroom management occurs when a teacher both responds to problematic behavior and implements strategies intended to prevent these incidents from initially occurring (Brophy, 1983).

Applied behavior analysis and classroom management. Cooper, Heron, and Heward define applied behavior analysis (ABA) as "the science in which tactics derived from the principles of behavior are applied systematically to improve socially significant behavior and experimentation is used to identify the variables responsible for behavior change" (2007, p. 20). Applied behavior analysis utilizes the three-term contingency framework to explain the interdependent components associated with behavior. The three-term contingency includes the following components: "A" (antecedent stimulus) followed by "B" (behavior), followed immediately by "C" (consequence; Cooper et al., 2007). When the desired outcome ("B" or behavior) is appropriate student behavior, classroom management is said to have occurred through the manipulation either "A" or antecedent events preceding student behavior and "C" or consequences following student behavior.

In the ABA literature, classroom management often refers to increasing and shaping appropriate student behavior, while decreasing inappropriate student behavior, through the basic principles of ABA, including reinforcement and punishment at both the individual and class-wide levels. Instead of viewing behavior as the result of an internally mediated drive or innate thought process, problem behaviors are understood to occur within their "antecedent and ecological context" (Dunlap & Kern, 1996, p. 298). While ABA is not consistently accepted amongst educational researchers, the benefits of ABA, including determining the function of a specific behavior and empirically analyzing the effectiveness of treatments through single-case research,

make it an invaluable tool in classroom management (Emmer & Stough, 2001; LeCroy & Goodwin, 1979; Sugai, et al., 2000; Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008). Applied behavior analysis has demonstrated effectiveness in a multiple educational areas, including Direct Instruction, positive behavioral support, curriculum-based measurement, curriculum matching, and reducing behavioral issues in students with and without disabilities. It provides an empirically superior system of classroom management that serves as the best means of satisfying the Individuals with Disabilities Education Improvement Act of 2004 requirements for providing behavioral support to students (Bloh & Axelrod, 2008).

Outcomes of effective classroom management. Effective classroom management creates an environment essential for academic and emotional progress (Reinke et. al., 2011). A 2009 study involving the implementation of a behaviorally based classroom management intervention to 14 elementary schools in an urban school district found students whose teachers were trained in a classroom and instructional management program performed better in mathematics (ranking in the 67th percentile) and reading (ranking in the 64th percentile) versus students in the control group (ranking in the 50th percentile in both categories; Freilberg, Huzinec, & Templeton, 2009). Wilson, Pianta, and Stuhlman reported a statistically significant negative relationship between high-quality classrooms and disruptive behavior, as well as increased positive or neutral behaviors with peers (2007). Wang, Haertel, and Walberg analyzed a list of 228 variables affecting student achievement and found classroom management to be the strongest influencing variable (2003).

In addition to inhibiting student academic and social growth, disruptive behavior limits classroom instruction time and increases student and teacher stress levels (Reinke, et. al., 2011). A recent survey of teachers showed a statistically significant relationship between student misbehavior and teacher emotional exhaustion (McCormick & Barnett, 2011). Good and Grouws found teachers in a mathematics research program with more effective management skills spent

less time handling discipline problems and transitioning, leading to subsequent gains in academic achievement (1977).

The negative outcomes associated with poor classroom management reach farther than the student's current classroom. When compared to students in well-managed classrooms, students placed in ineffectively-managed classrooms subsequently can experience long-term negative consequences related to their academics, behavior, and social well-being, including being at greater risk for exhibiting future challenging classroom behaviors, obtaining reduced levels of academic instruction, being identified for special education services, and developing depression and conduct disorder, as well as other emotional problems (Ialongo, Poduska, Werthamer, & Kellam, 2001; Kellam, Ling, Merisca, Brown, & Ialongo, 1998; Weinstein, 2007; National Research Council, 2002). With such negative outcomes possible, observing teacher's classroom management, consulting, and providing preventative teacher trainings on effective classroom environments should be a key focus of every school psychologist. Furthermore, the longitudinal magnitudes of these effects necessitate a particular emphasis on developing effective classroom management skills in elementary school.

Features of effective classroom management. Across the literature professionals have identified essential features of effective classroom management by including two primary methods of reducing inappropriate student behavior: disciplinary consequence-maintained strategies and preventative instruction (Gettinger, 1988). Classroom management is a preventative first tier in behavioral support, which may include high teacher expectations, encouraging instruction with high levels of student engagement, clearly defined rules and classroom norms, established routines and procedures, positive teacher-student relationships, and effective use of classroom time (Sayeski & Brown, 2011). This concept of classroom management as the first step of many in a school-wide positive behavioral support system is not a recent development in the field, but rather the combination of years of evidence-based practices

into an efficient system that manipulates environmental variables to maximize student academic and behavioral outcomes (Sugai et al., 2000). In a 1984 paper reviewing process-product correlational and experimental research, Brophy and Good explored the relationship between teacher behavior and student achievement. Their findings suggested that student engagement, and therefore achievement, is dependent on effective classroom management strategies such as clearly establishing classroom rules and routines from the first day of the school year, the teacher's ability to demonstrate "withitness" or clearly communicating they are aware of student behavior, rapid pacing in instructional delivery, an appropriate level of difficulty and varied presentations of assignments, following through with accountability procedures for task completion, and clearly explaining how to request help and what behaviors to engage in upon task completion (Brophy & Good, 1984).

For many teachers, student delay in task engagement at the beginning of the day is a critical concern (Allday, Bush, Ticknor, & Walker, 2011; Wehby & Hollahan, 2000). When a student refuses to begin their assigned task, the student decreases his individual academic learning time and may engage in behaviors disrupting peers. While some school districts may be able to compensate for this lost time by increasing school days or years, these tactics are both expensive and often unfeasible (Skinner, Belfiore, & Watson, 1995, 2002). Campbell and Skinner stated students may not engage in appropriate behavior during transition times, such as in the beginning of the day, due to three factors: transition times make student behavior harder to monitor, each student's physical proximity to their peers is increased, and access to reinforcement through acceptable behaviors (such as teacher praise for task completion) is reduced in availability (2004).

On-Task Behavior and Task Engagement

Most research in the area of classroom management has focused on the outcome

variables of student on-task behavior and engagement (Brophy & Good, 1984; Emmer & Stough, 2001). Emmer and Stough argued that in in order for learning to occur, students must be engaged in the learning task. When disruptive behavior occurs, the student not only inhibits their own learning potential, but the opportunities for their peers to learn as well (Sugai & Horner, 2002; Walker et al., 1996). The amount of time a student spends engaged in a task becomes even more essential when considering students diagnosed with learning problems need more time to acquire information, and these students are often more disruptive (Gettinger, 1984).

Conceptualizing on-task behavior. Researchers have defined on-task behavior in an attempt to determine functional relationships between student behaviors and various classroom antecedents and consequences. In a 2007 study conducted by Allday and Pakurar, the researchers defined on-task behavior as:

> (a) actively listening to teacher instructions, defined as being oriented toward the teacher or task and responding verbally (e.g., asking questions about the instructions) or nonverbally (e.g. nodding head or eye contact); (b) following the teacher's instructions; (c) orienting appropriately toward the teacher or task; or (d) seeking help in the proper manner (e.g. raising hand)," (p. 318).

On-task behavior and engagement are two words that refer to the same concept: a student demonstrates socially valid responses in the context of a classroom in response to a teacher's directions. Therefore, it is not surprising that in a subsequent 2011 study conducted by Allday, Bush, Ticknor, and Walker, their definition of task engagement is almost identical to the aforementioned definition of on-task behavior:

> *Task engagement* was defined as actively participating in the designated activity by (a) being oriented toward the teacher or task, (b) having necessary materials, (c) following teacher directions, and (d) listening through verbal (e.g. asking questions) and nonverbal

(e.g., nodding head or eye contact) means" for at least 5 consecutive seconds (2011, p. 394).

In a 2013 literature review conducted by Gil and Remedios, the authors argued clinical research has struggled to conceptually define the construct of on-task behavior as well as the off-task behavior counterpart. During this literature review, 54 studies measuring on-task behavior were analyzed and then placed into categories according to their operationalization of the construct. They proposed researchers abide by a checklist of typical construct definitions that are pre-sorted into the following categories of applicability to specific learning contexts: necessary in all learning contexts, individual learning contexts, collaborative learning contexts, and inappropriate for capturing on-task behavior. The results of their literature review suggested that researchers should not view on-task behavior and task engagement as synonymous, but rather view on-task behavior as a proxy for the underlying construct of student engagement. However, as the observable behaviors related to both constructs are topographically identical, Allday's choice to measure both on-task behavior and student engagement synonymously with similar criteria proves logical.

Latency. The amount of time that passes between a stimulus onset and the beginning of a following responsive behavior is termed latency, or response latency (Cooper et al., 2007). When researchers wish to measure a time lapse between stimulus and response, latency can be measured in terms of excessive and insufficient duration. Latency data are typically reported in terms of the mean, median, and range of each subject's latency values in each observation period (Cooper et al., 2007).

Latency has been used as the dependent variable in many studies. In 2011, Allday et al. measured the latency between a student's entrance into the classroom and task engagement and found that implementing teacher greetings reduced latency to task engagement. Lerman, Kelley,

Vorndran, Kuhn, and LaRue found increasing a subject's delay to reinforcement resulted in an increase in the subject's latency to demonstrate the desired communicative response (2002). The connection between latency, on-task behavior, and classroom management is straightforward. When a student engages in the appropriate, assigned task more quickly, their time to learn new material expands. On the other hand, the longer the duration between stimulus (e.g., teacher instructions) and response (e.g., on-task behavior), the more opportunities arise for students to seek reinforcement through behaviors that are not socially valid, and learning time is decreased.

Antecedent Interventions

Despite being widely recognized as an important contributing factor to students' academic and social success, the literature base regarding classroom management lacks significant depth in areas beyond positive reinforcement and opportunities to respond. According to Dunlap and Kern, "the role of antecedent influences has been overshadowed by the operations of consequences (rewards and punishers), even though their functions are complementary and interrelated" (1996, p. 299). Other classroom management techniques, such as non-contingent interactions, are mentioned as effective but remain underrepresented in the literature (Reinke, 2011).

As discussed earlier, Skinner's three-term contingency (A-B-C, antecedent-behavior-consequence) is a foundational component of ABA. The first term of that sequence, the antecedent, is considered to be a "historically underemphasized area of applied behavior analysis," (Cooper et al., 2007, p. 487). Conceptually, confusion has likely arisen from using multiple terminology, including antecedent procedures, antecedent control, antecedent manipulations, and antecedent interventions as an umbrella for multiple behavior change agents, including stimulus control and motivating operations, despite their differing functions (Cooper et al., 2007). Antecedent stimuli fall into two functional categories: contingency-dependent (i.e.,

stimulus control functions where the availability of a consequence is controlling the behavior) and contingency-independent.

Contingency-independent and non-contingent reinforcement. When the antecedent evokes or ablates behavior, versus remaining dependent on the consequences following a behavior to exert antecedent control, an antecedent event is said to be contingency independent (Cooper et al., 2007). When an antecedent intervention is consequence independent or time-based and provides an antecedent stimulus with known reinforcing properties, non-contingent reinforcement has occurred (Vollmer, Iwata, Zarcone, Smith, & Mazaleski, 1993). In these interventions, the non-contingent reinforcement (NCR) may reduce problematic behavior by serving as an establishing operation, reducing disruptive behaviors, and result in comparable or higher reinforcement rates than Differential Reinforcement of Other Behavior (DRO) interventions (Cooper et al., 2007).

Several studies have implemented non-contingent reinforcement successfully. A 2009 review of the literature conducted by Carr, Severtson, and Lepper analyzed 59 studies in order to classify the empirical non-contingent reinforcement literature base according to The Task Force on the Promotion and Dissemination of Psychological Procedures' 1995 criteria. The articles were coded by participant characteristics, study setting, topographical target behavior, behavioral function, presence of functional analysis, treatment linked to assessment, experimental design, the comparison condition, type of NCR treatment, schedule thinning, treatment effect, effect size, clarity of treatment description, fidelity of procedure, social validity. Non-contingent reinforcement provided on a fixed time schedule with schedule thinning and extinction was determined to be a well-established treatment. Non-contingent reinforcement simply provided on a fixed time schedule or variable time schedule plus extinction was classified as probably efficacious. Simple non-contingent reinforcement provided on a fixed time schedule or provided

on a fixed schedule with only schedule thinning would be classified as an experimental treatment (Carr et al., 2009).

Although this study did review a large section of the research base, the authors excluded studies in which the source of non-contingent reinforcement was not determined through experimental functional analysis. However, conducting an entire functional analysis of behavior is resource-intensive for the general classroom teacher. Research has shown teachers' ratings of treatment acceptability increases as the proposed intervention's complexity and time requirements decreased (Elliot, Witt, Galvin, & Peterson, 1984). While non-contingent reinforcement is a function-based treatment, and under ideal circumstances it should involve systematically identifying the reinforcer prior to implementation, functional behavioral assessments require time and trained personnel (Carr, Severtson, & Lepper, 2009). However, non-contingent reinforcement interactions are easily implemented with the assumption a functional relationship exists between a reinforcer (i.e., social attention, edible) and target behavior. In terms of feasibility and efficiency, non-contingent interactions are easy to embed into general classroom management procedures and routines, making the identification of such efficient and effective antecedent interventions valuable to school psychologists providing classroom management consultation to teachers in applied settings.

In 2007, Allday and Pakurar found providing teacher-delivered non-contingent reinforcement substantially increased on-task behavior in students during ten-minute intervals at the beginning of class periods. A multiple baseline design was implemented using three middle schools, general education students exhibiting problem behaviors. Teachers were trained to provide non-scripted greetings to students at the beginning of the class period. In this study, complex non-scripted greetings consisted of a simple greeting word (such as "hello" or "good morning"), the student's name, and a positive observation about the student unrelated to their behavior (such as "I like your shoes," versus "I like how you are quietly entering the room").

These greetings differentiate from potentially providing only the simple greeting word and the student's name or scripting the teacher's interaction with the student (remaining the same and potentially losing its reinforcement potential as the student habituated to the greeting). Non-scripted greetings were utilized to encourage a more naturalistic interaction. Momentary-time sampling was used to measure the student's on-task behavior during the first ten minutes of the class period after administration of the antecedent intervention. The percentage of on-task behavior, on average, rose from 37% at baseline to 66% during the intervention phase. Researchers hypothesized that antecedent attention eliminated establishing operations for attention-maintained off-task behavior (Allday & Pakurar, 2007).

Allday et al. (2011) later conducted a similar study, exploring the effects of non-contingent interactions on latency to task engagement. Utilizing a multiple baseline design, teachers were trained to specifically greet three general education students (two in high school; one in junior high) identified as having difficulty engaging in tasks at the beginning of the class period. From baseline to intervention phase, each student decreased their latency time in the following amounts: from 179 to 44 sec, 54 to 23 sec, and 114 to 29 sec. While the researchers speculated the teacher greetings served as a discriminative stimulus for engaging in on-task behavior, they did not measure the likelihood of the teacher providing attention contingent on on-task behavior during the intervention phase. This limitation threatens internal validity, as teachers may have been likely to provide contingent attention during intervention phase after being prompted to greet students. The effects of the consequence-based intervention (providing reinforcement contingent on on-task behavior) could have potentially interacted with the effects of the antecedent-based intervention (teacher greetings).

Advantages. Kern and Clemens (2007) point out four advantages antecedent interventions have versus common reactive approaches, meaning strategies that first expose students to disruptive behavior and serve a punitive versus instructional purpose (Bambara &

Kern, 2005). First, antecedent interventions serve as a preventative strategy to reduce or eliminate difficult behaviors. Second, antecedent interventions often result in a rapid decrease in problematic behavior, which is important in terms of preventing dangerous behaviors (Kern, Bambara, & Fogt, 2002; Sugai et al., 2000). Antecedent interventions can also serve as a method for adapting the environment to compensate for mismatches between a student's initial environment and their individual abilities (mismatching causing problematic behaviors). (Brophy & Good, 1984). Finally, when an antecedent intervention decreases problematic behavior, it increases the likelihood that students will achieve and produce at higher levels, improving the instructional environment (Kern & Clemens, 2007).

Non-contingent reinforcement has some empirical support to validate its use for decreasing off-task behavior and increasing student engagement in the classroom. However, the components of the non-contingent reinforcement, such as greeting a student by name student's name or providing a non-contingent reinforcing statement, have yet to be examined, especially in terms of their effects on on-task behavior and latency to task engagement. The literature does not indicate which component of a non-contingent antecedent intervention, particularly within the NCR strategy of teacher greetings, is actually responsible for the reductions in latency to task engagement or increases in on-task behavior, as demonstrated in the studies conducted by Allday et. al. Nor has this class of interventions been tested with elementary aged students.

Conclusion and Research Questions

Previous literature has demonstrated the effectiveness of using non-contingent interactions to increase speed to task engagement and on-task behavior, as well as the effectiveness of reducing the level of task demand to increase on-task behavior. However, the current study aimed to compare the effects of providing different components of non-contingent interactions upon latency to task engagement and on-task behavior at the beginning of the

classroom session in an elementary level population. The following four research questions were intended to expand the literature base regarding the effectiveness of non-contingent interactions:

(a) Will applying non-contingent attention in the form of a simple teacher greeting decrease latency to task engagement and increase on-task behavior in elementary school children?

(b) Will applying non-contingent attention in the form of a complex teacher greeting, similar to the one used in Allday and Pakurar's 2007 study, decrease latency to task engagement and on-task behavior in elementary school children?

(c) Which type of teacher greeting will yield a larger decrease in latency to task engagement between baseline and intervention phase in elementary school children?

(d) Which type of teacher greeting will yield a larger increase in on-task behavior between baseline and intervention phase in elementary school children?

It was hypothesized that the answers to both questions (a) and (b) would replicate the findings of previous studies, with both conditions resulting in decreases in latency to task engagement and increases in on-task behavior. It was also hypothesized that providing the more complex teacher greeting, combining the simple teacher greeting with a positive statement non-contingent on the subject's behavior, would result in a more substantial decrease in latency to task engagement and on-task behavior than the simply teacher greeting condition.

CHAPTER III

METHODOLOGY

Study Design and Rationale

While psychology has typically utilized research designs requiring large numbers of participants to compare groups, therefore increasing external validity, internal validity can be increased by using small-N research designs (Cooper, Heron, & Heward, 2007). This design, which employs the subject as its own measure of control, allows the researcher to empirically determine the effects of external variables on a subject's behavior by comparing results of phase changes, in which new experimental conditions are introduced and dismissed.

In the current study a small-N multiple treatment reversal design was used. This design demonstrates experimental control through the implementation of at least three consecutive phases. The first phase, the initial baseline (phase A), measures the subject's behavior in the absence of the experimental variable. The second phase (phase B), intervention, again measures the subject's behavior, but with the presentation of the experimental variable. Finally, the experimental variable is withdrawn in the third phase (phase A), resulting in a reversal of the experimental condition (Cooper et al., 2007). When the second phase is repeated, the design becomes an A-B-A-B reversal design.

While the basic reversal design is useful in comparing the effects of a single treatment to non-treatment conditions, researchers often desire comparing the effects of multiple treatments to both baseline and each other. When the basic reversal design is expanded to include two or more treatments, the design becomes a multiple treatment reversal design. With each additional treatment condition, phases are denoted by subsequent letters in the alphabet (treatment 2 would be C, treatment 3 would be D, and so forth). Many researchers have utilized their own variations of this design (e.g., Falcomata, Roane, Hovanetz, Kettering, & Keeny, 2004; Freeland & Noell, 1999; Jason & Liotta, 1982; Lerman, Kelley, Vorndran, Kuhn, & LaRue, 2002; Weeks & Gaylord-Ross, 1981).

The multiple treatment reversal design was selected for this study for several reasons. First, research has independently examined the effects of the complex teacher greeting upon on-task behavior. This study sought to expand the current literature base by isolating one of the components of the Allday et al.'s (2007) more complex teacher greeting in one phase and then replicating the original complex teacher greeting used in previous studies, but with a younger demographic and upon re-entry to the classroom versus at the beginning of the school day. Second, by utilizing a type of single-subject design, the threat of differences in reinforcer preference across subjects is diminished. The power of a reinforcer, such as non-contingent attention, can be significantly altered by an individual's learning history. By performing an intra-subject analysis versus an inter-subject analysis, a subject's learning history does not interact with the independent variables, as the same learning history exists for the subject between conditions versus different learning histories existing for different subjects between conditions.

Participants

Student participants were composed of four student-teacher dyads. Participants were nominated according to the following criteria. First, four second grade teachers were given the

opportunity to nominate two students demonstrating behavioral problems upon re-entering the classroom after their specials activities had ended (i.e., music class, art class, or physical education). Researchers briefly observed the nominated students to verify they were having difficulty engaging in the assigned task demands upon re-entry to the classroom. Students who demonstrated consistently low levels of off-task behavior and high latency to task engagement were selected to continue in the study. Subject 1 and 2, both Caucasian males, were taught by Teacher A, Subject 3, another Caucasian male, was taught by Teacher B, and Subject 4, a Caucasian female, was taught by Teacher C. All three teachers were Caucasian females, with Teacher A and C's ages falling between the ages of 22-30, and Teacher B's age falling over the age of 40. The school's principal and all three teachers were recruited via the script in Appendix 1. Informed consent was obtained from all three teachers, as well as from all four students' parents.

Setting

The study was conducted at a suburban elementary school located in northeastern Oklahoma. Training activities for the second grade teachers occurred as a group in one second grade teacher's classroom. Participants were observed upon re-entering their general education classrooms after being taught various special subjects by different teachers (i.e., music, art, and physical education).

Dependent Variables

Latency to task engagement. Latency to task engagement was measured in terms of how many seconds passed from when the child entered the classroom until they became engaged in their assigned task. For the purposes of this study, observers used the definition of task engagement and measurement procedures as outlined in Allday et al. (2011). Task engagement occurred when a student was observed to be "actively participating in the designated activity by

(a) being oriented toward the teacher or task, (b) having necessary materials, (c) following teacher directions, and (d) listening through verbal (e.g. asking questions) and nonverbal (e.g., nodding head or eye contact) means" for at least five consecutive seconds (Allday, et al., 2011, p. 394).

The researchers measured latency via a stopwatch. Once the student entered the classroom, the observer pushed the button on the stopwatch to signal the beginning of the observation interval. Once the child met task engagement criteria for five consecutive seconds, then the observer pressed the same button to stop the observation interval. The researcher then noted the duration of the interval in seconds and recorded this data onto a recording sheet (See Appendix 4).

On-task behavior. On-task behavior was measured for the first ten-minute duration upon re-entry to the general education classroom, beginning when the child first displayed task engagement after re-entering the classroom using a stopwatch and a behavior record sheet. Operationally, on-task behavior met the same criteria as the latency to task engagement variable mentioned above, again occurring when a student was observed to be "actively participating in the designated activity by (a) being oriented toward the teacher or task, (b) having necessary materials, (c) following teacher directions, and (d) listening through verbal (e.g. asking questions) and nonverbal (e.g., nodding head or eye contact) means" for at least five consecutive seconds (Allday, et al., 2011, p. 394). As in Allday and Pakurar (2007), on-task behavior was recorded using 15-second momentary time sampling intervals. The percentage of on-task behavior was calculated by dividing the number of intervals coded as "on-task" by the total number of intervals and then multiplying the quotient by 100.

Independent Variables

Simple teacher greeting. For the first independent variable and intervention phase, teachers were asked to provide each student with a non-scripted greeting consisting only of a

short hello and the student's name (e.g., "Good morning, Susi!" or "Hello, Johnny!"). Scripted greetings were not provided to encourage situation-specific responding.

Complex teacher greeting. For the second independent variable and intervention phase, teachers were asked to provide each student with a non-scripted greeting consisting of both the student's name and a non-contingent positive statement before the student entered the classroom (e.g., "Good morning, Susi! I like your new lunchbox."). Scripted greetings were not provided to encourage situation-specific responding.

Materials

Materials for the study included stopwatches and record sheets. Record sheets consisted of documents for recording latency to task engagement, the level of on-task behavior, treatment fidelity, and inter-rater reliability. See Appendices 4-6.

Experimental Design

A multiple treatment reversal design across participants was used to compare the effectiveness of different components of teacher greetings on student latency to task engagement and levels of on-task behavior.

Baseline (Phase A). During baseline (Phase A), researchers requested teachers continue engaging in their normal classroom morning routines. Upon entering the classroom, students were not greeted by their teacher (as requested by the researchers). An observer(s) was present to observe the target student.

Phase B. During the first intervention phase (Phase B), teachers were asked to greet each student with a non-contingent, non-scripted greeting, consisting only of a short hello and the student's name. This intervention was modeled once to the teacher before the first day of Phase B by the researcher. After greeting the student, teachers were instructed to maintain classroom

contingencies and consequences for task engagement and continue with their normal routine.

Phase C. During the second intervention phase (Phase C), teachers were asked to greet each student with a non-contingent, non-scripted greeting, including both greeting the student by their name and providing a positive statement non-contingent on the student's behavior. This intervention was modeled once to the teacher before the first day of Phase C. After greeting the student, teachers were instructed to maintain classroom contingencies and consequences for task engagement and continue with their normal routine.

Procedural Integrity

Treatment fidelity was measured during all phases by the observer. During Phase A, the teachers were required to not greet the student. During Phase B, a teacher was required to meet the following two part criteria: First, they had to greet the student and say the student's name. Second, their greeting could not include positive statement, non-contingent on the students' behavior. During Phase C, a teacher was required meet the following two part criteria: First, they had to greet the student and say the student's name. Second, their greeting needed to include a positive statement, non-contingent on the students' behavior. This information was recorded on the treatment fidelity recording sheet as a percentage. When treatment fidelity fell below 100%, researchers provided feedback to teachers and inquired if the teachers had any questions to ensure clarity.

Inter-rater Reliability.

Inter-observer agreement was measured during 38% of the observation periods. During these observation sessions, a second observer independently recorded latency to task engagement and the percentage of fifteen-second intervals in which the student demonstrated on-task behavior upon re-entry to the classroom. For on-task behavior, point-by-point agreement was utilized, in which the two observers evaluated their level of agreement for each interval observed. Point-by-

point agreement is calculated by dividing the agreement intervals by the total number of agreement and disagreement intervals, then multiplying the result by 100 (Yoder & Symons, 2010). To calculate inter-observer agreement for latency to task engagement, the lower latency observed was divided by the higher latency observed, and then the result was multiplied by 100.

CHAPTER IV

FINDINGS

Procedural Integrity

Procedural Integrity was 95% (100% for 60 sessions, 0% for 3 sessions) for 63 total observation sessions. During each of the three instances in which a teacher did not meet the criteria for treatment to be delivered with fidelity, the datum was excluded from the results.

Inter-rater Reliability.

Table 1 presents the inter-observer agreement results for each subject.

For latency to task engagement latency measurements, mean agreement was 99% for Subject 1 (ranging from 96% to 100%), 92% for Subject 2 (ranging from 69% to 100%), 88% for Subject 3 (ranging from 63% to 100%), and 96% for Subject 4 (ranging from 88% to 100%). Mean agreement across subjects was 94%. For on-task duration measures, mean agreement was 90% for Subject 1 (ranging from 72.5% to 97.5%), 84% for Subject 2 (ranging from 57.5% to 95%), 90% for Subject 3 (Ranging from 82.5% to 100%), and 88% for Subject 4 (ranging from 77.5% to 97.5%). Total mean agreement for all four subjects was 88%.

Latency to Task Engagement

Table 2 presents the intervals of time (in seconds) to task engagement for each subject.

Table 4 presents the effect sizes for latency to task engagement results between phase changes.

Subject 1. Visual analysis indicated Subject 1's latency to task engagement decreased from baseline conditions in Phase B, and then decreased again in Phase C. Reversal to baseline conditions resulted in increase in latency to task engagement conditions similar to levels present at initial baseline. Subject 1's latency to task engagement averaged 66 sec (range, 42 -to 116 s) during the first baseline condition (Phase A-1), which decreased to an average of 46 sec (range, 18 to 77 s) during the simple teacher greeting phase (Phase B), and decreased further to an average of 37 sec (range, 12 to 80 s) during the complex teacher greeting phase (Phase C). During the return to baseline condition (Phase A-2), Subject 1 increased to an average of 50 sec (range, 27 to 80 sec). While a moderately significant effect size was demonstrated between the change from Phase C to Phase A-2 (NAP = 0.66, CI = -0.311-0.936), the effect sizes for the other two phase changes indicated no significant effect occurred (NAP = 0.35, CI = -0.97-0.38; NAP = 0.38, CI = -0.92-0.42).

Subject 2. Visual analysis indicated no significant changes in latency to task engagement between baseline and both intervention conditions. Subject 2's latency to task engagement averaged 62 sec (range, 14 to 125 s) during the baseline condition (Phase A), decreased to an average of 48 sec (range, 15.5 to 83 s) during the simple teacher greeting phase (Phase B), and then increased to an average of 56 sec (range, 13 to 93 s) during the complex teacher greeting phase (Phase C). As no substantial effect was demonstrated during the intervention phases, a reversal to baseline was deemed unnecessary. Effect sizes for the phase changes (NAP = 0.44, CI = -0.75-0.51; NAP = 0.55, CI = -0.57-0.77) confirmed the results of the visual analysis.

Subject 3. Visual analysis indicated Subject 3 demonstrated a significant decrease in latency to task engagement from baseline conditions to Phase B. However, during Phase C, Subject 3's latency to task engagement increased to a level similar to baseline conditions. Subject

3's latency to task engagement averaged 56 sec (range, 43 to 80 s) during the baseline condition (Phase A), decreased to an average of 33 sec (range, 16 to 86 s) during the simple teacher greeting phase (Phase B), and then increased to an average of 49 sec (range, 9 to 122 s) during the complex teacher greeting phase (Phase C). As a consistent effect was not demonstrated during the intervention phases, a reversal to baseline was deemed unnecessary. Effect sizes for the phase changes (NAP = 0.17, CI = -1.38-0.04; NAP = 0.55, CI = -0.501-0.701) confirmed the results of the visual analysis.

Subject 4. Visual analysis indicated Subject 4 demonstrated no change in latency to task engagement from baseline conditions to Phase B, but Subject 4's latency increased in Phase C. Subject 4's latency to task engagement averaged 27 sec (range, 12 to 81 s) during the baseline condition (Phase A), decreased to an average of 21 sec (range, 19 to 22 s) during the simple teacher greeting phase (Phase B), and then increased to an average of 43 sec (range, 23 to 62 s) during the complex teacher greeting phase (Phase C). As a consistent visual effect in the socially appropriate direction (decreasing latency as a result of the intervention) was not demonstrated during the intervention phases, a reversal to baseline was deemed unnecessary. However, effect sizes did indicate a moderate effect between Phase A and Phase B (NAP = 0.62, CI = -0.355-0.86) and a strong effect between Phase B and Phase C (NAP = 1, CI = 0.225-1.775). The latter effect size is interesting, as it suggests that providing a more complex form of a teacher greeting actually increased the subject's latency to task engagement.

On-Task Behavior

Table 3 presents the levels of on-task behavior (measured via percentages) for each participant. Table 5 presents the effect sizes for latency to task engagement results between phase changes.

Subject 1. Visual analysis suggested Subject 1's levels of on-task behavior remained

consistent between baseline and Phase B conditions; however, Subject 1's level of on-task behavior significantly increased when transitioned into Phase C. Upon reversal to baseline conditions, Subject 1 returned to levels of off-task behavior lower than initial baseline conditions. Subject 1's levels of on-task behavior averaged 58% (range, 45% to 77.5%) during the first baseline condition (Phase A-1), decreased to an average of 54% (range, 22.5% to 82.5%) during the simple teacher greeting phase (Phase B), and then increased to an average of 87% (range, 82% to 97.5%) during the complex teacher greeting phase (Phase C). During the return to baseline condition (Phase A-2), Subject 1 decreased to a level of on-task behavior even lower than their first baseline condition: an average of 42% sec (range, 12.5% to 97.5%). A strong effect occurred during the change from Phase B to Phase C (NAP = 0.95, CI = 0.228-1.572), while the other two phase changes did not yield significant effect sizes (NAP = 0.45, CI = -0.77-0.57; NAP = 0.22, CI = -1.28-0.15).

Subject 2. Visual analysis indicated no significant changes in Subject 2's on-task behavior across conditions. Subject 2's levels of on-task behavior averaged 67% (range, 55% to 82.5%) during the baseline condition (Phase A), decreased to an average of 64.5% (range, 30% to 75%) during the simple teacher greeting phase (Phase B), and then decreased to an average of 54% (range, 30% to 75%) during the complex teacher greeting phase (Phase C). As no substantial effect was demonstrated during the intervention phases, a reversal to baseline was deemed unnecessary. Effect sizes for the phase changes (NAP = 0.44, CI = -0.75-0.51; NAP = 0.33, CI = -1.02-0.32) confirmed the results of the visual analysis.

Subject 3. Visual analysis suggests Subject 3 demonstrated a slight increase in on-task behavior between baseline and Phase B conditions; however, upon transitioning to Phase C, Subject 3's level's of on-task behavior returned to levels similar to baseline conditions. Subject 3's levels of on-task behavior averaged 57.5% (range, 57.5% to 62.5%) during the baseline condition (Phase A), increased to an average of 67% (range, 47.5% to 80%) during the simple

teacher greeting phase (Phase B), and then decreased to an average of 54% (range, 30% to 70%) during the complex teacher greeting phase (Phase C). As a consistent effect was not demonstrated during the intervention phases, a reversal to baseline was deemed unnecessary. While a null effect was observed for the change between Phases B and C (NAP = 0.25; CI = -1.101-0.101), a moderate effect was demonstrated between Phase A and Phase B (NAP = 0.67; CI = -0.38-1.041). These results suggest that while on-task behavior was initially increased by providing a simple teacher greeting, providing a more complex teacher greeting did not increase the behavior further than the increases already obtained in the change from Phase A to Phase B.

Subject 4. Visual analysis indicated no significant changes in Subject 4's on-task behavior across conditions. Subject 4's levels of on-task behavior averaged 71% (range, 42% to 100%) during the baseline condition (Phase A), increased to an average of 77% (range, 55% to 100%) during the simple teacher greeting phase (Phase B), and then slightly decreased to an average of 75% sec (range, 57% to 97.5%) during the complex teacher greeting phase (Phase C). As no substantial effect was demonstrated during the intervention phases, a reversal to baseline was deemed unnecessary. Effect size calculations confirmed the null results of the visual analysis (NAP = 0.59, CI = -0.42-0.79; NAP = 0.5, CI = -0.76-0.76).

CHAPTER V

CONCLUSIONS

Only one subject (Subject 1) of the four showed significant and reversible effects upon his on-task behavior and latency to task engagement as a result of providing teacher greetings. Interestingly, the other student assigned to the same teacher (Teacher A) did not demonstrate a clinically significant change between any conditions. While Subject 3 did show a decrease in latency to task engagement after the transition from baseline to the simple greeting phase, the transition to a more complex greeting resulted in a return to the previously higher levels of latency to task engagement demonstrated at baseline. Although visual analysis and effect sizes did not indicate easily apparent or significant changes, it should be noted that all subjects did decrease their latency between Phase A and Phase B.

These results diverge from the findings of Allday et al. (2007) and Allday et al. (2011), in which the researchers found that providing a complex teacher greeting resulted in higher percentages of on-task behavior and lower latency to task engagement across all participants. It is hypothesized that a few factors may have resulted in these varying results. First, in the original studies, the population consisted of students enrolled in junior high and high school versus elementary school. Therefore, developmental differences, particularly the length of a subject's learning history in a school environment, may have played a confounding role. Another potential variable is the classes in the original studies were departmentalized (i.e., a different teacher teaches each subject, and the students rotate between classrooms throughout the day), whereas in

the current study they were self-contained general education classrooms (i.e., the same teacher provides instruction in all curricular areas, and students remain in the same classroom). In departmentalized classrooms, access to teacher reinforcement is more limited than in self-contained classrooms by nature of time constraints. Therefore, deficits in adult attention (as present in departmentalized classrooms) may serve as an establishing operation for increasing the saliency of the non-contingent reinforcement (i.e., the teacher greeting).

Furthermore, as the replications study was conducted as the student re-entered the classroom after "specials" (i.e., extracurricular activity classes such as physical education, music, library, and art) versus initial entry as in the original study, previous teacher interactions may have served as a discriminative stimulus (SD) for access to reinforcement or a S-Delta (S**Δ**) indicating availability of punishment. For example, assume Teacher A spoke to Subject 2 with a harsh tone during the morning meeting time. If Teacher A's harsh speaking tone was previously associated with an increase in her likelihood to punish off-task behavior, Subject 2 might be less likely to engage in off-task behavior as he knows punishment will likely occur. Allday et al. (2007) postulated that the establishing operations for attention-maintained off-task behaviors might have been diminished by the presence of non-contingent antecedent attention in the form of teacher greetings. Perhaps if prior SD interactions signaling the potential for reinforcement occurred, and then the teacher failed to provide attention, the stimulus-response pairing was extinguished and the teacher greeting upon re-entry failed to signal the availability of future reinforcement. For example, say Teacher B greeted Subject 3 every morning at the beginning of the day, and then she failed to provide any further attention except in response to off-task behaviors, the teacher greeting after specials (as in our study) would fail to serve as establishing operations for both access to future reinforcement for on-task behavior and lack of reinforcement for off-task behavior.

Implications for Practice

Implications for practice indicate the importance of understanding that interventions must be individualized to match the learning history of each individual student. Non-contingent reinforcement in the form of teacher greetings is an easy to implement intervention that has been shown to improve latency to task engagement and levels of on-task behavior in junior high and high school children in departmentalized classrooms, but these results indicate this intervention may not result in the same benefits shown in earlier studies. Departmentalization of the classroom, student learning history in the school environment, and time of day the teacher greeting is presented (in conjunction with prior teacher interactions during the day) all may moderate the intervention's ability to increase on-task behavior and decrease latency to task engagement. While the intervention is both low cost and easy to implement, these findings suggest the intervention is selectively effective. As the same teacher provided the intervention to two subjects who demonstrated varying effects, the evidence suggests this intervention may be an easily implemented "front line" intervention to be tried before extensive time is taken to conduct a functional behavioral assessment.

Limitations

A few limitations were present in the current study. First, while it is assumed that the intervention is easy due to its short duration and relatively low task demand, formal social validity data were not collected. As all participants were Caucasian, a lack of ethnic diversity could also be considered a limitation. As mentioned earlier, interactions occurring prior to a student's re-entry to the classroom may have enacted a superseding antecedent effect upon the students' behavior. Furthermore, the teacher's behavior may have begun to generalize to other times of the day, causing them to provide non-contingent reinforcement at higher rates.

Future Research

Future research should continue to explore the different components of the teacher greeting, as well as the effect of departmentalizing classrooms upon increases in on-task behavior and latency to task engagement. For instance, is saying the child's name a vital component of the teacher greeting to signal access to reinforcement or increase the reinforcing potential? Future studies might also replicate this experiment in both departmentalized and self-contained classrooms in the same grade level to compare the effects of departmentalization upon the dependent variables. Instead of providing the intervention phases by increasing intensity, randomization of phase changes through counterbalancing may assist in investigating whether satiation or habituation occurred between Phase B and C after some students did increase desired behaviors between Phase A and B.

Classroom management plays a critical role in promoting behavioral and academic success in students. School psychologists should continue to promote evidence-based classroom management strategies and research easily feasible, effective interventions for teachers to utilize in improving on-task behavior and latency to task engagement. Teacher greetings have shown to produce the effects in high school and junior high students, and they may be useful for elementary school teachers to implement as a front-line intervention before conducting full functional behavioral assessment.

Expanding upon studies conducted by Allday and Pakurar (2007) and Allday, Bush, Ticknor, and Walker (2011), this study investigated how teacher greetings effect both latency to task engagement and levels of on-task behavior via a small-n, multiple treatment reversal design. The results indicated that among four second grade students previously identified as having difficulty quickly engaging and sustaining engagement in a task demand upon re-entry to the classroom, only one subject demonstrated a decrease in latency to task engagement and an

increase in on-task behavior between phase changes. While another subject did demonstrate an increase in on-task behavior between phase changes, the other two subjects did not demonstrate any clinically significant changes between baseline and intervention phases. Future studies will examine the moderating role of departmentalized classrooms and intervention phase sequencing.

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LIST OF APPENDICES

APPENDIX Page

Appendix 1: Script for Recruiting Principals and Teachers:

Proposal Title: Comparing the Effects of Antecedent-Based Interventions on Task Engagement

"I would like to request your permission to collect data for my dissertation at your school and in your classroom(s). I appreciate you spending this time with me and would like to briefly discuss the purpose and methods of the proposed study with you."

The purpose and the research problem in the proposed study:

Researchers have struggled to discover a winning formula for effective classroom management. Most teachers report their most difficult challenge to be classroom behavior management .My study aims to compare the effects of providing non-contingent interactions (as simple as a teacher greeting) and reducing the difficulty of a task demand upon task engagement and on-task behavior at the beginning of a classroom session. By participating in this study, you will assist in the process of discovering the most effective and easy to implement interventions for teachers in the classroom. You may also learn simple, evidence-based, strategies for increased student compliance.

Methodology:

The participants in the current study will include elementary school students and their teachers.

Participating teachers will be given the opportunity to nominate students demonstrating behavioral problems at the beginning of the school day. After parental permission is secured, researchers will briefly observe the nominated students at the beginning of the school day, and then they will be screened using curriculum-based measures to assess their instructional level for either a reading or math task. Students whose instructional level falls in the low range for their grade in the fall will be selected to participate in this study.

Teacher training sessions for the intervention component phases will take an estimated 30 minutes in total. The initial screening of student skills will be conducted in one session lasting approximately 10-15 minutes. Classroom observations will be conducted daily for a duration of approximately 10 minutes every day through all phases of the study. The study will last approximately 8 to 12 weeks. My research team and I will prepare and provide all materials to be used during the study.

"Do you give permission for me and my team of one to two other graduate students to collect the data described at your school and in your classroom(s)? Thank you again for your time."

Appendix 2: Informed Consent Form; Principal/Teacher
Oklahoma State University

Project Title: Comparing the Effects of Antecedent-Based Interventions on Task Engagement

Investigators: Benjamin G. Solomon, Ph.D., Assistant Professor at Oklahoma State University
Brit'ny Stein, M.S., Graduate Student at Oklahoma State University

Purpose:
A majority of teachers report their most difficult challenge to be classroom behavior management. My study aims to compare the effects of providing non-contingent interactions (such as a teacher greeting) and reducing the difficulty of a task demand upon task engagement and on-task behavior at the beginning of a classroom session. By participating in this study, you will assist in the process of discovering the most effective and easy-to-implement interventions for teachers in the classroom.

Project Procedures:
The participants in the current study will include elementary school students and their teachers.

Participating teachers will be given the opportunity to nominate students demonstrating behavioral problems at the beginning of the school day. After parental permission is secured, researchers will briefly observe the nominated students to verify they are having difficulty engaging in independent seatwork at the beginning of the school day, and then they will be screened to assess their instructional level for either a reading or math task. Students whose instructional level falls in the frustrational range for their grade will be selected to participate in this study.

A brief teacher training session will be conducted. Daily observations of the student will be conducted for the first ten minutes of the school day. My research team and I will prepare and provide all materials to be used during the study

Procedures

Teacher greeting. For the first intervention phase, teachers will be asked to provide each student with a non-scripted greeting consisting of the student's name and a positive statement before the student enters the classroom (e.g., "Good morning, Susi! I like your new lunchbox.").

Task difficulty. Upon entering the classroom, students will be given a grade-level reading or math task to complete during the first section of their school day (i.e., bell work). When the task difficulty level is changed, students will be provided with a task matching their instructional level, as defined by the highest task skill the student completed with 85% or above accuracy, versus simply their grade level.

Experimental design. Teachers will be asked to implement these interventions at different points throughout the study. Expectations and intervention phases will be outlined in the teacher training session. All materials will be provided by the research team.

Risks of Participation:
The assessment will in no way affect the activities of the general curriculum, since they are (curriculum-based measurement) are part of the typical classroom activity. No known risks exist associated with this project greater than those ordinarily encountered in the classroom setting.

Benefits:
The current project will increase our knowledge of the most effective and easy to implement interventions for improving on-task behavior in students at the beginning of the school day. Furthermore, you will learn and receive practice and feedback on some easy-to-use strategies to increase student compliance.

Confidentiality: Every effort will be made to maintain the confidentiality of the data obtained from this study. The data will be housed at Oklahoma State University and only the Principal Investigator and the research assistants working on the project will have access to it. Electronic data will be stored on a password-protected computer with password access only available to the researchers working on this project. Any written results will discuss general trends across all students and will not include information that will identify you or your students (names of your child will not be attached to the testing instrument). Your level of participation will not be shared with other faculty, staff, or administration.

Compensation: No monetary compensation is offered for participation in the study. The benefits provided by the study are explained above.

Contacts: If you have any questions with regard to you or your students' involvement in this study please contact us at your earliest convenience:

Brit'ny Stein, M.S., Graduate Student at Oklahoma State University, 940-231-5286

Benjamin G. Solomon, Ph.D., Assistant Professor at Oklahoma State University, 405-744-3307

If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, (405) 744-3377 or irb@okstate.edu.

Participant Rights: Participation in this study is voluntary and you may choose to withdraw from the assessment at any time. No risks from withdrawal or termination are anticipated.

Signature: I give my permission for faculty and/or students from Oklahoma State University to assess in my school/classroom, for the purposes of this research. I have read and fully understand the consent form. I sign it freely and voluntarily. A copy of this form has been given to me.

_____	_____	_____
Signature of Principal	School Site	Date
_____		_____
Signature of Teacher		Date

I certify that I have personally explained this document before requesting that the principal/teacher(s) sign it.

_____	_____
Signature of Researcher	Date

Appendix 3: Parent/Guardian Permission (Consent) Form
Oklahoma State University

Student Name: _____

Dear Parent(s),

This is a letter requesting parent permission (consent) to include your child in a brief research project within his/her classroom. Please have your child return this form signed (last page) if you give permission for your student to participate.

Project Title: Comparing the Effects of Antecedent-Based Interventions on Task Engagement

Researchers: Benjamin G. Solomon, Ph.D., Assistant Professor
at Oklahoma State University
Brit'ny Stein, M.S., Graduate Student
at Oklahoma State University

Purpose:
My study aims to compare the effects of providing positive interactions not dependent on a student's behavior (such as a teacher greeting) and giving students leveled classwork upon a student's on-task behavior at the beginning of the school day.

Project Procedures: Students who return a parent permission slip allowing participation will be screened using academic measures to assess their instructional level for either a reading or math task (depending on the type of task the teacher is already assigning at the beginning of the day). Students who fall below for their grade in the fall will be selected to participate in this study. Teachers will participate in a training session on both interventions. These interventions will be brief and will not alter your child's classroom routine significantly. Classroom observations will be conducted daily for a duration of approximately 10 minutes for approximately 8 to 12 weeks.

Risks of Participation: This project will not affect the activities of the general classroom or your child's grades. This project involves minimal risk, as the evaluations and interventions used will be very similar to ones used in the everyday classroom.

Benefits: The current project will add to what we know about interventions and how best to help students quickly begin their day on-task and continue their on-task behavior. Your student will have the benefit of receiving two mild interventions that already have evidence supporting their ability to help with attention.

Confidentiality: Every effort will be made to keep the scores on tests and names of participating students confidential and private. All research project records will be kept in a secure location at Oklahoma State University and only the research project assistants will have access. Any results that are published in articles or delivered in presentations will discuss group trends and will not include any information that will identify you, your child, your child's school, or your child's school district. *Results from this project will not be shared with your student's classroom teacher nor any other faculty or staff at the school.* Your child's participation in this project will not affect his or her daily classroom activity or grades. All records will be destroyed after a period of six years.

Compensation: No monetary compensation is offered for participation in this research project. The benefits provided by the study are explained above.

Contacts: If you have any questions with regard to you or your students' involvement in this study please contact us at your earliest convenience:

Brit'ny Stein, M.S.,
Graduate Student
Oklahoma State University,
940-231-5286

Benjamin G. Solomon, Ph.D.,
Assistant Professor
Oklahoma State University,
405-744-3307

If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, (405) 744-3377 or irb@okstate.edu.

Participant Rights: Participation in this study is voluntary and you may choose to withdraw from the assessment at any time. No risks from withdrawal or termination are anticipated.

Parental Signature for Minor: I give my permission for faculty and/or students from Oklahoma State University to assess my child/student, for the purposes of this research.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy of this form has been given to me. As parent or guardian I authorize _____ (*print student's name*) to participate in the described research.

_____ _____
Parent/Guardian Name (printed) Date

_____ _____
Signature of Parent/Guardian Date

I certify that I have explained this document before requesting that the participant's parent/guardian sign it.

_____ _____
Signature of Researcher Date

Appendix 4: Comparing the Effects of Antecedent-Based Interventions on Task Engagement

On-Task Behavior Recording Form

(Momentary Time Sampling- Behavior Occurring at the End of the Interval)

Student Name: _____ Teacher Name: _____

Research Assistant: _____ Date: _____

Seconds From Entry to Classroom until Student Displays Task Engagement/On-Task Behavior	

Record on-task behavior with a + . Leave boxes blank when off-task

Minute	1-15 seconds	16-30 seconds	31-45 seconds	46-60 seconds
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

behavior is observed.

Task engagement occurred when a student was observed to be "actively participating in the designated activity by

(a) being oriented toward the teacher or task
(b) having necessary materials
(c) following teacher directions
(d) listening through verbal (e.g. asking questions) and nonverbal (e.g., nodding head or eye contact) means" for at least 5 consecutive seconds

Appendix 5: <u>Comparing the Effects of Antecedent-Based Interventions on Task Engagement</u>

Treatment Fidelity Form

Student Name: _____ Teacher Name: _____

Research Assistant: _____ Date: _____

Circle Current Phase	**Phase A** (Baseline)	**Phase B** (Simple Teacher Greeting)	**Phase C** (Complete Teacher Greeting)

Phase A (Circle components implemented correctly)	Teacher did not say student's name.	Teacher did not say positive statement, non-contingent on the student behavior.	*Treatment Integrity* _____***/100%***
Phase B (Circle components implemented correctly)	Teacher says student's name.	Teacher did not say positive statement, non-contingent on the student behavior.	*Treatment Integrity* _____***/100%***
Phase C (Circle components implemented correctly)	Teacher says student's name.	Teacher says positive statement, non-contingent on the student behavior.	*Treatment Integrity* _____***/100%***

Appendix 6: Comparing the Effects of Antecedent-Based Interventions on Task Engagement

Inter-rater Reliability Form
(Point-by-Point Agreement)

Student Name: _____ Teacher Name: _____

Calculate point-by-point agreement by dividing the agreement intervals by the total number of agreement and disagreement intervals, then multiply by 100.

Observation Date	Agreement Intervals	Disagreement Intervals	Point-by-Point Agreement

Appendix 7: Confidentiality Agreement for Research Team Members

Proposal Title: Comparing the Effects of Antecedent-Based Interventions on Task Engagement

I, _____ have been instructed that all identifying information regarding student names, classroom teachers, schools, etc. that I have access to as a research team member for this research project is confidential. I agree not to share any identifying information with anyone who is not a member of the research team, and agree to protect the confidentiality and identity of all participants involved in this proposed study.

I have read and fully understand the confidentiality agreement. I sign it freely and voluntarily. A copy of this form has been given to me.

_____ _____
Research Team Member Name (printed) Date

_____ _____
Signature of Research Member Date

I certify that I have explained this document before requesting that the research team member sign it.

_____ _____
Signature of Researcher Date

Oklahoma State University Institutional Review Board

Date:	Thursday, October 02, 2014
IRB Application No	ED1492
Proposal Title:	Comparing the Effects of Antecedent-Based Interventions on Task Engagement
Reviewed and Processed as:	Expedited

Status Recommended by Reviewer(s): Approved Protocol Expires: 10/1/2015

Principal Investigator(s):

Brit'ny Stein
248 Willard
Stillwater, OK 74078

Benjamin Solomon
443 Willard
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1.Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms
2.Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3.Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4.Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Hugh Crethar, Chair
Institutional Review Board

VITA

Brit'ny Stein

Candidate for the Degree of

Doctor of Philosophy

Thesis: COMPARING THE EFFECTS OF ANTECEDENT-BASED INTERVENTIONS ON TASK ENGAGEMENT

Major Field: Educational Psychology, option School Psychology

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in School Psychology at Oklahoma State University, Stillwater, Oklahoma in 2016.

Completed the requirements for the Master of Science in Educational Psychology at Oklahoma State University, Stillwater, Oklahoma in 2012.

Completed the requirements for the Bachelor of Science in Psychology at Abilene Christian University, Abilene, Texas in 2010.

Experience:

120 Hour Educational Field Experiences Practicum at Richmond Elementary
320 Hour Shadow Practicum at Richmond Elementary
335 Hour School-Based Practicum at Richmond Elementary
270 Hour Early Childhood Psychology Practicum at the OSU Child Development Laboratory
120 Hour Child and Adolescent Therapy Practicum
600 Hour Clinic-Based Practicum at the OSU School Psychology Clinic

Professional Memberships:

School Psychology Graduate Organization (Fall 2011 – current)
Secretary (Fall 2012 – Spring 2013)
APA Representative (Fall 2013 – Spring 2014)
Oklahoma School Psychology Association (Fall 2011 – current)
Texas Association of School Psychologists (Fall 2010 – current)
National Association of School Psychologists (Fall 2011 – current)
American Psychological Association (Fall 2011 – current)