

ELEMENTARY TEACHERS' KNOWLEDGE AND IMPLEMENTATION OF
APPLIED BEHAVIOR ANALYSIS TECHNIQUES

A DISSERTATION
SUBMITTED TO THE FACULTY
OF
THE GRADUATE SCHOOL OF APPLIED AND PROFESSIONAL PSYCHOLOGY
OF
RUTGERS,
THE STATE UNIVERSITY OF NEW JERSEY
BY
MARISSA E. RANDAZZO
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE
OF
DOCTOR OF PSYCHOLOGY

NEW BRUNSWICK, NEW JERSEY

MAY, 2011

APPROVED:

Susan G. Forman, Ph.D.

Lewis Gantwerk, Psy.D.

DEAN:

Stanley B. Messer, Ph.D.

ABSTRACT

Teachers can effectively reduce students' disruptive behaviors through the use of evidence-based applied behavior analysis (ABA) techniques; however, a review of the literature indicates that teachers are not consistently implementing these strategies. This study surveyed 203 elementary teachers (K - 5), from four elementary schools in two New Jersey school districts, to assess their knowledge and frequency of use of 15 ABA techniques, as well as the frequency with which various conditions acted as barriers to their implementation of ABA strategies, the effectiveness and types of instructional techniques used in their training when learning about ABA strategies, and the importance of different activities/experiences when learning to use ABA techniques. Participants' demographic characteristics were also examined in relation to the above-mentioned factors. Results revealed that the majority of teachers perceived themselves as knowledgeable or very knowledgeable about each ABA strategy. Furthermore, ABA techniques reportedly employed the most frequently were all positive rather than punitive. Most teachers indicated that a variety of activities/experiences were important or very important in their attempts to learn to use ABA strategies, particularly discussion/working with colleagues and professional development. Regarding instructional techniques used in training, participants reported that observing one's mentor/cooperating teacher and practicing and receiving feedback were some of the most effective when learning about ABA strategies. When implementing ABA techniques, few teachers reported that any of the conditions were often or very often barriers, although lack of feedback/guidance and a lack of knowledge/skill were rated as occurring most frequently. Analysis of demographic characteristics revealed that special educators

perceived themselves to be more knowledgeable than general educators about ABA techniques; females rated themselves as more knowledgeable than males; and teachers with more years of experience tended to report being both more knowledgeable about and also employing ABA strategies more often. Findings suggest that the training teachers receive both in their teacher preparation programs and also after entering their profession can positively influence their perceived knowledge and frequency of use of ABA strategies. Future research can further explore specific aspects of teachers' training, background, and/or professional experience that might enhance their knowledge and implementation of ABA techniques.

ACKNOWLEDGEMENTS

I would first like to thank my dissertation committee chair, Susan Forman, for the time she has devoted to help me plan this study, edit my drafts, and provide advice when I had questions. Susan assisted me in setting both short- and long-term goals to accomplish this dissertation. She has been very patient, and I greatly appreciate her guidance, feedback, and confidence in my work.

I would also like to thank the second member of my dissertation committee, Lew Gantwerk. Lew has provided me with valuable feedback and always responded to my questions and concerns quickly. He has been very supportive throughout this process.

I would like to express my appreciation to Nancy Fagley as well. Nancy graciously spent a significant amount of her time assisting me with planning, interpreting, and revising the statistical analyses for this study. She answered all of my questions along the way and encouraged me to be persistent in my efforts. Furthermore, I would like to thank Ken Schneider and John Kalafat for the guidance they each provided me when I was first developing this study.

My years at GSAPP would not have been the same without Denise, Damian, Graham, Candice, Angela, Stephanie, and Kristen. They made graduate school as fun and as funny as it could possibly be, and I will always remember them. I also appreciate the help that Sylvia Krieger and Kathy McLean have provided me throughout the last several years. They made it easy for me to stay organized and complete all of the necessary requirements along the way.

I would like to thank each of the principals of the four elementary schools who invited me into their buildings and allowed me to take time out of one of their faculty

meetings to introduce myself and speak about this dissertation. I especially am grateful for the support provided to me by Dr. Copeland. Dr. Copeland has been very flexible regarding my work schedule and has offered me a lot of encouragement to keep working on this study.

Lastly, I would like to thank my friends and family for all of their support and words of encouragement. My parents, in-laws, and siblings have always been optimistic about my ability to accomplish this study; they continuously reminded me about my goals and provided childcare when needed. My friends have consistently checked in regarding my progress and were there to listen when I needed someone to talk to about the hardships while writing this dissertation. To my husband John, thank you so much for all the sacrifices you made to help me achieve my goals and for standing by me through the tough times when I needed to devote a significant amount of time to this project. I would not have been able to complete this dissertation without your love and support. And finally, to my son Luke, thank you for putting a smile on my face when I needed it most. You are the light of my life.

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CHAPTER I

INTRODUCTION

A review of the literature indicates that disruptive behaviors in the classroom setting are a significant problem for many students and teachers around the world. Disruptive behaviors can impact students' ability to concentrate on academics in a safe environment and increase teachers' levels of stress and anxiety to an extent that hinders their job performance. If not appropriately addressed early on, disruptive behaviors can also lead to more serious problems for students, such as early dropout, increased aggression, and diagnosable psychological disorders.

Research shows that teachers can effectively reduce students' disruptive behaviors by implementing ABA strategies. Despite this research, many teachers employ a wide variety of behavior management strategies rather than focusing on evidence-based ABA techniques. In addition, teachers have reported frequently using punitive approaches to discipline rather than positive techniques, even though there is extensive support in the literature indicating the benefits of positive behavior interventions in schools.

Several teachers, particularly novice and preservice teachers, have indicated that they do not feel adequately prepared to confront students' disruptive behaviors and that it is often difficult for them to connect theoretical discourse with real-life situations when learning about behavior management strategies. Many of these teachers have reported feeling decreased self-efficacy and willingness to implement certain behavioral strategies

as a result of this lack of preparedness. Teachers have also reported encountering a variety of barriers that have prevented them from effectively utilizing behavior management strategies, including minimal support from colleagues and administrators as well as a lack of resources, such as time and supplies. In addition to teachers' concerns about their behavior management skills, school administrators, mentor teachers, and the general public have consistently expressed apprehension over the last several decades about teachers' ability to manage students' disruptive behaviors.

The benefits of use of ABA procedures in schools have been documented. However, implementation of these procedures is not as widespread as one would predict given their established efficacy. The reasons for this are not clear and indicate the need for further investigation into teachers' knowledge and use of ABA techniques.

CHAPTER II

LITERATURE REVIEW

Disruptive Behaviors in Schools

Disruptive behavior can be defined as “excessive behavior that can interfere with the general activities proceeding at the time” (Chen & Ma, 2007, pp. 380-81). Applying this definition to classrooms indicates that students who are disruptive have the potential to hinder not only their own educational success but also their classmates’ learning and teacher’s ability to be effective. More specifically, students who display disruptive behaviors can squander valuable instructional time, deter students’ ability to focus on academic material, threaten individuals’ sense of safety, and increase teachers’ levels of stress (Shin & Koh, 2008; Walker, Ramsey, & Gresham, 2003-2004; Walter, Gouze, & Lim, 2006).

Educating disruptive students is a problem many teachers have to manage, regardless of the type of population they instruct. Curwin and Mendler (1988) indicated that, in general, 15% of students break classroom rules on a regular basis; if these students are not provided with sufficient structure, they can disrupt other students’ learning. An additional 5% of students are reportedly chronic rule-breakers. In a study by Shin and Koh (2008), 32% of 116 public high school teachers described 25-50% of their students as behaviorally difficult to teach. A survey of 479 preschool to eighth grade teachers found that 48% of respondents reported currently having three or more students in their classrooms who exhibited serious behavior problems (ProTeacher, 2005). Finally,

Walter et al. (2006) surveyed 119 elementary teachers and found that 48% identified disruptive classroom behavior as the most significant mental health problem in their school; these behaviors included getting out of one's seat, talking out of turn, arguing, and failing to follow rules and demands.

As a result of the multiple disruptive students found within many classrooms, several teachers have indicated that they spend a significant portion of their time on discipline. One survey reported that 34% of 479 preschool to eighth grade teachers either agreed or strongly agreed that they spend too much time on class discipline (ProTeacher, 2005). Similarly, 38% of 176 secondary teachers indicated that they spend too much time managing their classroom (Merrett & Wheldall, 1993). In a survey by the American Federation of Teachers, 17% of educators reported losing four or more hours of teaching time per week due to disruptive student behavior, while an additional 19% indicated losing two to three hours per week (Walker et al., 2003-2004). Furthermore, Curwin and Mender (1984) estimated that students' off-task behavior can contribute to an average loss of 15-25% of instructional time.

Some studies that have focused on teachers' perceptions about managing disruptive behaviors have also examined how teacher characteristics, such as one's gender and years of teaching experience, influence their beliefs about discipline. Merrett and Wheldall (1993) found that teachers who had been teaching the longest were the least likely to admit to spending an increased amount of time on discipline. In addition, men were much less likely than women to report experiencing problems with maintaining order and control in their classroom. Thus, gender and years of teaching experience might affect teachers' perceptions about discipline problems.

Examples of disruptive behaviors that teachers might confront on a regular basis in their classrooms include: a) gross motor activities, such as getting out of one's seat, standing up, and walking around; b) noise making, such as tapping one's feet or other objects, kicking a desk/chair, clapping, and tearing papers; c) verbalization, such as conversing with other students, calling out, whistling, singing, laughing, and coughing; d) orienting, such as turning one's body around while remaining seated; and e) aggression, such as hitting, pushing, grabbing another's belonging, destruction of property, and throwing objects (Thomas, Becker, & Armstrong, 1968). These behaviors may evolve into more serious forms of antisocial behavior if appropriate strategies are not implemented effectively and early on, such as in preschool and/or elementary school (Walker et al., 2003-2004). Research has indicated that aggression and other disruptive behaviors demonstrated by first graders predicted school dropout as well as an increased risk of being severely aggressive and disruptive in middle school (Ensminger & Slusarcick, 1992; Kellam, Ling, Merisca, Brown, & Ialongo, 1998). This risk of aggression and disruption in middle school was further increased when aggressive first graders were educated in a classroom with higher overall levels of disruptive behavior (Kellam et al., 1998). Therefore, an individual's disruptive behaviors can be further exacerbated by his or her peers' negative behaviors and a lack of structure/interventions in the classroom.

Students who display disruptive behaviors may also be at risk for developing diagnosable psychological problems later in life. Petras et al. (2008) found that students' aggressive and disruptive behaviors in response to classroom demands can play an etiological role in the development of Antisocial Personality Disorder and violent and

criminal behavior. Such maladaptive responses can be genetic and/or learned and may be influenced by teachers' ability to effectively manage the behavior of their students. Therefore, it is critical that teachers not only model appropriate ways for students to respond to classroom demands but also demonstrate effectual behavior management strategies. Teachers have the ability to modify disruptive behaviors by controlling their own responses to these behaviors (Thomas et al., 1968).

Due to the extent of disruptive behaviors teachers see every day, many educators report apprehension about discipline problems and the impact these behaviors can have on their profession. Veenman (1987) reviewed 95 studies that examined problems reported by beginning teachers and found classroom discipline to be the highest ranked concern. Percentages of beginning teachers who reported discipline problems ranged from 12% to 83%. Curwin and Mendler (as cited in Shin & Koh, 2008) indicated that discipline problems were the predominant reason why approximately 40% of teachers left their job during the first year. A review of a national random sample of surveys administered to 725 middle and high school teachers found that more than one in three teachers seriously contemplated leaving their profession, or knew a colleague who had quit, as a result of discipline issues. Additionally, 85% of these teachers felt that beginning teachers are especially unprepared for managing students' negative behaviors in the classroom (Public Agenda, 2004). The results of another study similarly indicated that teachers did not feel confident in their ability to manage mental health problems in their classrooms, including disruptive behaviors; when 119 elementary teachers were asked to rate their self-efficacy when confronting various mental health problems, the overall mean score was 1.82 on a 3-point scale (Walter et al., 2006).

Educators' concerns about discipline often begin during their preservice training. Madsen and Kaiser (1999) found that prior to beginning their student teaching, each of the 115 preservice teachers who were surveyed identified discipline and classroom management as their greatest worry. Gee (2001) surveyed 24 undergraduate preservice teachers and 36 graduate students with some teaching experience and found that both groups mentioned discipline as one of their predominant concerns. In a study that assessed student teachers' anxieties, Hart (1987) found that about 39% of 64 student teachers reported experiencing anxiety related to classroom control and discipline. In addition, overall anxiety and class control anxiety were positively correlated with student disruption levels. Therefore, an increase in students' disruptive behaviors was related to an increase in student teachers' overall anxiety level as well as their anxiety specific to managing the class. The results of these studies indicate that many teachers enter their first jobs with trepidation about problem behaviors they might encounter in the classroom and also how to control potential disruption.

The general public has also voiced concerns about student discipline problems throughout the past several years (Shin & Koh, 2008). According to the Phi Delta Kappa/Gallup poll, which assesses the public's attitudes toward public schools, lack of discipline was consistently listed as one of Americans' top three concerns from 1969 to 2008 (Bushaw & Gallup, 2008; Elam, 1990; Elam & Gallup, 1989; Elam & Rose, 1995; Elam, Rose, & Gallup, 1991; Elam, Rose, & Gallup, 1992; Elam, Rose, & Gallup, 1993; Gallup, 1986; Gallup & Clark, 1987; Gallup & Elam, 1988; Rose & Gallup, 1998; Rose & Gallup, 2000; Rose & Gallup, 2003; Rose & Gallup, 2006; Rose, Gallup, & Elam, 1997). On one Phi Delta Kappa/Gallup poll, 84% of Americans reported their belief that

a lack of discipline contributed either a great deal or a fair amount to learning failures in public schools (Rose & Gallup, 2003). Another Phi Delta Kappa/Gallup poll documented that 76% of Americans perceived discipline to be a very or fairly serious problem (Rose & Gallup, 1998). As a result of these consistent concerns over the past few decades about the impact of students' negative behaviors, it is critical for schools to implement strategies that are proven to successfully mitigate disruptive behaviors.

Effective Ways to Manage Disruptive Behavior

Educators and parents agree that schools need positive behavior strategies and high-quality discipline in order to prosper. Students not only should be required to complete the academic curriculum, but they also need to comply with school rules and demands to become productive members of society (Public Agenda, 2004). While students' negative behaviors can be impacted by family-, school-, and community-related factors, schools possess the ability to employ a wide variety of behavior management strategies to modify/reduce these behaviors, enhance prosocial skills, and prevent future problems from occurring (American Federation of Teachers, 2007; Walker & Holland, 1979). The significant amount of time students spend in school provides teachers with ample opportunities to model appropriate behaviors, provide feedback, and create a safe environment for students to practice demonstrating positive behaviors (Fantuzzo & Atkins, 1992; Sugai et al., 2000). Teachers are the “chief contingency managers of their classrooms” and are in a position to significantly change their students' behaviors (Fantuzzo & Atkins, 1992, p. 39).

In an effort to modify students' behaviors, teachers around the world have successfully implemented behavioral interventions and reinforcement systems in

classroom settings for many years. During the early 1800s, Joseph Lancaster established an educational system in England called the monitorial system. His system emphasized positive reinforcement, using tokens as reinforcers. Students who performed well in school were promoted to a monitor position and were permitted to assist the teacher with various tasks. Students also earned rewards and merits for answering correctly, attending to instruction, assisting their peers, and helping to monitor others' misbehavior. Punishment was only used when students disrupted the class, and consequences were implemented for repeated misbehaviors. Lancaster's monitorial system quickly gained popularity and was implemented in several countries, including the United States (Kazdin, 1978).

Another example of an early classroom behavior modification system that emphasized positive reinforcement was the Excelsior School System (Kazdin, 1978). In 1885, thousands of teachers in the United States began implementing the Excelsior School System. Students earned merits for engaging in appropriate behaviors, such as being organized, studying, and arriving to class on time. They also worked to receive tokens for their academic performance each day. The tokens and merits that students earned could then be exchanged for larger rewards. A unique aspect of the Excelsior School System was that parents were encouraged to become involved and were provided with feedback about their child's performance and merits/rewards earned. This system was successful for almost 10 years (Kazdin, 1978).

As seen in Lancaster's monitorial system and in the Excelsior School System, positive reinforcement was often emphasized in earlier school behavior modification programs, although punishment and consequences were sometimes utilized when

necessary. Many of the early behavior modification programs such as Lancaster's and the Excelsior systems were primarily based on principles of what was later termed ABA. ABA principles include positive reinforcement (i.e. food, privileges, feedback, praise, tokens), punishment (i.e. time-out, response cost, overcorrection), and extinction. Often, ABA programs combine these techniques, depending upon the participants, setting, and person managing the environment.

The goals of many ABA programs are to increase students' attentive behavior and compliance with directions and rules and to decrease disruptive behavior. Over the years, programs utilizing ABA techniques have been successfully established in classrooms consisting of a variety of populations (general and special education) and educational levels (preschool, elementary, high school, and college) within a multitude of settings (public schools, psychiatric institutions, private schools for the disabled, etc.). Such programs have been found to be very effective in terms of improving classroom conduct (Kazdin, 1978). A meta-analysis of 106 single-subject studies from the *Journal of Applied Behavior Analysis*, all of which attempted to reduce disruptive behaviors, indicated that ABA strategies involving differential reinforcement and a token economy system were highly effective in the elimination of disruptive behaviors (Chen & Ma, 2007). Another meta-analysis of 99 studies that employed interventions to decrease classroom disruptive behavior in public education settings found that the three most effective interventions, on average, included group contingencies, self-management, and differential reinforcement, all of which are based upon ABA principles. These behavioral interventions resulted in the lessening of disruptive classroom behavior for approximately 85% of the students exposed (Stage & Quiroz, 1997).

Positive approaches to discipline are often emphasized in schools because such approaches can be utilized to modify a wide variety of disruptive student behaviors (American Federation of Teachers, 2007). Researchers have found that positive behavioral strategies are often adequate to teach many students appropriate behaviors; although, students who exhibit more challenging behaviors may require negative consequences in addition to positive reinforcement (Walker et al., 2003-2004). An example of a positive approach to discipline that is derived from ABA principles and that can be implemented with individual students, within classrooms, and/or within entire school systems is positive behavior support (PBS). PBS includes the “application of positive behavioral interventions and systems to achieve socially important behavior change” (Sugai et al., 2000, p. 133). The focus of PBS is to enhance a school’s environment by making students’ negative behaviors less effective and positive behaviors more purposeful. PBS includes three tiers of supports: 1) universal behavioral supports, including positive reinforcement for all students, effective academic support, social skills instruction, establishing school-wide behavior expectations, and consistent classroom discipline/management; 2) targeted group interventions, such as self-management programs, enhanced academic support, adult mentors, and intensive social skills instruction; and 3) intensive individual supports, including concentrated academic assistance and individual behavior plans (Trussell, 2008). When students do not respond to universal supports, more intensive supports can be considered and attempted (Sugai, 2007). Therefore, students needing any type of behavioral support can benefit from the three tiers of PBS.

Many studies indicate the effectiveness of PBS in schools. Luiselli, Putnam, Handler, and Feinberg (2005) found that when PBS was implemented in an urban mid-western elementary school over a span of three years, student discipline problems such as fighting, classroom disruption, and defiance decreased. McCurdy, Mannella, and Eldridge (2003) discovered that when PBS was employed in a diverse, urban elementary school over two years, there was a 46% decrease in disruptive behaviors, including calling out, noncompliance, and leaving one's seat. There was also a 37% decrease in office discipline referrals following PBS interventions. Scott and Barrett (2004) found that in another urban elementary school where PBS was implemented for multiple years, the number of office discipline referrals decreased from 608 during the baseline year to 46 in the second year of implementation. Suspensions were reduced from 77 during the baseline year to 22 in the second year. In addition, student instructional minutes lost due to office discipline referrals lowered from 12,160 during the baseline year to 920 in the second year. Therefore, PBS has been shown to dramatically decrease students' disruptive and aggressive behaviors and increase the amount of potential instructional time in the classroom.

The three-tiered structure of PBS aims not only to *reduce* problematic behaviors in schools but also to *prevent* such behaviors from occurring. This emphasis on prevention through the use of a public health model can also be seen in the Response to Intervention (RTI) approach to education, a component of the Individuals with Disabilities Education Improvement Act of 2004 (Sugai, n.d.). The RTI model is designed to be utilized when implementing both academic and also behavioral interventions. According to the 2004 Learning Disabilities Roundtable report, the RTI

process should include: “high quality, research-based instruction and *behavioral supports* in general education” (Learning Disabilities Roundtable, 2005; National Joint Committee on Learning Disabilities, 2005). The RTI model therefore supports the notion that many academic and behavioral problems, including disruptive behaviors, can be prevented if evidence-based interventions, such as those incorporating ABA and PBS, are consistently utilized in schools.

Some of the classroom behavior management strategies noted in the literature that 1) aim to prevent disruptive behavior, 2) are supported by PBS and RTI models, and 3) can feasibly be implemented by teachers include: consistently implementing school and classroom rules, involving students in the development of rules (and ensuring their understanding of these rules), maintaining student engagement, and creating a structured school and classroom environment (Lewis & Sugai, 1999; Smith & Rivera, 1995). The literature also recommends implementing the following positive reinforcement strategies to increase students’ positive behaviors: catching students demonstrating positive behaviors and rewarding them, praising desirable behaviors (both verbally and nonverbally), modeling appropriate behaviors, and teaching cues that signal the approach of an expected behavior (McDaniel, 1987; Smith & Rivera, 1995). Finally, other behavioral interventions noted within the literature that are reportedly effective include: ignoring, group contingency programs, correcting students when they make social/behavioral mistakes or violate class rules, using negative reinforcement for unacceptable behaviors, and teaching students to self-monitor their behaviors (Lewis & Sugai, 1999; McDaniel, 1987; Smith & Rivera, 1995).

Legal Mandates for Behavior Management

Multiple legal statutes emphasize the significance of addressing student behaviors as they relate to learning. Federal laws such as the No Child Left Behind Act of 2001 and the Individuals with Disabilities Education Improvement Act of 2004 not only specify the importance of teacher quality in order to improve student achievement and create positive educational outcomes, but these laws also emphasize teachers' crucial role when educating students with learning and behavioral disorders (Oliver & Reschly, 2007). Therefore, laws exist that require teachers to know about how students' behaviors might negatively impact their learning and also how to effectively manage these behaviors to promote academic achievement.

The Individuals with Disabilities Education Improvement Act of 2004 indicates that general education teachers need to possess knowledge of and skills to implement behavior management strategies. According to § 614 of the Individuals with Disabilities Education Improvement Act of 2004, a "requirement with respect to [a] regular education teacher" is that, "as a member of the IEP Team, [he/she] shall, to the extent appropriate, participate in the development of the IEP of the child, including the determination of appropriate positive behavioral interventions and supports, and other strategies, and the determination of supplementary aids and services, [and] program modifications". This statement indicates that general educators hold some responsibility for considering and implementing appropriate behavior management techniques to address problem behaviors in the classroom (Katsiyannis, Ellenburg, & Acton, 2000). In addition, § 614 states that: "The IEP Team shall, in the case of a child whose behavior impedes the child's learning or that of others, consider the use of positive behavioral interventions and supports, and

other strategies, to address that behavior” (Sugai et al., 2000). Thus, members of the IEP team, including teachers, need to know about positive behavior supports/techniques that have the potential to increase students’ ability to learn. Teachers especially need to be knowledgeable about behavioral interventions because they are often the individuals who are held responsible for implementing these behavioral techniques, although with the support of other members of the IEP team.

The No Child Left Behind Act of 2001 supports training for teachers to enhance their knowledge of behavioral interventions. § 2122 indicates that schools can receive grant money to provide training for teachers to “improve student behavior in the classroom and identify early and appropriate interventions to help students . . . learn”. Similarly, § 2123 documents that schools can receive money for professional development activities that aim to improve student behavior. Finally, § 4121 reports that the Secretary, the Secretary of Health and Human Services, the Director of the Office of National Drug Control Policy, and the Attorney General, “shall carry out programs to . . . promote safety and discipline for, students”. Such programs may include “alternative education models . . . that are designed to promote drug and violence prevention, reduce disruptive behavior, reduce the need for repeat suspensions and expulsions, [and] enable students to meet challenging State academic standards”. These components of the No Child Left Behind Act of 2001 indicate the importance of schools’ roles in ensuring that teachers are knowledgeable about behavioral interventions, in an effort to reduce disruptive behaviors and increase learning.

In addition to federal mandates, state regulations and/or standards may require teachers to possess knowledge of and the ability to implement behavior management

strategies. For example, the New Jersey Professional Standards for Teachers and School Leaders indicates that teachers must possess knowledge of strategies necessary to promote positive behaviors. As Standard 6 states, “teachers shall understand individual and group motivation and behavior and shall create a supportive, safe and respectful learning environment that encourages positive social interaction, active engagement in learning and self-motivation”. This standard further declares that teachers are expected to possess knowledge of the “principles and strategies of effective classroom management” as well as ways in which the classroom environment impacts student learning and encourages positive behaviors. In addition, teachers are required to take responsibility for creating a positive classroom climate that is “socially, emotionally and physically safe” and that maintains “appropriate standards of behavior” (New Jersey Department of Education, 2004, p. 14). Standard 7, which focuses on teachers’ ability to modify instruction to accommodate students with special needs, also states that teachers need to be able to implement positive behavioral intervention strategies (New Jersey Department of Education, 2004).

What Strategies Are Teachers Using?

Teachers have reported using a wide variety of strategies to manage students’ disruptive behaviors. Shin and Koh (2008) surveyed 116 American and 167 Korean public high school teachers from urban school districts to gather information about students’ problem behaviors and the behavior management strategies teachers utilize to decrease these behaviors. They found that 55% of American teachers indicated the use of punitive behavior management strategies, including time-out and removing privileges, while only 34% of American teachers indicated the use of behavior plans and positive

reinforcement, such as finding students' positive qualities, rewarding them for appropriate behaviors, implementing consequences, and using peer support/peer tutoring. Therefore, despite research emphasizing the effectiveness of employing positive behavioral strategies, it appears that greater numbers of American teachers implement negative rather than positive behavior interventions.

When Shin and Koh (2008) compared American teachers' disciplinary procedures with those reported by Korean teachers, American teachers more frequently sought out a third party's involvement (e.g. administration and parents) to decrease negative student behavior rather than handling the situation on their own. Fewer American teachers independently implemented specific behavior management consequences. Both American and Korean teachers used verbal and nonverbal warnings to remind students about classroom rules.

In contrast to Shin and Koh's (2008) findings, Love, Henderson, and Hanshaw (1996) found that reward and punishment were the most popular behavior management techniques mentioned by teachers who were interviewed. Teachers specifically mentioned using strategies such as classroom incentive systems, time out, and the removal of privileges, such as loss of recess. Participants perceived these external behavior modification approaches to be the most effective and to result in increased positive student behaviors.

Despite possessing knowledge of some behavior management strategies, many teachers are continuously searching for more effective behavior interventions (Shin & Koh, 2008). Latz (1992) indicated that preservice teachers might use less effective, 'quick fix' behavior management strategies because they do not fully comprehend the

underlying dimensions of student behavior. Furthermore, Latz stated that a goal for preservice teachers is to progress from utilizing a reactive or coping behavior management mode (i.e. discipline-oriented) to one that is more preventative (i.e. management-oriented). Preventing students' disruptive behaviors would likely create fewer problems for teachers in the future.

Barriers to Implementing Behavior

Management Strategies

Despite the significant amount of research supporting the use of ABA techniques to reduce disruptive behaviors, many teachers do not consistently implement such strategies in their classrooms (Axelrod, Moyer, & Berry, 1990). There have been several proposed reasons for this. First, educators, especially general education teachers, may not have received sufficient training in behavioral techniques to confidently implement such interventions in their classrooms. Even if educators have received some behavior management training, they may have been trained to use strategies that are not practical for everyday use in their classroom or applicable to the students they teach. In addition, for many years, there has been a notable lack of articles and research on behavioral techniques in educational journals; therefore, educators may not have been exposed to these techniques on a regular basis. Second, teachers may resist implementing behavioral techniques that are new to them; it is often more difficult and time-consuming to desert one's habitual teaching methods and learn/employ new methods, even when one's habitual methods have been proven to be ineffective. Third, behavioral techniques sometimes carry a negative connotation as a result of their association with animal experiments and other research performed by behaviorists several years ago; therefore,

teachers may find it difficult to associate these early animal studies with changing their students' behaviors. Fourth, educators might negatively perceive and not fully understand some of the terms associated with behavioral techniques. For instance, it may be difficult for teachers to contemplate practical and positive applications of terms such as *extinction*, *overcorrection*, and *punishment*, especially if they are not educated about these techniques. Finally, many individuals focus on how behaviorism is based on using control to change one's behaviors, and educators might not agree with or believe in a technique or theory where they feel that they are the sole person in control of changing students' behaviors. As a result of this perception, individuals often do not take into consideration that the control involved in behaviorism is reciprocal, or bidirectional, and that both educators' and students' responses are crucial in order to change students' behavior(s) (Axelrod et al., 1990; Skinner & Hales, 1992).

A lack of exposure to behavioral theories and interventions during one's training results in teachers having less high-quality, research-based resources/interventions available to them when they are faced with modifying students' behaviors. In addition, a lack of behavioral training may result in teachers being unable to pinpoint why students' disruptive behaviors may be occurring, which can prevent them from choosing and employing an effective behavioral strategy. Skinner and Hales (1992) found that many educators do not attribute the causes of classroom behavior to a behavioral perspective. Teachers instead tend to think about students' behaviors in terms of psychoanalytic, developmental, or physiological explanations. Skinner and Hales administered a questionnaire to preservice and inservice educators both before and after these educators completed a behavior management course. Prior to taking this course, a developmental

explanation of behavior received the highest percentage of *agree* and *strongly agree* ratings. The behavioral explanation was ranked third by preservice teachers and second by inservice teachers. After completing a behavior management course, the behavioral explanation was ranked highest by both preservice and inservice teachers. Therefore, education about behavior management strategies appeared to change these educators' perspectives on behavioral techniques and perhaps would encourage these teachers to implement such strategies in their practice. This study further indicates the significance of educating teachers about behavioral techniques and the possibility that a lack of education about behavior management strategies is a barrier to the implementation of such techniques.

Schools implementing school-wide positive behavior support (SWPBS) have reported additional barriers to the implementation of behavior management techniques. A study by Kincaid, Childs, Blase, and Wallace (2007) asked 70 participants from 26 schools across 18 districts to name barriers that they have encountered or observed while implementing SWPBS in their schools/districts. Issues related to staff buy-in were rated as critical barriers to the success of SWPBS implementation; there were almost twice as many statements related to staff buy-in compared to other problematic themes. Additional barrier themes mentioned in this study included inconsistent implementation, time, misperceptions about PBS, district support, administrative support, use of data, understanding behavioral principles, parent-community support, and funding. Overall, eight of the barrier themes that were mentioned by participants were related to either systems issues, a lack of knowledge, or implementation issues. Therefore, problems experienced by teachers when implementing behavioral strategies extend beyond

possessing a sufficient amount of knowledge; much larger issues within a school district or school, such as administrative, financial, and community/parent support, can influence how effectively a teacher is able to manage his or her classroom using positive behavior techniques.

Lohrmann, Forman, Martin, and Palmieri (2008) found additional potential barriers that teachers might confront when implementing SWPBS. A total of 14 educational consultants from 10 states were interviewed about their experiences with and perceptions about SWPBS. Several barrier themes emerged from these interviews, including a lack of administrative direction and leadership, staff's perceptions that interventions were not necessary, feelings of hopelessness amongst staff, staff's philosophical differences, and staff feeling disconnected from either each other, administration, or their school's mission. Participants indicated that poor administrative leadership can result in teachers lacking awareness about and the momentum to implement interventions. In terms of staff's skepticism about the need for interventions, participants stated that teachers often feel significant pressure to emphasize academics, and as a result, students' behavioral needs become a lower priority. Many educators fail to recognize that decreasing students' disruptive behaviors can lead to an increase in students' academic achievement; therefore, they may see little value in spending the time and effort implementing behavioral techniques. With regards to feelings of hopelessness, participants elaborated that many educators feel that students' problem behaviors are out of their control and that interventions attempted in the past have had little to no effect. Another barrier reported was philosophical differences. Participants indicated that many teachers focus on using punitive strategies to manage student behavior rather than

positive behavior interventions. Additionally, some teachers believe that changing students' behaviors should be the role of the parents rather than the teachers, and other teachers do not believe in using extrinsic motivators as incentives. These factors would likely influence staff buy-in when learning about behavioral interventions. Finally, participants reported that teachers who do not feel connected to their school, administration, and/or colleagues may not be willing to take risks when implementing unfamiliar or new interventions.

Foxx (1996) also noted barriers to implementing behavioral strategies in classrooms. He reported that most education systems follow a reactive rather than a proactive intervention model. As a result, teachers who implement behavior interventions after behavior problems occur rather than beforehand may fail to see immediate success in their interventions, due to a lack of a preventive focus. Foxx further mentioned that many individuals who are responsible for implementing reinforcement programs do not believe in the process; therefore, they do not successfully carry out reinforcement programs. There is also a tendency for some educators to believe that once they are hired and have obtained the necessary credentials, there is nothing new to learn. Such educators instead need to be taught that behavior management skills are necessary to meet the requirements of their jobs and that the skills they learned in their undergraduate or graduate programs may not be adequate or continue to be useful when educating today's youth. Foxx additionally indicated that behavioral interventions may fail when there is no one available to consistently guide educators through the process of implementation; having support from an individual with expertise in behavior management may increase teachers' success with these strategies. Finally, many individuals who implement

behavioral strategies often give up when a student's behavior worsens, which is a frequent occurrence. Therefore, giving up prematurely may be a barrier to effective implementation.

Teachers' and their Mentors' Perceptions about Behavior Management

Many educators feel that one's ability to manage a classroom is an indicator of an effective teacher. In a study by Witcher and Onwuegbuzie (1999), approximately 33% of 219 preservice teachers attending a mid-southern university endorsed classroom and behavior management as an important trait of a teacher. In a study by Jones and Vesilind (1995), 23 student teachers at a large southeastern university were asked to create concept maps that represented effective teaching. When interviewed about their concept maps, every participant spoke at length about the significance of classroom management as a component of effective teaching. Furthermore, Merrett and Wheldall (1993) found that 93% of 176 secondary teachers believed it to be *very important* and 7% indicated that it is *important* for teachers to be able to manage a class.

Despite teachers' and preservice teachers' beliefs that managing students' behaviors is an important characteristic of an effective teacher, research indicates that behavior management is an area of weakness for teachers-in-training. Moore (2003) surveyed 62 mentor teachers to assess their concerns about the performance of preservice teachers. In addition, 77 senior preservice teachers were observed, surveyed, and asked to reflect upon their student teaching experiences in journal entries. Moore found that mentor teachers identified classroom management as one of the top three most common concerns they had about the student teachers. Similarly, behavior management concerns

were noted by the supervisors of Moore's study following observations of the preservice teachers. In addition, more than 95% of the preservice teachers indicated that maintaining control in the classroom was one of their three greatest challenges. Therefore, preservice teachers and their mentors agree that behavior management is a skill that requires improvement. Finally, when assessing demographic characteristics of the participants, Moore found no discrepancies in the responses of preservice and mentor teachers who worked in rural versus urban schools. Also, there were no significant differences between preservice and mentor teachers' beliefs when gender was analyzed.

Teachers who feel that their behavior management skills are an area of weakness might be less willing to attempt to implement behavioral strategies and may also feel less effective as a teacher. Baker (2005) surveyed 345 secondary and elementary teachers to assess their self-efficacy, ability, and willingness to implement behavior management techniques. Overall, teachers reported low self-efficacy in their attempts to reach their most difficult students, prevent behavior disruptions from negatively influencing the class, and keep defiant students involved. They reported low ability to use varied reinforcement schedules, document interventions, and individualize a reinforcement hierarchy. Teachers also conveyed low willingness to individualize a reinforcement hierarchy, utilize different reinforcement schedules, and employ a behavior intervention plan. When categorized into groups based upon their ability and willingness, 4% of respondents indicated that they were able, but unwilling to utilize specialized behavior management techniques; 23% reported being unable yet willing; and 18% responded that they were both unable and also unwilling to employ such strategies. Therefore, Baker's

findings indicate that teachers' perceptions about behavior management techniques can impact their ability and willingness to follow through on behavior interventions.

Behavior Management Training in Teacher

Preparation Programs

Although support staff (i.e. school psychologists and social workers) are sometimes called upon to deliver school-based mental health services, such as the management of disruptive behavior problems (Walter et al., 2006), training teachers to employ behavioral interventions competently is critical. Often, professionals who design behavior intervention plans, such as school psychologists, are not readily available to assist teachers on a daily basis; therefore, teachers hold much of the responsibility to choose and implement the appropriate techniques. When behavioral consultation does occur between support staff and teachers, a teacher's knowledge of and skills to implement behavior management techniques increase the chances that consultation will be effective; similarly, lacking behavior management skills can make it increasingly difficult for teachers to independently implement strategies suggested by behavioral consultants (Axelrod et al., 1990). Furthermore, if teachers are not able to utilize behavior management strategies appropriately and consistently, student behaviors may not change at all or they might even worsen (Kazdin, 1978).

Both general and also special education teachers require increased training during their preparation programs to manage the behaviors of today's diverse student body (Oliver & Reschly, 2007). General education teachers, in particular, need to be trained in behavior management because of their augmented role in the education of students with disabilities. In 1999, the U.S. Department of Education reported that almost 80% of

special education students spend the majority of their time in general education classrooms. Such high numbers of disabled students who are being educated in the general education classroom indicates that general education teachers need to be able to confront a wider variety of behavior problems (Katsiyannis et al., 2000).

Despite the existence of legal mandates that support behavior intervention training for teachers, as well as many teachers and teachers-in-training vocalizing their need to improve upon behavior management skills, many teacher training programs do not focus on behavior management. The lack of or reduced emphasis on management techniques in teacher training programs has been discussed and documented for over 20 years.

Although preservice and beginning teachers believe that behavior management classes are essential, such courses are often not required or are removed from condensed teacher education programs (Landau, 2001). Several educators believe that if teacher education programs placed more of an emphasis on classroom and behavior management skills, student discipline issues would improve significantly (Public Agenda, 2004).

Both teachers and administrators report a need for improvement in educators' behavior management training. Levine (2006) conducted case studies of 28 schools and departments of education and asked school principals, along with the faculty, deans, and alumni of teacher preparation programs, to rate how well preservice teacher education programs prepared their graduates in various areas. A total of 62% of alumni indicated that schools of education do not prepare their graduates appropriately to manage classroom realities. When asked to rate how well schools of education prepare teachers to maintain order and discipline in the classroom, only 33% of principals answered *very well* or *moderately well*. When deans were asked if education schools are the most

appropriate place to teach skills such as maintaining order and discipline, 81% answered *yes*. These percentages indicate that while most deans of preservice education programs feel that their colleges and universities are where teachers should be learning how to confront discipline problems, the majority of teachers and principals surveyed reported that teachers are not receiving adequate training and preparation in this area.

Many teachers who have reported that their preservice training lacked sufficient behavior management education have instead learned about behavioral interventions once they entered the profession. Merrett and Wheldall (1993) assessed secondary teachers' perceptions about how their initial training prepared them for the problems they confront in their classrooms. A total of 72% of 123 teachers indicated that they were not satisfied with their preparation in classroom behavior management. When asked where they learned their classroom behavior management skills, only 18% of 126 teachers felt that they learned these skills during their initial training, while 82% indicated that they learned these skills 'on the job'.

Some researchers have indicated that teacher preparation programs need to offer more courses that specifically focus on managing student behavior. Blum (1994) surveyed colleges and universities in the United States accredited by the National Council for Accreditation of Teacher Education (NCATE), to seek further information about behavior management courses being offered. Blum found that approximately half of all preservice teachers were not being offered any specific class management courses in their programs. Most of the participants indicated that they received some class management education through other courses; however, management was not the topic of focus. A total of 86% of the programs surveyed indicated that they dedicated anywhere from less

than one week to six weeks on the topic of class management. Thus, the results of this study indicate that teachers may not be adequately learning about class management during their preservice training to effectively employ these skills in their profession.

Similar to Blum's (1994) research, other studies have found that management techniques are often integrated into other courses, such as those focusing on curriculum design or child development. As a result, behavior management principles and procedures are given minimal attention; it is difficult for professors in teacher education programs to spend adequate time covering management techniques in such content-laden courses. Integrating behavior management into other courses probably occurs because instructors are often better trained to teach the major topic of the course rather than management techniques. Very few programs seek out or possess instructors who have expertise in management strategies (Landau, 2001).

When specific class management courses are offered by teacher education programs, they are not always required. Of the teacher preparation programs in Blum's study (1994) that offered a specific course in class management, 8% did not require students to take such a course. Programs that did offer a specific management course indicated that classroom discipline was a major component of the class; 75% of these programs indicated that classroom discipline was the emphasis of their management course for an entire semester.

Blum (1994) also found in his study that when preservice teachers were educated about class management, behavioral approaches were taught much more frequently than other management techniques; almost every school surveyed reported teaching their students about behavioral interventions. The most popular management programs taught

were behavior modification and assertive discipline, which tended to be the models more empirically supported in the literature. These findings from Blum's study contrast with the results of an earlier review of popular education journals performed during the years 1985 to 1989; a review of the following journals: *American Education Research Journal*, *The Review of Educational Research*, *Educational Researcher*, *Journal of Educational Psychology*, *Phi Delta Kappan*, and *The Journal of Education Research* resulted in few articles that mentioned any of the following terms: 'behavior analysis', 'behavior modification', or 'behavior management' (Axelrod et al., 1990). This indicates that behavioral techniques may not have been widely used and/or accepted by teacher educators/teacher education programs prior to the 1990s.

Methods of Teaching Behavior Management

Skills to Teachers

Behaviorists have been criticized for not utilizing ABA techniques when training teachers to implement behavioral interventions. For instance, behaviorists often compose articles, books, and lectures to educate teachers about behavioral principles and strategies rather than employing the behavioral techniques that they are encouraging teachers to implement in their classrooms (i.e. modeling, hands-on demonstrations, in-vivo practice, feedback, reinforcement). By utilizing ABA principles to teach educators about behavioral theories and how to implement behavioral interventions, behaviorists and professors in teacher education are not only modeling the appropriate behavioral techniques but also proving to teachers how effective these techniques can be. In addition, utilizing ABA techniques to educate teachers about behavior management allows teachers to practice and receive feedback prior to independently using these

strategies in their profession (Axelrod et al., 1990). This may increase teachers' self-efficacy, ability, and willingness to implement behavioral strategies in the future.

Teachers have reported that reading articles and listening to lectures, in isolation, are less effective methods of learning about behavior management strategies, while practical, real-life experiences are more effectual. In Merrett and Wheldall's study (1993), 17% of teachers who reported that they learned behavior management skills during their initial training believed that they learned these skills during lectures, in comparison to 70% who felt that they gained behavior management skills during supervised teaching practice. Whitney, Golez, Nagel, and Nieto (2002) indicated that information learned via readings and discussions during one's preservice training often becomes more meaningful when linked to practice. Whitney et al. surveyed 900 classroom teachers about their course-related and practical experiences during their teacher preparation program. Respondents indicated that the theories, readings, and discussions from their teacher education courses were more significant when they were able to practice in the classroom. Participants emphasized the importance of spending time in the classroom and observing their cooperating teacher model effective management strategies. They mentioned being able to take risks during their student teaching and also relying on their cooperating teacher's support to guide them through difficult situations. As a result of this study, Whitney et al. indicated that teachers become more socialized from their experiences in the classroom setting rather than from the information they gain from coursework during their training programs. Therefore, it is imperative that teacher education programs offer practical opportunities for teachers-in-

training to establish connections between the theories learned in their preparation programs and situations they might experience on the job.

In addition to providing practical, supervised teaching experiences, teacher preparation programs can help preservice teachers to develop behavior management strategies in many other ways. Emmer and Stough (2001) reported that novice teachers' management skills can be improved through journal writing, reflective activities, and creating portfolios. Discussing and analyzing management techniques utilizing videotapes of various classroom situations is another method that can increase preservice teachers' management skills. In Blum's (1994) survey of NCATE-accredited teacher preparation programs, the following methods were reportedly utilized most frequently (70% or more) to increase teachers' knowledge of behavior management strategies: audio-visual aids, role-plays/simulations, case studies, lectures, group projects, and classroom observations. Many of these teaching methods utilize ABA principles, such as modeling, practice, and feedback, which can help teachers to more easily apply behavioral theories to real-life situations.

Another crucial component of preservice teachers' behavior management education, as a component of or in addition to one's student teaching experience, is receiving guidance from a mentor teacher. In a study by Jones and Vesilind (1995), preservice teachers indicated that the following experiences influenced their perceptions about class management: observation of their cooperating teacher and the classroom in which they student taught, student teaching experiences, direct experiences with students, and direct experiences with parents. Additional influences mentioned by preservice teachers were university courses, conferences, communication with other teachers and

peers, professional readings, and various forms of media. Participants indicated that as their student teaching progressed, they relied less on information gained from their courses and mentor teachers and more on direct experiences with students, parents, and managing students' behaviors. This study further indicates the value of practical experiences when learning behavior management skills.

Case discussions are an additional practical method used to educate teachers about behavior management. Reviewing and evaluating case studies contributes to preservice teachers' decision-making and problem-solving skills, which can enhance teachers' ability to apply their knowledge of behavior management strategies to real-life situations (Emmer & Stough, 2001; Oliver & Reschly, 2007). Many teachers do not know how to handle specific situations that they are confronted with every day in their classrooms (Korthagen & Kessels, 1999) and require further training in solving these day-to-day problems.

Wood and Nahmias (2005) researched the value of using case studies in a teacher preparation program. In their study, 51 undergraduate English education students at a large southeastern university took turns presenting a real or imagined case to their peers using a preferred methodology (e.g. role-playing, narrative). Twenty-three of the presented cases described problems with students, nine of which mentioned potential behavior problems, such as breaking up fights or managing excessive talking and disruptions. When participants were surveyed following the case presentations, role-playing and group brainstorming were frequently mentioned as reasons why students remembered learning particular cases. Students indicated that the case presentations/discussions were valuable because they involved potential real-life

problems that they might face in the future. Many of the participants indicated that the case presentations helped them learn how to better manage a classroom.

Summary of the Literature

Disruptive behaviors in the classroom setting can have a significantly adverse impact upon both teachers' ability to effectively instruct students and also students' sense of safety. Many teachers have either abandoned or thought about leaving their profession due to issues resulting from disruptive behaviors. The many problems that can potentially result from disruptive behaviors have prompted educators, researchers, and the general public to further examine and voice their concerns about the importance of discipline and teaching students more positive behaviors. Educators are particularly concerned about beginning teachers who feel that they are entering the profession with insufficient training and a lack of confidence to implement management techniques.

Research has shown that if effective interventions are not employed early on in their education, elementary students who demonstrate disruptive behaviors are at risk for school dropout, aggressive behavior later in life, Antisocial Personality Disorder, or violent or criminal behavior. These risks can be further exacerbated when aggressive students are educated in a classroom environment that contains other students who are disruptive. While such risks are often influenced by students' genetics and environments outside of school (i.e. home, community), teachers who establish structured classrooms and effectively manage their students' behaviors can play an important role in reducing these risks.

Behavior management strategies, when implemented correctly by teachers, have consistently been proven to decrease disruptive behaviors in the classroom setting. For

many years, behavior modification programs have been successfully implemented in a variety of school settings and with a multitude of populations. The success of these programs is a result of the integration of ABA principles and techniques, including positive reinforcement, punishment, and extinction.

Behavioral interventions that emphasize the promotion of positive behaviors have been particularly effective in schools. PBS is one positive approach to discipline that can be implemented at an individual, small group, or whole-school level and that has been shown to decrease school-wide disruptive behaviors. In addition to reducing discipline problems, PBS aims to prevent future behavioral problems from occurring.

The RTI model, part of the Individuals with Disabilities Education Improvement Act of 2004, also places an emphasis on preventing problems in schools through the use of evidence-based academic and behavioral interventions. This focus on prevention and knowledge of behavioral interventions is also evident in federal mandates and state guidelines. The No Child Left Behind Act of 2001 and the Individuals with Disabilities Education Improvement Act of 2004 are examples of legal mandates that highlight the importance of teachers gaining knowledge of and the skills to implement behavioral interventions. These laws, in addition to state standards, help to ensure that schools are making an effort to reduce disruptive behaviors, maintain positive school climates, and promote students' academic learning.

Despite the multitude of studies that have shown the effectiveness of positive behavior interventions to reduce disruptive behaviors in schools, as well as the emphasis federal mandates and state standards have placed on teachers knowing and using high quality behavioral interventions, many teachers continue to implement punitive behavior

interventions and/or other disciplinary measures that have not been proven as successful. Furthermore, many educators have indicated that they do not possess an adequate repertoire of behavior interventions to choose from. This may be the result of a wide variety of barriers that are preventing teachers from employing appropriate and positive behavior interventions. Some of these barriers include: a lack of training; decreased exposure to behavioral techniques/theories in educational resources; resistance due to the difficulty or time it takes to learn new techniques; negative perceptions about behaviorism as a result of early animal research; difficulty understanding some of the behavioral terms utilized in the literature; disagreement with the theories behind the techniques; a lack of administrative, parent, or community support; a lack of funding; a lack of administrative leadership; feelings of disconnectedness to one's school; and prematurely ceasing interventions as a result of not seeing immediate success.

While large numbers of teachers feel that they can be more effective when they possess behavior management skills and that these skills are crucial to their jobs, behavior management skills are often a weakness for teachers when they enter the profession. Many teachers have reported low self-efficacy when instructing disruptive students as well as an inability to successfully employ positive behavioral interventions in the classroom. This lack of self-efficacy and ability can result in teachers who are not willing to implement behavioral interventions that they perceive as too difficult.

Training general and special education teachers to become competent at implementing behavioral interventions can help them to become more effective instructors and to establish positive classroom climates. Enhanced training in behavior management provides teachers with the ability to increase students' opportunities to

focus on academics rather than disruptive behaviors. In addition, better training can improve the behavioral consultation process between teachers and support staff, such as school psychologists.

One step to ensuring that teachers are proficient in behavior management is for teacher preparation programs to improve their instructional methods and amount of education regarding this topic. Both educators and also school administrators recognize the need for further and better preservice training in behavior management. Teachers often report that they receive most of their behavior management training after entering the profession rather than in their undergraduate or graduate programs.

Studies have shown that many teacher preparation programs do not require education in behavior management techniques and/or do not offer a specific class that focuses on this topic. Instead, behavior management is often a small topic that is included in other courses. When behavioral techniques are taught, teachers are sometimes instructed via lectures and articles rather than using methods such as modeling, practice, and feedback, which are based upon well-researched ABA principles.

Several teachers have reported that they learned behavior management strategies through observing their cooperating teacher during student teaching, practicing the techniques, and receiving feedback. Teachers have further indicated that articles and lectures about behavioral theories/interventions become more meaningful when linked to real-life experiences in the classroom. In addition to modeling, practice, and feedback during student teaching experiences, other instructional methods that teacher preparation programs can utilize to bridge the link between theory and practice include: role plays, simulations, discussions of cases, reflective activities, and classroom observations.

Allowing teachers-in-training to not only be exposed to behavioral theories but also to see how these theories relate to practice will help them to become more effective managers of their students' behaviors, which can have far-reaching positive effects on their ability to teach and establish safe classroom and school environments.

Statement of the Problem

While several studies have explored different types of behavior management strategies utilized by teachers to decrease disruptive behaviors, few studies have honed in on teachers' perceived knowledge and use of specific ABA techniques. Many studies have assessed how and where teachers learned about behavior management strategies, but few studies have examined teachers' perceptions about the importance, types, and effectiveness of various activities/experiences and instructional techniques when learning about certain ABA strategies. Finally, several studies have looked at barriers teachers might encounter when implementing behavioral interventions; however, few studies have focused on how these barriers relate to teachers' perceived knowledge and use of particular ABA interventions.

Therefore, a review of the literature does not reveal any studies that simultaneously explored elementary school teachers' perceived knowledge and frequency of use of specific ABA techniques, beliefs about the importance of activities/experiences in their attempts to learn these techniques, perceptions about the effectiveness and types of instructional methods used in supporting their learning about these strategies, and conditions perceived as barriers to their implementation of these techniques. In addition, while some studies have looked at how demographic characteristics, such as gender and years of teaching experience, have impacted teachers' perceptions about disruptive

behaviors and discipline techniques, few studies have additionally examined how teachers' highest academic degree(s) earned, whether or not they took a behavior management course in their undergraduate/graduate education, and/or the type of population they primarily taught (i.e. general or special education) influence their perceptions about their knowledge and frequency of use of ABA strategies, the importance of various activities/experiences in their attempts to learn to use these strategies, the effectiveness and types of various instructional techniques used in supporting their learning about these strategies, and barriers affecting the implementation of these techniques. In an effort to fill these gaps in the literature, this study sought to answer the following research questions:

1. What ABA techniques do elementary school teachers perceive themselves to be knowledgeable about and to what extent?
2. What ABA techniques do elementary school teachers perceive themselves to implement in their classrooms and how frequently?
3. In supporting their learning about ABA strategies, how effective do elementary teachers perceive various instructional techniques to be?
4. What instructional techniques are included/not included in elementary teachers' training when learning about ABA strategies?
5. In their attempts to learn to use ABA strategies, how important do elementary teachers perceive various types of activities/experiences to be?
6. What conditions do elementary teachers perceive as barriers to their use of behavior management strategies and how frequently do they encounter these barriers?

7. What is the relationship between elementary teachers' demographic characteristics (gender, number of years teaching, type of population primarily taught, school, district, academic degree(s) obtained, whether or not one took a specific behavior management course) and their perceptions about their knowledge and frequency of use of ABA strategies, the importance of various activities/experiences in their attempts to learn to use ABA strategies, whether or not their training in ABA strategies included various instructional methods, the effectiveness of various instructional techniques in supporting their learning about ABA strategies, and the frequency with which various conditions are barriers to their use of behavior management strategies?

CHAPTER III

METHOD

Participants

A total of 203 elementary school teachers were invited to participate in this study during the 2009-2010 school year. A teacher was invited to participate if his/her position entailed directly educating students in any capacity. Therefore, participants consisted of special and general education teachers, specials teachers (i.e. physical education, music, art, etc.), and other individuals who educated students in small or large group settings, such as literacy or basic skills teachers. Participants instructed grades ranging from kindergarten to fifth grade.

Out of the 203 surveys that were distributed for this study, 120 were returned at least partially complete. Therefore, the total response rate was 59.1%. A review of participants' demographic characteristics indicates that their reported mean number of years teaching was 13.36 years ($SD = 9.20$). Furthermore, the range of responses when participants were asked to indicate their approximate number of years teaching spanned from 0.5 to 47.0 years. As seen in Table 1, most of the respondents were female (91.6%) and reported possessing a Master's degree (59.8%). Only a small percentage of participants reported obtaining a Doctorate degree (1.9%). The majority of participants indicated that they primarily teach general education students (73.8%), while 18.7% reported mostly teaching special education students and 7.5% noted that they teach both general and special education students. A similar percentage of respondents reported that

they had or had not taken a course in their undergraduate or graduate education that focused primarily on behavior management (47.7% and 52.3%, respectively).

Settings

The settings consisted of four elementary schools located within two school districts in New Jersey; two elementary schools were selected from each district. One of the school districts, District 1, was situated in a large suburb of Morris County, New Jersey and consisted of 5,411 students. The other district, District 2, was located in a small city in Middlesex County, New Jersey, and consisted of 14,482 students. The number of students that attended each school was as follows: School 1 – 650 (District 1), School 2 – 626 (District 1), School 3 – 439 (District 2), and School 4 – 802 (District 2). The response rates at each of the four schools were: School 1 - 16/46 (34.8%), School 2 – 46/58 (79.3%), School 3 - 27/40 (67.5%), and School 4 – 31/59 (52.5%).

Chi-square analyses were conducted to assess whether there were any significant differences among the four schools surveyed in terms of participants' demographic characteristics, including their gender, highest academic degree earned (Bachelor's, Master's, or Doctorate), whether or not they took a course in their undergraduate or graduate education that focused primarily on behavior management strategies, and the population they primarily taught (general education, special education, or both). The results indicate that there was a significant difference among the four schools surveyed when examining participants' highest academic degree earned, $\chi^2(6) = 15.14, p = .019$. As seen in Table 2, only one of the four schools, School 4, contained participants with a doctorate degree (8.0%). School 1 contained the largest percentage of participants with a Master's degree (86.7%), yet the lowest percentage with a Bachelor's degree (13.3%).

Conversely, School 4 possessed the largest percentage of participants with a Bachelor's degree (52.0%) but the smallest percentage with a Master's degree (40.0%).

There was also a significant difference among the four schools when examining whether or not participants took a course in their undergraduate or graduate education that focused primarily on behavior management techniques, $\chi^2(3) = 10.88, p = .012$. As seen in Table 3, School 1 possessed the largest percentage of participants who took a behavior management course (66.7%), while School 4 contained the smallest percentage (20.0%). There were no significant differences among the four schools in terms of participants' gender, $\chi^2(3) = 1.18, p = .759$, or the population they primarily taught, $\chi^2(6) = 5.15, p = .524$.

Measures

Description of survey

A three-page survey, titled *Behavior Management Survey* (see Appendix A), was created to answer the following questions: (a) What ABA techniques do elementary school teachers perceive themselves to be knowledgeable about and to what extent? (b) What ABA techniques do elementary school teachers perceive themselves to implement in their classrooms and how frequently? (c) In their attempts to learn to use ABA strategies, how important do elementary teachers perceive various types of activities/experiences to be? (d) In supporting their learning about ABA strategies, how effective do elementary teachers perceive various instructional techniques to be? (e) What instructional techniques are included/not included in elementary teachers' training when learning about ABA strategies? (f) What conditions do elementary teachers perceive as barriers to their use of behavior management strategies and how frequently do

they encounter these barriers? and (g) What effects do various demographic characteristics have on elementary teachers' perceptions about their knowledge of ABA strategies, the frequency with which they implement these strategies, the importance of various activities/experiences in their attempts to learn to use these strategies, the effectiveness of various instructional techniques in supporting their learning about these strategies, whether or not their training in ABA strategies included various instructional techniques, and the frequency with which various conditions are barriers to their use of behavior management strategies?

The first section of the Behavior Management Survey consisted of items that sought participants' demographic information. The first item in this section required participants to write the approximate number of years that they had been teaching. The second item asked participants to check the appropriate box indicating their gender. For the third item, participants were required to check all boxes that applied regarding academic degree(s) they had obtained, including *Bachelor's*, *Master's*, *Doctorate*, and/or *Other*. A blank space was provided for participants to specify any other degrees earned besides a Bachelor's, Master's, or Doctorate. The fourth item asked participants to check all boxes that applied regarding the grade(s) they taught; responses ranged from kindergarten to fifth grade. For the fifth item, participants were required to check the appropriate box indicating what type of population they primarily taught, and the responses included *general education* and *special education*. The sixth item asked participants to indicate, by checking either the *yes* or *no* box, whether they took a course in their graduate or undergraduate education that primarily focused on behavior management.

In the second section of the Behavior Management Survey, participants were asked to rate 15 ABA strategies according to how knowledgeable they were about each strategy and also the frequency with which they used each strategy in their classroom. Each strategy was labeled and an operationally-defined example was provided. The 15 strategies and their examples included:

1. Positive Reinforcement – Social: Teacher gives student attention/praise when student demonstrates positive behavior.
2. Positive Reinforcement – Preferred Activity: Student earns preferred activity, such as computer time or class helper, when he/she demonstrates positive behavior.
3. Positive Reinforcement – Token Economy: When student demonstrates positive behavior, he/she earns tickets, points, etc. that can be later traded in for larger prizes.
4. Positive Reinforcement – Food: Student earns candy/food for demonstrating positive behavior.
5. Shaping: Teacher rewards student for reaching small steps toward positive behavior; student continues to be rewarded until he/she learns behavior completely.
6. Behavior Contract: Student and teacher decide together what behavior(s) the student will work on and the rewards he/she will earn.
7. Modeling: Teacher demonstrates the positive behavior(s) that he/she wants student to learn/adopt.

8. Prompting/Fading: Teacher prompts/guides student to learn positive behavior and then slowly takes away this guidance as student demonstrates the positive behavior.
9. Group Contingency: Rewards for whole class depend on one student or small group of students demonstrating positive behavior.
10. Extinction: Teacher stops his/her action(s) that are contributing to student's inappropriate behavior – i.e. if attention is rewarding to student, teacher ignores student.
11. Punishment: Teacher verbally reprimands student or takes away a privilege when student's behavior is inappropriate.
12. Reinforce Incompatible Behavior: Teacher rewards student for demonstrating positive behavior(s) that are opposite of student's inappropriate behavior – i.e. student is rewarded for staying in seat when he/she often leaves seat.
13. Differential Reinforcement: Teacher rewards student's positive behavior while simultaneously not rewarding student's inappropriate behavior – i.e. teacher praises student for looking at blackboard/attending while ignoring the same student kicking his/her desk.
14. Time Out: Student is temporarily separated from peers/situation following inappropriate behavior.

15. Overcorrection: When student's behavior is inappropriate, teacher requires student to practice more positive behavior – i.e. student who is rude to peer is required to practice giving his/her peer at least one compliment every day.

For each item in the second section of the survey, a Likert scale was used with five response options. Participants were required to first check a box indicating how knowledgeable they were about each strategy and then to check a box indicating the frequency with which they used each strategy. When assessing participants' perceived knowledge of each strategy, response options were coded 1 (*Not at all knowledgeable*) to 5 (*Very knowledgeable*). When measuring participants' perceived frequency of use of each strategy, response options were coded 1 (*Never use*) to 5 (*Very often use*).

The third section of the Behavior Management Survey required participants to rate the importance of various activities/experiences, including: (a) professional development activities (i.e. workshops, conferences), (b) discussion/working with colleagues, (c) university coursework (undergraduate/graduate), (d) student teaching experience, and (e) independent reading (i.e. books/journal articles), in their attempts to learn to use the 15 ABA strategies described in the first section of the survey. A Likert scale with five response options was used for each item in this section. For every item, participants were required to check a box indicating the extent to which they believed each activity/experience was important. Response options were coded 1 (*Not at all important*) to 5 (*Very important*).

In the fourth section of the Behavior Management Survey, participants were asked to rate the effectiveness of various instructional techniques in supporting their learning

about the 15 ABA strategies listed in section one of the survey. These instructional techniques included: (a) reviewing case studies, (b) listening to lectures, (c) reading books/articles, (d) observing mentors/cooperating teachers, (e) practicing and receiving feedback, (f) reflective journal writing, (g) watching and reflecting on videotapes, (h) role-playing, (i) completing group projects, (j) completing portfolios, and (k) other. The *other* option provided a space for participants to write down and then rate additional instructional techniques that were included in their training but were not part of the Behavior Management Survey. A Likert scale with five response options was utilized to assess participants' perceptions in this section. Participants were required to check a box indicating how effective they felt each instructional technique to be in supporting their learning about ABA strategies. Participants' responses were coded 1 (*Not at all effective*) to 5 (*Very effective*). In addition, a sixth response option was added to this section labeled: *My training did not include this technique*. Participants' responses to this sixth option were either coded 1 (did not check this response) or 2 (checked this response) for each of the instructional techniques listed above.

Finally, the fifth section of the Behavior Management Survey asked participants to rate how frequently various conditions were barriers to their use of behavior management strategies. Conditions included: (a) lack of knowledge/skill, (b) lack of support from administration, (c) lack of feedback/guidance, (d) lack of supplies, (e) colleagues do not support use, (f) not consistent with my general approach to teaching, (g) takes too much time and effort, (h) did not believe it would work, (i) knew other teachers who had tried it and thought it was ineffective, (j) thought it would not help me achieve my work goals, (k) believed it was not appropriate for the students in my

class(es) and their specific problems, and (l) other. For the item labeled *other*, a space was provided for participants to note and rate any additional conditions they perceived as barriers to their use of behavior management strategies that were not part of the survey. A Likert scale with five response options was utilized to assess participants' perceptions in this section. Participants were asked to check a box for each item indicating the frequency with which they perceived each condition to be a barrier. Responses were coded 1 (*Never a barrier*) to 5 (*Very often a barrier*).

All items on the Behavior Management Survey, with the exception of one short answer question, required participants to check a box for their response. This allowed participants to respond to survey questions quickly and with ease. The one short answer question requested participants to write down the approximate number of years they had been teaching and was also intended for participants to answer easily and quickly. The entire Behavior Management Survey was estimated to take teachers approximately 10-15 minutes to complete and was anonymous for each participant.

Development of survey

The Behavior Management Survey was developed following a review of behavior modification books and textbooks (Axelrod, 1983; Haring & Phillips, 1972; Harris, 1972; Kazdin, 1978; Kerr & Nelson, 1998; McDaniel, 1987; Porter, 2000) as well as various research/journal articles (Axelrod et al., 1990; Baker, 2005; Blum, 1994; Chen & Ma, 2007; Emmer & Stough, 2001; Foxx, 1996; Jones & Vesilind, 1995; Kincaid et al., 2007; Lewis & Sugai, 1999; Lohrmann et al., 2008; Love et al., 1996; Merrett & Wheldall, 1993; Moore, 2003; Oliver & Reschly, 2007; Shin & Koh, 2008; Skinner & Hales, 1992; Smith & Rivera, 1995; Stage & Quiroz, 1997; Trussell, 2008; Whitney et al., 2002;

Wood & Nahmias, 2005). This literature was reviewed to determine (a) common behavior management strategies that teachers had reported using within the classroom setting and (b) strategies included in behavior modification textbooks that might be taught in teacher preparation programs. The literature revealed a wide variety of strategies, many of which were based upon ABA principles. A total of 15 behavior modification strategies were selected to include in the Behavior Management Survey. These 15 strategies were chosen because (a) they were all based upon ABA principles, and (b) they were the behavioral strategies most frequently and consistently mentioned in the literature reviewed. Each of the 15 strategies was operationally defined (an example of each item was described) for the survey, using terms intended to be easily understood by teachers. The operational definitions were generated after finding examples of each strategy in behavior modification textbooks and adapting/applying these examples to the elementary school setting.

Next, items in the Behavior Management Survey that assessed teachers' perceptions about their training in behavior management, including the importance of various activities/experiences (section three of the survey) and the types and effectiveness of different instructional techniques (section four of the survey), were selected according to how frequently and consistently these instructional techniques and activities/experiences were noted in the literature reviewed. The instructional methods and activities/experiences that were mentioned most often and consistently in various books and articles were chosen to include in the survey. The investigator also added, to section four of the survey, a response option for participants to indicate if their training did not include any of the instructional techniques listed.

Finally, the last section of the Behavior Management Survey, which assessed the frequency with which participants perceived various conditions to be barriers to their use of behavior management strategies, was developed in a similar manner to the other sections of the survey. The literature was reviewed to develop a list of potential barrier conditions that were the most frequently and consistently documented. These conditions were then incorporated into the survey.

Most of the items that assessed participants' demographic information were chosen for the Behavior Management Survey because they were the demographic characteristics mentioned the most frequently and consistently within the literature reviewed. Two additional demographic characteristics incorporated in the survey that were not included in any of the literature reviewed were the type of population participants primarily taught and the academic degree(s) they had obtained. Finally, the one dichotomous item on the survey that assessed whether or not participants took a course that focused primarily on behavior management was added after reviewing the results of Blum's (1994) study, which indicated that many teachers do not take a behavior management course during their preservice training.

As mentioned earlier, a Likert scale was developed to assess all items in sections two through five of the Behavior Management Survey. A Likert scale was chosen because it is often utilized when measuring opinions, beliefs, and attitudes (DeVellis, 1991), and this study measured teachers' perceptions. Having multiple responses for participants to choose from was an attempt to increase the reliability, precision, and scope of the survey items and required participants to think more carefully about their responses (Spector, 1992). In addition, a Likert scale allowed for participants' ratings to more easily

be transferred to quantitative values for analysis purposes. Finally, the response choices that were selected for the Likert scale items (i.e. *Very*____, *Not at all*____) were chosen because they are some of the most common response choices used for evaluation and frequency survey items (Spector, 1992).

Procedures

After receiving written approval from each district/school principal (see Appendix B), the investigator visited each of the four elementary schools during a faculty meeting to briefly discuss the purpose of the study and describe the Behavior Management Survey to potential participants. Following this brief introduction, potential participants were given the opportunity to ask questions about the study/survey. The investigator then informed potential participants about how they would receive their surveys, on what date they would receive their surveys, and that they would have three weeks from the date they received their surveys to complete them. Potential participants were instructed to place their completed surveys and consent forms (see Appendix C) in the large envelope labeled *Dissertation Surveys* located in the main office of their school. They were informed that there would be a cover sheet (see Appendix D) attached to their Behavior Management Survey and consent form, which would remind them where to place their completed surveys and by what specific date. Finally, potential participants were assured that their responses would be anonymous and were reminded that their participation in the study was voluntary.

The procedure for distributing packets, each of which contained a cover sheet, letter of informed consent, and Behavior Management Survey, differed across schools. At two of the four elementary schools, packets were distributed to potential participants'

mailboxes immediately following the faculty meeting. Once these packets were distributed, the investigator placed a large envelope marked *Dissertation Surveys* in each school's main office, for completed surveys and consent forms.

At one elementary school, packets were directly distributed to most of the potential participants at the end of the faculty meeting, rather than in their mailboxes. This was the principal's suggestion, in order to make it easier for potential participants to complete their surveys; teachers at this school were particularly busy during this week because they were preparing for and administering state assessments to students. Therefore, during the faculty meeting, potential participants were informed that if they desired, the school principal had permitted for some time at the end of the faculty meeting for them to complete their survey. They were also told that if they chose not to complete their survey at that time, they could leave the meeting following the investigator's brief introduction. Since not all staff members were in attendance at this meeting, a few additional surveys were distributed to potential participants' mailboxes following the meeting. Once surveys were distributed to all potential participants at this school, the investigator placed a large envelope labeled *Dissertation Surveys* in the main office near teachers' mailboxes, for completed surveys and consent forms.

At the fourth elementary school, the investigator waited one week following the faculty meeting to distribute packets to potential participants' mailboxes. The distribution of surveys was delayed by one week because teachers at this school were especially busy throughout this week preparing for and administering state standardized assessments. Once all surveys were distributed to potential participants at this school, a large envelope

labeled *Dissertation Surveys* was placed in the main office near teachers' mailboxes, for completed surveys and consent forms.

Two weeks following the distribution of surveys at each school, the investigator placed a brief written reminder about the Behavior Management Survey in each potential participant's mailbox (see Appendix E). This reminder indicated that there would be extra copies of packets in the main office, in case potential participants misplaced their survey. The investigator then placed extra copies of packets next to the large envelope labeled *Dissertation Surveys* in each main office.

In addition, the day before surveys were due at each school, the investigator placed a second written reminder about the Behavior Management Survey in each potential participant's mailbox (see Appendix E). This reminder again stated that there were extra copies of packets in the main office, and the investigator checked to ensure there were still extra copies of packets in each main office. Following the three-week time frame at each school, the investigator retrieved all completed surveys.

Preparation for data analysis

Prior to conducting the analyses, each questionnaire item was coded with a quantitative value and entered into SPSS/PASW v. 18. When entering data, if a participant responded to an item by checking off two boxes rather than one, a decision rule was followed to average the respondent's selections. On one survey, a participant wrote a five-year range for their approximate number of years teaching; the investigator averaged this participant's range of years. Items that were not completed by participants were left blank during data entry.

Although the Behavior Management Survey provided only two response options for the item that asked participants what type of population they primarily taught (*special education* and *general education*), a number of participants ($n = 8$) either checked both response options or wrote on the survey that they instructed both populations. Therefore, when coding the data, a third category was added for this item. This category was labeled *both* to represent participants who indicated teaching both populations.

The item on the Behavior Management Survey that assessed participants' academic degree(s) earned required respondents to check all boxes that applied regarding the degree(s) they had obtained (*Bachelor's*, *Master's*, *Doctorate* or *Other*). The investigator decided to code this item according to the highest degree participants reported obtaining. Some participants indicated, in the *other* category, that they had earned additional credits after receiving a Bachelor's or Master's degree (e.g. Bachelor's plus 18, Master's plus 20). These responses were omitted from data analysis. Also, when participants noted in the *other* category that they had earned additional degrees or certificates after receiving their Bachelor's, Master's, or Doctorate degree(s) (e.g. Master's in Social Work, Learning Disabilities Teacher Consultant, Education Specialist, second Bachelor's degree), these responses were omitted from data analysis. Therefore, the investigator only included responses indicating that a participant earned a Bachelor's, Master's, or Doctorate degree in the data analysis.

Prior to analysis, all data was checked for accuracy by computing the descriptive statistics for each item and examining the minimum and maximum values. Once this step was completed, total scores were calculated to represent the two dependent variables, total knowledge and total frequency. Total knowledge measured participants' perceptions

about their knowledge of the 15 ABA strategies in the Behavior Management Survey; this score was calculated by adding participants' knowledge ratings for each ABA strategy in section two of the survey. Total frequency measured the frequency with which participants reported implementing the 15 ABA strategies and was calculated by adding participants' frequency ratings for each ABA strategy in section two of the survey.

Once participants' total knowledge and total frequency scores were created, further review of the data revealed that 13 of the 120 completed surveys were missing data required to calculate a total knowledge and/or total frequency score. Since these total scores were crucial to many of the analyses, a decision rule was followed to exclude these 13 surveys from the data analysis. Therefore, a total of 107 surveys were utilized in the final data analysis. As Table 1 indicates, the number of surveys that were analyzed from each school differed, ranging from 15 from School 1 to 42 from School 2. However, a similar number of surveys were analyzed from each district ($n = 57$ from District 1 and $n = 50$ from District 2).

CHAPTER IV

RESULTS

Knowledge of ABA Strategies

Means and percentages

As shown in Table 4, participants perceived themselves to be the most knowledgeable about the following ABA strategies: social positive reinforcement, modeling, using a preferred activity as positive reinforcement, using a token economy system as positive reinforcement, and behavior contracts. Similarly, the highest percentage of participants reported being either *knowledgeable* or *very knowledgeable* about social positive reinforcement (100.0%), modeling (99.1%), using a preferred activity as positive reinforcement (98.1%), using a token economy as positive reinforcement (87.8%), and time out (86.9%). Only a small percentage of participants were either *not at all knowledgeable* or *slightly knowledgeable* about behavior contracts (1.9%), punishment (1.9%), reinforcement of an incompatible behavior (1.9%), and time out (1.9%). Furthermore, there were no participants who were either *not at all knowledgeable* or *slightly knowledgeable* about social positive reinforcement, using a preferred activity as positive reinforcement, using a token economy as positive reinforcement, and modeling.

Table 4 also indicates that participants perceived themselves to be the least knowledgeable about group contingency, extinction, shaping, differential reinforcement, and overcorrection strategies. Similarly, ABA strategies that the lowest percentage of

participants perceived themselves to be either *knowledgeable* or *very knowledgeable* about included extinction (72.0%), group contingency (71.0%), differential reinforcement (71.0%), shaping (69.2%), and overcorrection (55.2%). Finally, strategies that the highest percentage of participants reported being either *not at all knowledgeable* or *slightly knowledgeable* about were overcorrection (19.6%), shaping (12.1%), differential reinforcement (11.2%), prompting/fading (9.3%), and extinction (8.4%).

Correlations

Pearson correlations were calculated for items that assessed participants' perceived knowledge of ABA strategies. As Table 5 indicates, there were significant relationships between all 15 items. In addition, participants' perceived knowledge of each ABA strategy was significantly correlated with both total knowledge and total frequency scores. These significant positive correlations indicate that participants who perceived themselves to be more knowledgeable about each of the 15 ABA strategies on the Behavior Management Survey tended to have higher total knowledge and total frequency scores.

Frequency of Use of ABA Strategies

Means and percentages

Table 6 reveals that participants indicated implementing the following ABA strategies the most frequently: social positive reinforcement, modeling, prompting/fading, reinforcement of an incompatible behavior, and a preferred activity as positive reinforcement. Similarly, the highest percentage of participants reported employing social positive reinforcement (98.2%), modeling (88.8%), prompting/fading (53.3%), reinforcement of an incompatible behavior (48.6%), and a preferred activity as positive

reinforcement (40.2%) either *often* or *very often*. Few to no participants indicated implementing the following strategies either *never* or *seldom/rarely*: prompting/fading (17.7%), reinforcement of an incompatible behavior (16.8%), a preferred activity as positive reinforcement (15.9%), modeling (0.9%), and social positive reinforcement (0.0%).

Table 6 also shows that participants reported using punishment, time out, group contingency, overcorrection, and food as positive reinforcement the least often. Similarly, group contingency (20.5%), punishment (17.8%), time out (13.0%), overcorrection (11.2%), and food as positive reinforcement (2.8%) were strategies rated by the lowest percentage of participants as being used either *often* or *very often*. Finally, the highest percentage of participants reported employing food as positive reinforcement (90.6%), overcorrection (60.8%), group contingency (55.2%), time out (47.7%), and a token economy system as positive reinforcement (43.0%) either *never* or *seldom/rarely*.

Correlations

Table 5 reports Pearson correlations for items that measured participants' perceived frequency of use of the ABA strategies included in the Behavior Management Survey. Several of the items that assessed participants' perceived frequency of use were linearly related to one another. Most of these items were also linearly related to participants' total knowledge and total frequency scores. These significant positive correlations indicate that participants who reported utilizing ABA strategies more frequently tended to have higher total knowledge and/or total frequency scores.

Knowledge and Frequency of Use of ABA Strategies

Table 5 reports Pearson correlations for items that assessed participants' perceived knowledge and frequency of use of the 15 ABA techniques included in the Behavior Management Survey. The results indicate significant linear relationships between participants' perceived knowledge and frequency of use of each of the ABA strategies, with the exception of participants' perceived knowledge and frequency of use of punishment. The multitude of significant positive correlations between participants' perceived knowledge and frequency of use of each ABA strategy indicates that participants who perceived themselves to be more knowledgeable about an ABA strategy tended to perceive themselves to implement this strategy more often. Table 5 also reveals that participants' total knowledge and total frequency scores were linearly related ($r = .61, p < .001$). This significant positive correlation indicates that participants with higher total knowledge scores tended to have higher total frequency scores.

Demographic Characteristics and Knowledge and

Frequency of Use of ABA Strategies

Number of years teaching and knowledge and frequency of use of ABA strategies

Table 7 reports Pearson correlations for participants' demographic characteristics (district, gender, academic degree obtained, whether or not one took a behavior management course, and number of years teaching) and their total knowledge and total frequency scores. Results indicate a significant linear relationship between participants' number of years of teaching and both their total knowledge ($r = .21, p = .033$) and total frequency scores ($r = .22, p = .022$). These significant positive correlations indicate that

participants with more years of teaching experience tended to have higher total knowledge and total frequency scores.

Gender and knowledge and frequency of use of ABA strategies

Independent samples t-tests were conducted to determine whether there were significant differences between male and female participants' mean total knowledge and total frequency scores. For each independent samples t-test, Levene's test for equality of variances was performed to determine whether or not it was appropriate to assume equal variances. Unless otherwise indicated, equal variances should be assumed when interpreting the results of subsequent t-tests. The results indicate that there was a significant difference between males' and females' mean total knowledge scores, $t(105) = -2.32, p = .022$. Females had significantly higher total knowledge scores than males. There was no significant difference, however, between males' and females' total frequency scores, $t(105) = -0.60, p = .552$ (see Table 8).

Population primarily taught and knowledge and frequency of use of ABA strategies

Independent samples t-tests were conducted to determine if there were significant differences in mean total knowledge and/or total frequency scores between participants who reported primarily teaching general education students and those who reported teaching mostly special education students. The results indicate that there was a significant difference between general and special educators' mean total knowledge scores, $t(97) = -2.49, p = .015$. As seen in Table 8, participants who reported primarily teaching special education students rated themselves to be significantly more knowledgeable about ABA strategies than participants who reported primarily teaching general education students. There was no significant difference, however, between

general and special education teachers' mean total frequency scores, $t(97) = -1.90$, $p = .060$ (see Table 8).

Behavior management course and knowledge and frequency of use of ABA strategies

Independent samples t-tests were performed to determine if there were significant differences in mean total knowledge and total frequency scores between participants who reportedly took or did not take a course in their undergraduate or graduate education that focused primarily on behavior management techniques. The results indicate that there was no significant difference when comparing mean total knowledge scores for participants who reportedly took a behavior management course in their undergraduate/graduate training and participants who reported that they did not take such a course, $t(105) = 1.74$, $p = .085$. There was also no significant difference when comparing the mean total frequency scores of participants who reported taking a behavior management course and those who reported not taking such a course, $t(100.56) = 0.51$, $p = .609$ (see Table 8). Equal variances were not assumed, due to a significant Levene's test for equality of variances ($p = .044$).

Academic degree and knowledge and frequency of use of ABA strategies

One-way ANOVAs were conducted to determine whether there were any significant differences in mean total knowledge and total frequency scores between participants who possessed a Bachelor's, Master's, or Doctorate degree. The results indicate that there were no significant differences in mean total knowledge scores between participants with a Bachelor's, Master's, or Doctorate degree, $F(2, 104) = 1.61$, $p = .205$. There were also no significant differences in mean total frequency scores between participants with a Bachelor's, Master's, or Doctorate degree, $F(2, 104) = 2.19$,

$p = .118$ (see Table 8). Therefore, there was no evidence that the type of academic degree earned by participants affected their perceived knowledge or frequency of use of ABA strategies. Since these one-way ANOVA results were not significant, power was assessed. According to Cohen's Table 8.3.13 (1977, p. 313), using an alpha of .05 and $n = 35$, the power of each of the above ANOVA tests was about 62% to detect a medium-sized effect (about 6% of the variance as defined by Cohen, 1977).

Predicting knowledge and frequency of use from demographic characteristics

Multiple regression analyses were performed to determine whether participants' demographic characteristics predicted total knowledge and/or total frequency scores, and if so, whether any made significant unique contributions. The following demographic characteristics were simultaneously entered into two multiple regression analyses, using participants' total knowledge and total frequency scores as the dependent variables: number of years of teaching, gender, highest academic degree obtained, type of population primarily taught, and whether or not participants took a course in their undergraduate or graduate education that focused mainly on behavior management strategies. Participants' type of population primarily taught was dummy-coded prior to being entered in the multiple regression analyses, since this variable was composed of three categories (general education, special education, or both). The dummy-coding resulted in two dichotomous variables: 1) participants who did or did not mostly teach general education students and 2) participants who did or did not mostly teach special education students.

The results of the multiple regression analyses indicate that the above demographic characteristics significantly predicted participants' total knowledge scores,

$R = .42$, $F(6, 100) = 3.48$, $p = .004$. As indexed by Adjusted R^2 , 12.3% of the variance in total knowledge scores was linearly associated with the optimal combination of participants' number of years of teaching, gender, highest academic degree obtained, type of population primarily taught, and whether or not one took a course in their undergraduate or graduate education that focused mainly on behavior management strategies. Furthermore, participants' gender and number of years teaching uniquely contributed to total knowledge scores ($p = .032$ and $p = .050$, respectively). As assessed by the semi-partial r-squared, 3.9% of the variance in total knowledge scores was uniquely contributed by participants' gender, and 3.2% of the variance in total knowledge scores was uniquely contributed by participants' number of years teaching (see Table 9).

Participants' demographic characteristics, as indicated above, also significantly predicted total frequency scores, $R = .37$, $F(6, 100) = 2.63$, $p = .021$. As indexed by Adjusted R^2 , 8.4% of the variance in total frequency scores was linearly associated with the optimal combination of participants' number of years of teaching, gender, highest academic degree obtained, type of population primarily taught, and whether or not one took a course in their undergraduate or graduate education that focused mainly on behavior management strategies. Furthermore, participants' number of years teaching and whether or not they taught mostly special education students uniquely contributed to total frequency scores ($p = .017$ and $p = .005$, respectively). As assessed by the semi-partial r-squared, 5.1% of the variance in total frequency scores was uniquely contributed by participants' number of years teaching, and 7.2% of the variance in total frequency scores was uniquely contributed by whether or not participants taught mostly special education students (Table 9).

Importance of Activities/Experiences

Means and percentages

Table 10 reveals that participants rated discussion/working with colleagues and professional development activities as the most important activities/experiences in their attempts to learn to use ABA strategies. Similarly, the highest percentage of participants indicated that discussion/working with colleagues (90.6%) and professional development activities (66.0%) were either *important* or *very important* in their attempts to learn to use ABA strategies. Furthermore, the lowest percentage of participants indicated that independent reading (13.0%) and discussion/working with colleagues (1.8%) were either *not at all important* or *slightly important* in their attempts to learn to use ABA strategies.

Table 10 also indicates that participants believed independent reading and university coursework to be the least important activities/experiences in their attempts to learn to use ABA strategies. Similarly, the lowest percentage of participants indicated that their university coursework (48.1%) and independent reading (58.9%) were either *important* or *very important* in their attempts to learn to use ABA strategies. Finally, the highest percentage of respondents indicated that their university coursework (23.1%) and their student teaching experience (14.3%) were either *not at all important* or *slightly important* in their attempts to learn to use ABA techniques.

Although there was no *other* category included among items assessing participants' perceived importance of activities/experiences on the Behavior Management Survey, some participants noted additional activities/experiences that they perceived as important in their attempts to learn to use ABA strategies. For instance, one participant indicated that their years of experience were *very important* in their attempts to learn to

use ABA techniques. Another participant reported that their experience/common sense/value system were *very important* in their attempts to learn to use ABA strategies.

Correlations

Table 11 reports Pearson correlations for items on the Behavior Management Survey that assessed how important participants perceived various activities/experiences to be in their attempts to learn to use ABA strategies. The results indicate that multiple items were linearly related to one another. A few items were also linearly related to total knowledge and/or total frequency scores. More specifically, participants' perceptions about the importance of professional development activities ($r = .19, p = .049$), their university coursework ($r = .20, p = .046$), and independent reading ($r = .29, p = .003$) in their attempts to learn to use ABA strategies were linearly related to total knowledge scores. These significant positive correlations indicate that participants who perceived professional development activities, independent reading, and/or their university coursework as more important activities/experiences in their attempts to learn to use ABA strategies tended to have higher total knowledge scores. Furthermore, participants' perceptions about the importance of their student teaching experience ($r = .22, p = .024$) and independent reading ($r = .26, p = .006$) in their attempts to learn to use ABA techniques were linearly related to total frequency scores. These significant positive correlations indicate that participants who perceived their student teaching experience and/or independent reading as more important activities/experiences in their attempts to learn to use ABA techniques tended to have higher total frequency scores.

Behavior management course and importance of activities/experiences

As seen in Table 12, Pearson correlations were calculated to assess the relationships between participants' demographic characteristics and their perceptions about the importance of various activities/experiences in their attempts to learn to use ABA strategies. The results indicate that the only significant correlation was between participants' perceived importance of their university coursework in their attempts to learn to use ABA strategies and whether or not they reported taking a course in their undergraduate or graduate education that focused mainly on behavior management techniques ($r = -.36, p < .001$). This significant negative correlation indicates that participants who reported taking a behavior management course tended to perceive their university coursework as more important in their attempts to learn to use ABA strategies.

Predicting knowledge and frequency of use from importance of activities/experiences

To determine whether participants' perceptions about the importance of various activities/experiences (professional development activities, discussion/working with colleagues, university coursework, student teaching experience, and independent reading) predicted total knowledge and/or total frequency scores, two multiple regression analyses were performed. All five of the above activities/experiences were simultaneously entered into each multiple regression analysis, and total knowledge and total frequency scores were utilized as the dependent variables. The results indicate that participants' perceptions about the importance of professional development activities, discussion/working with colleagues, their university coursework, their student teaching experience, and independent reading in their attempts to learn to use ABA techniques significantly predicted total knowledge scores, $R = .33, F(5, 97) = 2.42, p = .041$. As

indexed by Adjusted R^2 , 6.5% of the variance in total knowledge scores was linearly associated with the optimal combination of participants' perceived importance of the above activities/experiences. None of the predictors made a significant unique contribution to participants' total knowledge scores.

Participants' perceived importance of the above activities/experiences in their attempts to learn to use ABA strategies also predicted total frequency scores, $R = .40$, $F(5, 97) = 3.74$, $p = .004$. Adjusted R^2 indicates that 11.8% of the variance in total frequency scores was linearly associated with the optimal combination of participants' perceived importance of professional development activities, discussion/working with colleagues, their university coursework, their student teaching experience, and independent reading. Furthermore, participants' perceived importance of independent reading uniquely contributed to total frequency scores ($p = .032$); as assessed by the semi-partial r-squared, 4.1% of the variance in total frequency scores was uniquely contributed by participants' perceptions about the importance of independent reading in their attempts to learn to use ABA strategies (see Table 13).

Since participants' gender and number of years teaching were found to uniquely contribute to total knowledge scores in an earlier multiple regression analysis, participants' perceptions about the importance of professional development activities, discussion/working with colleagues, their university coursework, their student teaching experience, and independent reading were again simultaneously entered into a multiple regression analysis, using total knowledge as the dependent variable and controlling for participants' gender and number of years teaching. Similar to the first analysis, the results were significant, $R = .41$, $\Delta R^2 = .11$, $F(7, 95) = 2.70$, $p = .013$. Also similar to the first

analysis, none of the predictors made a significant unique contribution to participants' total knowledge scores.

Furthermore, since participants' number of years teaching and whether or not they primarily taught special education students uniquely contributed to total frequency scores in an earlier multiple regression analysis, participants' perceptions about the importance of professional developmental activities, discussion/working with colleagues, their university coursework, their student teaching experience, and independent reading were once more simultaneously entered into a multiple regression analysis, using total frequency as the dependent variable and controlling for participants' number of years teaching and whether or not they primarily taught special education students. Similar to when these variables were not controlled for, the results were significant, $R = .50$, $\Delta R^2 = .20$, $F(7, 95) = 4.59$, $p < .001$. However, unlike the first analysis, multiple variables uniquely contributed to participants' total frequency scores, including their number of years teaching ($p = .015$), their perceived importance of independent reading ($p = .043$), their perceived importance of discussion/working with colleagues ($p = .030$), and whether or not they primarily taught special education students ($p = .014$). As assessed by the semi-partial r-squared, 4.9% of the variance in total frequency scores was uniquely contributed by participants' number of years teaching; 3.3% of the variance was uniquely contributed by participants' perceived importance of independent reading; 3.8% of the variance was uniquely contributed by participants' perceived importance of discussion/working with colleagues; finally, 5.0% of the variance was uniquely contributed by whether or not participants mostly instructed special education students (see Table 14).

One additional multiple regression analysis was conducted, since an earlier analysis revealed that participants' perceptions about the importance of independent reading in their attempts to learn to use ABA strategies uniquely contributed to total frequency scores. Participants' demographic characteristics (gender, population primarily taught, number of years teaching, highest academic degree earned, and whether or not they took a course that focused primarily on behavior management strategies) were again simultaneously entered into a multiple regression analysis, using total frequency as the dependent variable, but this time controlling for participants' perceived importance of independent reading. Similar to when participants' perceived importance of independent reading was not controlled for, the results were significant, $R = .42$, $\Delta R^2 = .12$, $F(7, 99) = 2.98$, $p = .007$. In addition, participants' number of years teaching and whether or not they mostly taught special education students again uniquely contributed to total frequency scores ($p = .028$ and $p = .014$, respectively). However, one difference that this second analysis revealed was that participants' perceived importance of independent reading in their attempts to learn to use ABA techniques also uniquely contributed to total frequency scores ($p = .036$). As assessed by the semi-partial r-squared, 4.2% of the variance in total frequency scores was uniquely contributed by participants' number of years teaching; 5.2% of the variance was uniquely contributed by whether or not participants mostly taught special education students; finally, 3.8% of the variance was uniquely contributed by participants' perceived importance of independent reading (see Table 15).

Effectiveness of Instructional Techniques

Means and percentages

Table 16 reveals that participants rated observing mentors/cooperating teachers, practicing and receiving feedback, and reading books/articles as instructional techniques that were the most effective in supporting their learning about ABA strategies. Similarly, the highest percentage of participants rated observing mentors/cooperating teachers (83.7%), practicing and receiving feedback (82.9%), and reading books/articles (51.4%) as instructional techniques that were either *effective* or *very effective* in supporting their learning about ABA techniques. Furthermore, the lowest percentage of participants indicated that reading books/articles (18.1%), practicing and receiving feedback (2.0%), and observing mentors/cooperating teachers (1.9%) were either *not at all effective* or *slightly effective* in supporting their learning about ABA strategies.

Table 16 also indicates that participants rated the following instructional techniques as the least effective in supporting their learning about ABA strategies: completing group projects, completing portfolios, and reflective journal writing. The lowest percentage of participants reported that reflective journal writing (22.1%), completing portfolios (20.3%), and role-playing (14.5%) were either *effective* or *very effective* instructional techniques in supporting their learning about ABA strategies. Finally, the highest percentage of participants indicated that reflective journal writing (52.0%), completing portfolios (47.3%), and completing group projects (41.3%) were either *not at all effective* or *slightly effective* in supporting their learning about ABA strategies.

A few participants added responses to the *other* category when rating the effectiveness of instructional techniques in supporting their learning about ABA strategies. These responses included teaching professionals, discussion with colleagues, being a parent, teaching students, substitute teaching (observation of various strategies and analyzing their effectiveness), learned from my own teaching experiences (sometimes trial and error), military experience, and on the job training. Many of these responses were not rated by participants. However, discussion with colleagues, military experience, and on the job training were rated as *very effective* instructional techniques, while teaching students was reported as a *somewhat effective* instructional technique.

Correlations

Table 17 reports Pearson correlations for items that measured participants' beliefs about the effectiveness of various instructional techniques in supporting their learning about ABA strategies. Almost all items were significantly correlated with one another. However, participants' perceptions about the effectiveness of only one of the instructional techniques, role-playing, was linearly related to both total knowledge ($r = .32, p = .003$) and total frequency ($r = .25, p = .023$) scores. These significant positive correlations indicate that respondents who rated role-playing as a more effective instructional technique in supporting their learning about ABA strategies tended to have higher total knowledge and total frequency scores. Furthermore, participants' perceptions about the effectiveness of reading books/articles was linearly related to total knowledge scores ($r = .24, p = .015$). This significant positive correlation indicates that participants who rated reading books/articles as a more effective instructional technique tended to have higher total knowledge scores.

Behavior management course and effectiveness of instructional techniques

As seen in Table 18, Pearson correlations were calculated for participants' perceptions about the effectiveness of instructional techniques in supporting their learning about ABA strategies and whether or not they reported taking a course in their undergraduate or graduate education that focused on behavior management strategies. The results indicate that there were only a few significant correlations between these items. More specifically, participants' perceptions about the effectiveness of reviewing case studies ($r = -.24, p = .036$), reflective journal writing ($r = -.25, p = .026$), and role-playing ($r = -.24, p = .026$) significantly correlated with whether or not participants reported taking a behavior management course. These significant negative correlations indicate that participants who reported taking a behavior management course tended to perceived reviewing case studies, reflective journal writing, and role-playing as more effective instructional techniques in supporting their learning about ABA strategies.

Gender and effectiveness of instructional techniques

As seen in Table 18, when Pearson correlations were calculated for participants' gender and their perceptions about the effectiveness of various instructional techniques in supporting their learning about ABA strategies, there were a few significant correlations. Specifically, there were significant correlations between participants' gender and their perceptions about the effectiveness of listening to lectures ($r = .24, p = .019$), reading books/articles ($r = .25, p = .009$), observing mentors/cooperating teachers ($r = .20, p = .040$), and watching and reflecting on videotapes ($r = .24, p = .027$). These significant positive correlations indicate that female participants tended to rate the above

instructional techniques as more effective in supporting their learning about ABA strategies.

Predicting knowledge and frequency of use from effectiveness of instructional techniques

Multiple regression analyses were conducted to determine whether participants' perceptions about the effectiveness of various instructional techniques in supporting their learning about ABA strategies predicted total knowledge and/or total frequency scores. Participants' perceptions about the effectiveness of each instructional technique (reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and completing portfolios) were simultaneously entered into two multiple regression analyses. Total knowledge and total frequency were used as the dependent variables. The results indicate that participants' perceptions about the effectiveness of reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and completing portfolios neither significantly predicted total knowledge scores, $R = .51$, $\Delta R^2 = .03$, $F(10, 33) = 1.15$, $p = .360$, nor total frequency scores, $R = .43$, $\Delta R^2 = -.06$, $F(10, 33) = 0.75$, $p = .676$.

Since participants' gender and number of years teaching were found in an earlier multiple regression analysis to uniquely contribute to total knowledge scores, participants' perceptions about the effectiveness of the above ten instructional techniques were again simultaneously entered into a multiple regression analysis, using total

knowledge as the dependent variable and controlling for participants' gender and number of years teaching. Similar to the first analysis, the results indicate that even when controlling for their gender and number of years teaching, participants' perceptions about the effectiveness of reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and completing portfolios did not significantly predict total knowledge scores, $R = .55$, $\Delta R^2 = .03$, $F(12, 31) = 1.13$, $p = .375$.

Furthermore, since participants' number of years teaching, whether or not they primarily taught special education students, and their perceived importance of independent reading in their attempts to learn to use ABA strategies were found in earlier multiple regression analyses to uniquely contribute to total frequency scores, an additional multiple regression analysis was conducted. Participants' perceptions about the effectiveness of reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and completing portfolios were simultaneously entered, using total frequency as the dependent variable and controlling for participants' number of years teaching, whether or not they mostly taught special education students, and their perceived importance of independent reading in their attempts to learn to use ABA strategies. The results indicate that, similar to when these variables were not controlled for, participants' perceptions about the effectiveness of the above ten instructional techniques did not

significantly predict total frequency scores, $R = .60$, $\Delta R^2 = .08$, $F(13, 30) = 1.29$, $p = .272$.

Instructional Techniques Not Included in Training

Percentages

Table 19 indicates percentages of participants whose training did not include various instructional techniques. The instructional techniques indicated by the largest percentage of respondents as not included in their training were completing portfolios (29.5%), reviewing case studies (27.6%), reflective journal writing (24.5%), and completing group projects (24.5%). The instructional techniques reported by the smallest percentage of participants as not included in their training included practicing and receiving feedback (2.9%), reading books/articles (1.9%), and observing mentors/cooperating teachers (1.0%).

Correlations

Table 20 reports Pearson correlations for items that assessed whether or not participants' training included various instructional techniques when learning about ABA strategies. There were several significant correlations between items, yet no items were linearly related to participants' total knowledge scores. Only two items were linearly related to participants' total frequency scores: whether or not participants' training included watching and reflecting on videotapes ($r = -.28$, $p = .003$) and whether or not participants' training included role-playing ($r = -.23$, $p = .020$). These significant negative correlations indicate that participants whose training did not include watching and reflecting on videotapes and participants whose training did not include role-playing tended to have lower total frequency scores.

Population primarily taught and instructional techniques included/not included in training

Multiple chi-square analyses were conducted to determine whether there was an association between participants' population primarily taught and whether or not their training included reviewing case studies, listening to lectures, reading books/articles, observing mentors, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and/or completing portfolios. The results indicate that there was a significant association between participants' population primarily taught and whether or not their training included reading books/articles, $\chi^2(2) = 8.87, p = .012$, reflective journal writing, $\chi^2(2) = 8.48, p = .014$, and completing group projects, $\chi^2(2) = 6.77, p = .034$. As seen in Table 21, special education teachers represented the largest percentage of participants whose training did not include reading books/articles (10.0%). Teachers of both general and special education students represented the highest percentage of teachers whose training did not include reflective journal writing (66.7%), followed by 35.0% of special education teachers. Finally, teachers of both special and general education students represented the greatest percentage of participants whose training did not include completing group projects (62.5%).

Behavior management course and instructional techniques included/not included in training

Several chi-square analyses were conducted to determine whether there were significant differences among participants who reported taking/not taking a course in their undergraduate or graduate education that focused mostly on behavior management

strategies in terms of whether or not their training included reviewing case studies, listening to lectures, reading books/articles, observing mentors, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and/or completing portfolios. The results indicate that there were significant differences among participants who reported taking or not taking a behavior management course in terms of whether or not their training in ABA strategies included reviewing case studies, $\chi^2(1) = 23.44, p < .001$, listening to lectures, $\chi^2(1) = 6.95, p = .008$, watching and reflecting on videotapes, $\chi^2(1) = 7.31, p = .007$, completing group projects, $\chi^2(1) = 6.20, p = .013$, and completing portfolios, $\chi^2(1) = 9.13, p = .003$. As Table 22 shows, a larger percentage of participants who reported that they did not take a behavior management course indicated that their training lacked reviewing case studies (48.1%), listening to lectures (12.7%), watching and reflecting on videotapes (29.1%), completing group projects (34.5%), and completing portfolios (42.6%), in comparison to participants who did take a behavior management course.

Predicting knowledge and frequency of use from instructional techniques included/not included in training

Multiple regression analyses were conducted to determine if participants' total knowledge and/or total frequency scores could be predicted by whether or not their training in ABA strategies included the following instructional techniques: reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and completing portfolios. The above instructional techniques were simultaneously entered into two

multiple regression analyses, using total knowledge and total frequency scores as the dependent variables. The results indicate that whether or not participants' training included the above ten instructional techniques neither significantly predicted total knowledge scores, $R = .32$, $\Delta R^2 = -.01$, $F(10, 81) = 0.94$, $p = .503$, nor total frequency scores, $R = .42$, $\Delta R^2 = .08$, $F(10, 81) = 1.75$, $p = .084$.

Since participants' gender and number of years teaching were found to uniquely contribute to total knowledge scores in an earlier multiple regression analysis, the above predictors (whether or not participants' training in ABA strategies included reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and completing portfolios) were again simultaneously entered into a multiple regression analysis, using total knowledge as the dependent variable. However, for this second analysis, participants' gender and number of years teaching were controlled for. Similar to the first analysis, the results were not significant, $R = .42$, $\Delta R^2 = .05$, $F(12, 79) = 1.41$, $p = .181$.

In addition, since participants' number of years teaching, whether or not they mostly taught special education students, and their perceived importance of independent reading in their attempts to learn to use ABA strategies were found in an earlier multiple regression analysis to uniquely contribute to total frequency scores, the above predictors (whether or not participants' training in ABA strategies included reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and completing portfolios) were

once more simultaneously entered into a multiple regression analysis, using total frequency as the dependent variable and controlling for participants' number of years teaching, whether or not they mostly taught special education students, and their perceived importance of independent reading in their attempts to learn to use ABA strategies. Unlike when participants' number of years teaching, whether or not they mostly taught special education students, and their perceived importance of independent reading were not controlled for, the results were significant, $R = .53$, $F(13, 78) = 2.33$, $p = .011$. As indexed by Adjusted R^2 , 16.0% of the variance in total frequency scores was linearly associated with the optimal combination of these variables. Furthermore, participants' perceptions about the importance of independent reading and whether or not their training included role-playing uniquely contributed to total frequency scores ($p = .048$ and $p = .026$, respectively). As assessed by the semi-partial r-squared, 3.7% of the variance in total frequency scores was uniquely contributed by participants' perceptions about the importance of independent reading, and 4.8% of the variance in total frequency scores was uniquely contributed by whether or not participants' training included role-playing (see Table 23).

Frequency of Conditions as Barriers to Implementation

Means and percentages

Table 24 shows that participants perceived the following conditions as the most frequent barriers to their use of behavior management strategies: a lack of feedback/guidance, a lack of knowledge/skill, a lack of supplies, and a lack of support from administration. Similarly, the highest percentage of participants indicated that the above conditions were either *often* or *very often* barriers: a lack of support from

administration (18.7%), a lack of feedback/guidance (18.7%), a lack of supplies (15.9%), and a lack of knowledge/skill (14.3%). The lowest percentage of respondents indicated that a lack of support from administration (54.2%), a lack of supplies (51.4%), a lack of knowledge/skill (50.5%), and a lack of feedback/guidance (46.7%) were either *never* or *seldom/rarely* a barrier.

Table 24 further indicates that conditions perceived by participants as barriers that occurred the least frequently were believing that their colleagues did not support the use of a strategy, feeling that a strategy was not consistent with their general approach to teaching, believing that a strategy would not help them to achieve their work goals, and knowledge of others who had tried a strategy and thought it was ineffective. Similarly, conditions indicated by the lowest percentage of participants as occurring either *often* or *very often* included: knowledge of others who had tried a strategy and thought it was ineffective (5.8%), believing that a strategy was not consistent with their general approach to teaching (4.8%), believing that a strategy would not work (4.6%), and thinking that a strategy would not help them to achieve their work goals (2.9%). Finally, the highest percentage of respondents reported that the following conditions were either *never* or *seldom/rarely* a barrier: knowledge of others who had tried a strategy and thought it was ineffective (79.8%), believing that a strategy was not consistent with their general approach to teaching (76.9%), thinking that a strategy would not help them to achieve their work goals (76.1%), and believing that a strategy would not work (73.8%).

Some participants added responses to the *other* category when rating the frequency with which conditions were barriers to their use of behavior management strategies on the Behavior Management Survey. These responses included: a lack of

reinforcement in the home, too busy to think about methods that would aid/help me, no professional development offered to expand, and trying anything that might work.

Participants did not rate all of these responses. However, a lack of reinforcement in the home was rated to be a barrier that occurred *often*. In addition, no professional development offered was reported to be a barrier that occurred *very often*, and trying anything that might work was rated to *never* be a barrier.

Correlations

Table 25 reports Pearson correlations for items that assessed participants' perceived frequency of conditions as barriers to their use of behavior management strategies. Many of the items were significantly correlated with one another. None of the items were linearly related to total frequency scores, but there were a few items linearly related to total knowledge scores, including participants' perceptions that a lack of knowledge/skill ($r = -.20, p = .045$), believing that a strategy would not work ($r = -.23, p = .016$), knowledge of other teachers who had tried a strategy and thought it was ineffective ($r = -.22, p = .026$), and feeling that a particular strategy would not help them achieve their work goals ($r = -.24, p = .013$) were barriers to their use of behavior management strategies. These significant negative correlations indicate that participants who perceived each of these conditions to be more frequent barriers tended to have lower total knowledge scores.

Population primarily taught and frequency of conditions as barriers to implementation

Multiple one-way ANOVAs were conducted to determine whether there were significant differences between how frequently general education teachers, special education teachers, and teachers of both types of students perceived various conditions to

be barriers to their use of behavior management strategies. There were significant results when examining the following barriers: a lack of supplies, $F(2, 104) = 3.68, p = .028$, feeling that their colleagues did not support the use of a strategy, $F(2, 97) = 3.27, p = .042$, and believing that a strategy was not consistent with their general approach to teaching, $F(2, 101) = 3.29, p = .041$. Tukey post-hoc tests were then run for each of these significant results. When examining a lack of supplies as a barrier, a Tukey post-hoc test revealed that respondents who reported mostly teaching special education students rated a lack of supplies as occurring significantly more frequently than respondents who reported primarily teaching general education students ($p = .023$) (see Table 26). When looking further at participants' beliefs that their colleagues did not support the use of a strategy, a Tukey post-hoc test again indicated that special education teachers rated this barrier as occurring significantly more frequently than general education teachers ($p = .033$) (see Table 26). Finally, as seen in Table 26, when examining participants' perceptions that a strategy was not consistent with their general approach to teaching, a Tukey post-hoc test revealed that general education teachers rated this barrier as occurring significantly more frequently than teachers of both general and special education students ($p = .049$).

Behavior management course and frequency of conditions as barriers to implementation

Table 27 reports Pearson correlations for participants' demographic characteristics (district, number of years teaching, gender, whether or not one took a course that focused on behavior management strategies, and academic degree earned) and how frequently they perceived various conditions to be barriers to their use of behavior management strategies. The results indicate a significant relationship between whether or not participants reported taking a course in their undergraduate or graduate education that

focused mainly on behavior management strategies and how frequently participants perceived their colleagues not supporting the use of a strategy as a barrier to their use of behavior management strategies ($r = -.23, p = .019$). This significant negative correlation indicates that participants who reported taking a behavior management course tended to perceive their colleagues not supporting the use of a strategy as a barrier that occurred more frequently.

Gender and frequency of conditions as barriers to implementation

As seen in Table 27, Pearson correlations were calculated for participants' gender and how frequently they perceived various conditions to be barriers to their use of behavior management strategies. The results reveal a significant relationship between participants' gender and the frequency with which believing that a strategy would not work was a barrier to their use of behavior management strategies ($r = -.21, p = .034$). This significant negative correlation indicates that males tended to perceive believing that a strategy would not work as occurring more frequently.

District and frequency of conditions as barriers to implementation

Table 27 also indicates Pearson correlations for participants' district and the frequency with which they perceived various conditions to be barriers to their use of behavior management strategies. There were significant relationships between participants' district and the frequency with which the following barriers occurred: a lack of knowledge/skill ($r = -.34, p < .001$), a lack of support from administration ($r = -.38, p < .001$), and a lack of feedback/guidance ($r = -.39, p < .001$). These significant negative correlations indicate that participants in District 1 tended to perceive a lack of

knowledge/skill, a lack of support from administration, and a lack of feedback/guidance as barriers that occurred more frequently.

School and frequency of conditions as barriers to implementation

Multiple one-way ANOVAs were run to determine whether there were any significant differences between the four schools surveyed in terms of how frequently participants perceived various conditions to be barriers to their use of behavior management strategies. The results were significant when examining the frequency with which the following conditions were barriers: a lack of knowledge/skill, $F(3, 101) = 4.72$, $p = .004$, a lack of support from administration, $F(3, 103) = 7.01$, $p < .001$, a lack of feedback/guidance, $F(3, 103) = 6.21$, $p = .001$, and believing that a strategy was not appropriate for the student(s) in their class(es) and/or their students' specific problems, $F(3, 102) = 2.83$, $p = .042$. Tukey post-hoc tests were then conducted for each of these significant one-way ANOVAs. When examining a lack of knowledge/skill as a barrier, a Tukey post-hoc test revealed that participants' mean rating from School 2 was significantly higher than participants' mean rating from School 4 (see Table 28). Therefore, participants who worked in School 2 rated a lack of knowledge/skill as a barrier that occurred significantly more frequently than participants who worked in School 4 ($p = .010$). When further looking at a lack of support from administration as a barrier, a Tukey post-hoc test showed that participants' mean ratings from both School 1 and School 2 were significantly higher than participants' mean rating from School 3 (see Table 28). Therefore, participants who worked in School 1 ($p = .002$) and School 2 ($p = .001$) rated a lack of support from administration as a barrier that occurred significantly more frequently than participants who worked in School 3. When examining a lack of

feedback/guidance as a barrier, a Tukey post-hoc test indicated that participants' mean rating from School 2 were significantly higher than participants' mean ratings from both School 3 and also School 4 (see Table 28). Therefore, participants who worked in School 2 perceived a lack of feedback/guidance as a barrier that occurred significantly more frequently than participants who worked in School 3 ($p = .003$) and School 4 ($p = .007$). Finally, as seen in Table 28, when examining participants' belief that a strategy was not appropriate for the student(s) in their class(es) and/or their students' specific problems, a Tukey post-hoc test revealed that participants' mean rating from School 3 were significantly higher than participants' mean rating from School 4. Therefore, participants who worked in School 3 perceived that a strategy not being appropriate for the student(s) in their class(es) and/or their students' specific problems was a barrier that occurred significantly more frequently than participants who worked in School 4 ($p = .030$).

Predicting knowledge and frequency of use from frequency of conditions as barriers to implementation

Multiple regression analyses were conducted to determine if total knowledge and/or total frequency scores could be predicted by how frequently participants perceived the following conditions to be barriers to their use of behavior management strategies: a lack of knowledge/skill, a lack of support from administration, a lack of feedback/guidance, a lack of supplies, believing that their colleagues did not support the use of a strategy, believing that a strategy was not consistent with their general approach to teaching, feeling that a strategy took too much time and effort, believing that a strategy would not work, knowledge of other teachers who had tried a strategy and thought it was ineffective, thinking that a strategy would not help them to achieve their work goals, and

believing that a strategy was not appropriate for the students in their class(es) and their students' specific problems. The above eleven variables were simultaneously entered into two multiple regression analyses, using participants' total knowledge and total frequency scores as the dependent variables. The results indicate that the above eleven conditions neither significantly predicted participants' total knowledge score, $R = .37$, $\Delta R^2 = .02$, $F(11, 85) = 1.22$, $p = .287$, nor total frequency score, $R = .40$, $\Delta R^2 = .05$, $F(11, 85) = 1.47$, $p = .160$.

Each of the above simultaneous multiple regression analyses were conducted two more times. Using total knowledge as the dependent variable, the above eleven barrier conditions were again simultaneously entered, controlling for participants' gender and number of years teaching. Similar to when participants' gender and number of years were not controlled for, the results were not significant, $R = .42$, $\Delta R^2 = .05$, $F(13, 83) = 1.35$, $p = .200$. When total frequency was utilized as the dependent variable, the above eleven barrier conditions were once more simultaneously entered, controlling for participants' number of years teaching, whether or not they mostly taught special education students, and their perceived importance of independent reading in their attempts to learn to use ABA strategies. The results were significant, which differed from the first analysis. When controlling for participants' number of years teaching, whether or not they mostly taught special education students, and their perceived importance of independent reading, the eleven conditions that participants rated in terms of how frequently they were barriers to their use of behavior management strategies significantly predicted their total frequency score, $R = .53$, $F(14, 82) = 2.29$, $p = .011$. As indexed by Adjusted R^2 , 15.8% of the variance in total frequency scores was linearly associated with the optimal combination

of these variables. Furthermore, whether or not participants mostly taught special education ($p = .029$) and participants' perceived importance of independent reading in their attempts to learn to use ABA strategies ($p = .045$) each uniquely contributed to participants' total frequency score. As assessed by the semi-partial r-squared, 4.3% of the variance in total frequency scores was uniquely contributed by whether or not participants mainly taught special education students, and 3.6% of the variance in total frequency scores was uniquely contributed by participants' perceived importance of independent reading in their attempts to learn to use ABA techniques (see Table 29).

CHAPTER V

DISCUSSION

Knowledge of ABA Strategies

The first question this study sought to answer was: What ABA techniques do elementary teachers perceive themselves to be knowledgeable about and to what extent? In the literature reviewed, many teachers, teachers-in-training, mentor teachers, and school principals have voiced concerns about teachers' poor behavior management skills. Studies have found that beginning and preservice teachers, in particular, have reported lacking confidence in their ability to manage classrooms as well as feeling unprepared to confront discipline problems. Teachers have also indicated low self-efficacy when implementing behavioral techniques (Baker, 2005; Gee, 2001; Hart, 1987; Levine, 2006; Madsen & Kaiser, 1999; Merrett & Wheldall, 1993; Moore, 2003; Public Agenda, 2004; Walter et al., 2006).

Unlike earlier research, this study found that most elementary teachers perceived themselves to be either knowledgeable or very knowledgeable about each of the 15 ABA strategies included in the Behavior Management Survey. In addition, very few teachers indicated that they were either not at all knowledgeable or slightly knowledgeable about any of the 15 ABA techniques. Perhaps this investigation's results differ from previous studies because elementary teachers' training in ABA techniques, and/or the methods in which they were trained, have improved in recent years, resulting in better behavior management skills. Or perhaps state regulations/standards that require teachers to be able

to manage students' behaviors and create a positive classroom climate (New Jersey Department of Education, 2004) are being more strictly adhered to/enforced.

It is also possible that this study found different results than previous research because participants in this study included only elementary teachers and no secondary teachers, as many prior studies have included. Elementary teachers may perceive themselves as more knowledgeable about ABA strategies because they find younger students' disruptive behaviors easier to manage in comparison to secondary teachers' beliefs about managing adolescents' and teenagers' behaviors. If this is the case, elementary teachers may feel more confident in their behavior management abilities. Future research could look further into whether there are significant differences between elementary and secondary teachers' perceptions about their knowledge of ABA strategies and/or their ability to effectively implement these strategies. In addition, research could further examine whether differences in the type, seriousness, or frequency of students' behaviors influence elementary and secondary teachers' perceptions about their knowledge of ABA techniques.

Another reason why this study's findings may differ from previous research is because this investigation did not include preservice teachers, as many prior studies that were reviewed had included. In comparison to preservice teachers' perceptions, the teachers in this study may have perceived themselves to be more knowledgeable about ABA strategies because they possessed more teaching experience, training, and/or increased opportunities to observe their colleagues using ABA techniques. Perhaps the preservice teachers surveyed and observed in earlier studies received minimal exposure to ABA strategies in their courses and/or in their student teaching experiences.

Finally, perhaps this investigation found different results than prior research due to differences in the nature and scope of this study. This study focused on teachers' perceived knowledge of ABA strategies rather than a variety of behavior/classroom management techniques. Furthermore, perhaps teachers in this study perceived or understood the operational definitions of each ABA strategy included in the Behavior Management Survey differently, in comparison to participants in prior investigations. Overall, the results of this study provide a more positive outlook than prior studies regarding teachers' perceived ability to manage students' behaviors using research-based ABA strategies.

Frequency of Use of ABA Strategies

The second question this study aimed to answer was: What ABA techniques do elementary teachers perceive themselves to implement in their classrooms and how frequently? Prior research has indicated that more teachers employ punitive behavior management techniques, such as time out and punishment, rather than positive strategies, such as positive reinforcement (Shin & Koh, 2008). Another study documented that teachers frequently use both reward and also punishment techniques to manage their students' behaviors, including time out, removal of privileges, and incentive systems (Love et al., 1996).

This study found that the ABA strategies elementary teachers reported implementing the most frequently were all positive rather than punitive techniques (i.e. social positive reinforcement, modeling, a preferred activity as positive reinforcement, prompting/fading, and reinforcement of an incompatible behavior). The highest percentage of elementary teachers reported using these positive ABA strategies either

often or very often. In addition, less than one-fifth of teachers surveyed indicated using punitive ABA strategies, such as punishment and time out, either often or very often. Therefore, the elementary teachers surveyed in this study perceived themselves to implement positive ABA strategies more frequently, and punitive strategies less often, than what previous research has indicated.

Perhaps teachers in this study perceived themselves to utilize positive ABA strategies more frequently than in prior research because of recent legal mandates, such as the Individuals with Disabilities Education Improvement Act of 2004, which require teachers to be both knowledgeable about and able to implement positive behavioral interventions. Or perhaps, since the teachers in this study perceived themselves to be either knowledgeable or very knowledgeable about each of the ABA strategies, they felt comfortable implementing these strategies on a regular basis in their classrooms. This is supported by this study's finding that teachers who perceived themselves as more knowledgeable about ABA strategies tended to perceive themselves as using these strategies more often.

ABA strategies that the highest percentage of teachers in this study reported never employing in their classroom were the use of food as positive reinforcement and group contingency. However, a large percentage of teachers in this study indicated that they were knowledgeable about both of these strategies. Therefore, it does not appear that a lack of knowledge was the reason why teachers reported never employing these ABA strategies. One reason that teachers may not be utilizing food as positive reinforcement is because some schools and/or districts no longer permit teachers to give food to students, which was noted by some teachers on their surveys. In terms of not implementing group

contingency programs, perhaps many teachers believe that only a small number of students in their class require the use of an incentive system, and group contingency is therefore not appropriate or necessary for the majority of their students. It is also possible that a multitude of teachers are hesitant to reward an entire class or large group of students because of difficulty securing increased resources, such as time, effort, supplies, cost, etc.

Demographic Characteristics and Knowledge and Frequency of Use of ABA Strategies

Number of years teaching and knowledge and frequency of use of ABA strategies

This study found that elementary teachers who possessed more years of teaching experience tended to perceive themselves as more knowledgeable about ABA strategies. Perhaps this is because educators with more years of teaching experience have likely had more time/opportunities to seek out and complete training in ABA techniques as well as to discuss various strategies with their colleagues. In addition, teachers with more years of experience have probably received increased exposure to a larger, more diverse group of students with different behavioral needs. Further research could investigate potential reasons why veteran teachers, in comparison to novice teachers, perceive themselves to be more knowledgeable about ABA techniques.

This study also found that teachers with more years of experience tended to perceive themselves as using ABA strategies more often. This finding differs from the results of a previous study (Merrett & Wheldall, 1993), which reported that teachers who had been teaching the longest were the least likely to admit spending increased time on discipline. Perhaps the more experienced teachers in this study felt an increased comfort

level when implementing ABA strategies, since they also tended to perceive themselves as more knowledgeable about ABA strategies. Or maybe, with many schools and districts now successfully implementing SWPBS (Luiselli et al., 2005; McCurdy et al., 2003; Scott & Barrett, 2004), ABA strategies are becoming more widely accepted. Finally, it is possible that teachers' training in ABA techniques has improved over the years, in comparison to the training received by teachers in prior research.

Gender and knowledge and frequency of use of ABA strategies

This study found that female elementary teachers perceived themselves to be significantly more knowledgeable about ABA strategies in comparison to male teachers. These results differed from a previous study (Moore, 2003), which indicated no significant difference between male and female preservice teachers' perceived ability to manage students' behaviors. Perhaps this study found a different result because, unlike the preservice teachers from Moore's study, all participants in this study were practicing teachers and no longer teachers-in-training. Maybe when teachers are in training, both males and females are equally hesitant about their behavior management skills, but when teachers have been in the profession for years, females become more comfortable with their skills and perceive themselves to be more knowledgeable. Future research could examine possible reasons why male and female teachers' perceptions about their knowledge of ABA strategies might differ once they enter their profession and become more experienced teachers. In addition, since the sample size of males in this study was small ($n = 9$), it would be beneficial for future research to assess a larger sample of male teachers in order to determine more information about their perceived knowledge of ABA strategies.

Population primarily taught and knowledge and frequency of use of ABA strategies

This study revealed that special education teachers perceived themselves to be significantly more knowledgeable about ABA techniques in comparison to general education teachers. Perhaps teachers who mostly work with special education students encounter behavior problems more frequently in their profession and either a) feel a greater need or desire to learn about ABA strategies in order to appropriately manage these behaviors or b) feel more confident in their ability to reduce these behaviors due to this increased exposure. It is also possible that teachers who primarily work with special education students receive more specialized or more comprehensive training in ABA techniques, and they perceive themselves to be more knowledgeable as a result of this enhanced training. Future research could look at specific ways in which special education teachers' training in ABA techniques differs from the training general education teachers receive in ABA techniques. Perhaps educators' training varies in terms of the specific ABA strategies being taught, the types of courses or professional development activities being offered or completed, and/or the scope of the content taught.

While special education teachers perceived themselves to be more knowledgeable about ABA strategies in comparison to general education teachers, it is surprising that there was no significant difference between special and general educators' perceived frequency of use of ABA strategies. Perhaps this result was impacted by this study's finding that, in comparison to general educators, special educators perceived both a lack of supplies and a lack of support from their colleagues as barriers that occurred significantly more frequently. Special education teachers' perceptions that these barriers occurred more frequently may have influenced their ability to implement ABA strategies

that they were knowledgeable about as often as they would have liked to. Future research could look further at potential reasons why special educators, despite being significantly more knowledgeable about ABA strategies, do not implement these strategies more often than general education teachers. In addition, future research could explore why special educators, in comparison to general educators, report both a lack of support from their colleagues and a lack of supplies as barriers that occur more often when implementing behavior management strategies.

Behavior management course and knowledge and frequency of use of ABA strategies

Surprisingly, this study found that whether or not teachers took a behavior management course in their undergraduate/graduate coursework affected neither their perceived knowledge nor their perceived frequency of use of ABA strategies. Perhaps the content taught to teachers in behavior management courses does not influence their knowledge and use of ABA strategies as much as when this coursework is combined with more practical training experiences, such as student teaching, or activities completed outside of their coursework, such as independent reading or professional development. This possibility is supported by previous research, which indicated the importance of teachers-in-training being able to link the theories learned in their readings and/or lectures with experiences gained during supervised teaching practice (Moore, 2003; Whitney et al., 2002).

Despite the finding that teachers' perceived knowledge and frequency of use of ABA techniques were not influenced by whether or not they took a behavior management course, the teachers in this study who took a behavior management course tended to rate their university coursework as more important in their attempts to learn to use ABA

strategies. This result indicates that teachers who took a behavior management course may have felt that the information learned in their behavior management course was especially important when they were learning to use ABA strategies. Future research could explore whether teachers believe that the information taught in a specific behavior management course is more important when learning to implement ABA strategies, in comparison to the material learned in various other university courses.

Predicting knowledge and frequency of use from demographic characteristics

In seeking to answer the following question: What effects do various demographic characteristics have on elementary teachers' perceived knowledge and frequency of use of ABA strategies?, this study found that the optimal combination of teachers' gender, population primarily taught, whether or not they took an undergraduate or graduate course that focused mainly on behavior management techniques, highest academic degree obtained, and number of years teaching significantly predicted their perceived knowledge and frequency of use of ABA strategies. In particular, teachers' gender and number of years teaching significantly impacted how knowledgeable they perceived themselves to be, and teachers' number of years teaching and whether or not they mostly taught special education students significantly influenced how frequently they reported implementing ABA strategies. These results were likely impacted by this study's findings that teachers' gender and number of years teaching significantly correlated with their perceived knowledge of ABA strategies, and teachers' number of years teaching significantly correlated with their perceived frequency of use of ABA strategies. In addition, as noted earlier, this study found that special education teachers

reported implementing ABA techniques significantly more frequently than general education teachers.

The unique contribution of teachers' number of years teaching to their perceived knowledge and frequency of use of ABA strategies indicates the importance of teachers possessing professional experience, beyond their initial undergraduate/graduate training, in order to feel knowledgeable about and comfortable implementing a variety of ABA techniques. In addition, the unique contribution of whether or not teachers primarily taught special education students to their perceived frequency of use of ABA strategies suggests that teachers who mostly instruct special education students may have an advantage, in terms of their behavior management skills, over general education teachers. Perhaps special education teachers possess better training to employ ABA strategies, or maybe they learn more about implementing ABA techniques in their profession due to increased exposure to behavioral problems in their classrooms. Further research is needed to examine possible reasons why the above-mentioned demographic characteristics, in addition to gender, significantly influenced teachers' perceived knowledge and/or use of ABA strategies.

Even when controlling for teachers' perceptions about the importance of independent reading in their attempts to learn to use ABA techniques, the optimal combination of teachers' gender, population primarily taught, whether or not they took an undergraduate or graduate course that focused mainly on behavior management techniques, highest academic degree obtained, and number of years teaching significantly predicted their perceived frequency of use of ABA strategies. Furthermore, teachers' number of years teaching, whether or not they mostly taught special education students,

and perceptions about the importance of independent reading in their attempts to learn to use ABA techniques each uniquely impacted their perceived frequency of use of ABA strategies. The addition of teachers' perceived importance of independent reading as a unique contributor to teachers' perceived frequency of use of ABA strategies was likely influenced by this study's finding that teachers' perceptions about the importance of independent reading in their attempts to learn to use ABA techniques significantly correlated with their reported frequency of use of ABA strategies. This finding indicates that in addition to teachers' professional experience and special educators' experience/training, teachers' belief that independent reading is an important way for them to increase their behavior management skills significantly impacts how often they reportedly employ ABA techniques.

This study's findings regarding the impact of teachers' demographic characteristics on their perceived knowledge and frequency of use of ABA strategies were not documented in any of the literature reviewed. It is important to note, however, that the optimal combination of teachers' demographic characteristics, as well as the unique contributions of teachers' gender, number of years teaching, whether or not they primarily taught special education, and their perceived importance of independent reading in their attempts to learn to use ABA strategies, did not account for all of the variance in teachers' perceived knowledge and/or frequency of use of ABA techniques. Therefore, further research is needed to explore (a) why the above-mentioned demographic characteristics influenced teachers' perceived knowledge and use of ABA techniques and (b) additional demographic characteristics that might also affect teachers' perceived knowledge and frequency of implementation.

Importance of Activities/Experiences

Another question this study sought to answer was: How important do elementary teachers perceive various activities/experiences to be in their attempts to learn to use ABA strategies? In previous research, preservice teachers have reported that a variety of activities/experiences positively influenced their behavior management skills, including observation of their cooperating teacher, university coursework, conferences and workshops, communication with their colleagues and peers, and reading (Jones & Vesilind, 1995). This study found similar results when elementary teachers were surveyed. Activities/experiences rated as the most important by the teachers in this study included discussion/working with colleagues and professional development activities. Furthermore, although teachers rated their university coursework and independent reading as the least important activities/experiences in their attempts to learn to use ABA strategies, approximately half of the teachers surveyed still indicated that these activities/experiences were either important or very important.

Importance of activities/experiences and knowledge and frequency of use of ABA strategies

Elementary teachers who felt that their university coursework, independent reading, and/or professional development activities were more important in their attempts to learn to use ABA techniques tended to perceive themselves as more knowledgeable about ABA strategies. In addition, teachers in this study who perceived their student teaching experience and/or independent reading to be more important in their attempts to learn to use ABA techniques tended to report using ABA strategies more frequently. These results indicate teachers' beliefs that not only is it important for them to be able to

practice employing behavior management strategies during their student teaching, but it is also important for them to continue to learn about these strategies by completing coursework, readings, and workshops/conferences.

Predicting knowledge and frequency of use from importance of activities/experiences

This study found that the optimal combination of teachers' perceptions about the importance of professional development activities, discussion/working with colleagues, their student teaching experience, their university coursework, and independent reading in their attempts to learn to use ABA strategies significantly predicted their perceived knowledge and frequency of use of ABA techniques. In particular, teachers' perceptions about the importance of independent reading in their attempts to learn to use ABA techniques significantly affected their perceived frequency of use of ABA strategies. As indicated earlier, this unique contribution was likely influenced by this study's finding that teachers who perceived independent reading to be more important in their attempts to learn to use ABA strategies tended to report using ABA techniques more often.

Even when controlling for teachers' gender and number of years teaching, teachers' beliefs about the importance of the professional development activities, discussion/working with colleagues, their student teaching experience, their university coursework, and independent reading significantly predicted their perceived knowledge of ABA strategies. Furthermore, even when controlling for teachers' number of years teaching and whether or not they mostly taught special education students, teachers' beliefs about the importance of the above activities/experiences significantly predicted how often they reportedly used ABA techniques. One difference that occurred, however, when controlling for teachers' number of years teaching and whether or not they mostly

taught special education, was that in addition to teachers' perceived importance of independent reading significantly impacting how frequently they reported using ABA techniques, teachers' number of years teaching, whether or not they primarily taught special education, and their perceptions about the importance of discussion/working with colleagues also significantly impacted their perceived frequency of use of ABA strategies. These results indicate that the frequency with which teachers report using ABA techniques is affected not only by their increased professional and special education training/experience, but also by how valuable they find independently reading about ABA strategies and conferring with colleagues about implementing these strategies.

Reading about and discussing the use of ABA strategies with their colleagues are two ways for teachers to continue to improve upon their behavior management skills without having to take a course or workshop; therefore, books, articles, and conversations with colleagues may be an easier way for teachers to find information when they have questions regarding how to appropriately implement ABA techniques in their classrooms. Since teachers are confronted with a multitude of new students and different problem behaviors every school year, independent reading and discussion/working with colleagues may be some of the quickest and most convenient methods for them to learn and improve upon their behavior management skills. Future research could look further into how elementary teachers utilize independent reading and discussion/working with colleagues to help them implement ABA strategies more frequently in their classroom. In addition, further research could examine other factors that might significantly influence teachers' perceived frequency of use of ABA strategies.

Overall, when examining the above results, unlike studies previously reviewed, this study found that elementary teachers' perceptions about the importance of activities/experiences in both their teacher preparation programs (i.e. coursework, student teaching, discussion/working with colleagues, reading) and also once they have entered their profession (i.e. reading, discussion/working with colleagues, professional development activities) appear to be crucial to their perceived knowledge and frequency of use of ABA strategies. Therefore, it is important for school administrators, deans of teacher preparation programs, and mentor teachers to focus on continuously improving teachers' training, including preservice training and professional development activities, in order to enhance teachers' perceived knowledge and use of ABA strategies. It is important to note, however, that the optimal combination of teachers' perceptions about the importance of professional development activities, discussion/working with colleagues, their student teaching experience, their university coursework, and independent reading in their attempts to learn to use ABA strategies, as well as the unique contributions of teachers' number of years teaching, whether or not they primarily taught special education students, and perceptions about the importance of independent reading and discussion/working with colleagues, did not account for all of the variance in teachers' perceived knowledge and/or frequency of use of ABA techniques. Therefore, there are likely other significant factors contributing to teachers' perceived knowledge and frequency of use of ABA techniques, which need to be explored further.

Effectiveness of Instructional Techniques

Another question this study attempted to answer was: How effective do elementary teachers perceive various instructional techniques to be in supporting their

learning about ABA techniques? Teachers surveyed in previous research have reported that observing and receiving support from their mentor/cooperating teacher, along with supervised teaching practice, is a more effective method of learning behavior management skills in comparison to listening to lectures (Merrett & Wheldall, 1993). In addition, research has documented teachers' beliefs that the information they learn from reading books and articles and listening to lectures becomes more meaningful when they are able to link this material to real-life, practical classroom experiences (Whitney et al., 2002).

Similar to prior studies, this investigation found that elementary teachers rated observing their mentor/cooperating teacher, practicing and receiving feedback, and reading books/articles as the most effective instructional techniques in supporting their learning about ABA strategies. The highest percentage of teachers in this study rated these instructional methods as either effective or very effective. Therefore, instructional methods that allowed teachers to practice employing ABA strategies, observe others implementing ABA techniques, and/or read about ABA strategies were perceived as more effective than some of the more reflective techniques included in the Behavior Management Survey, such as reviewing case studies, reflective journal writing, completing portfolios, and watching and reflecting on videotapes.

The instructional methods perceived by teachers in this study to be the least effective in supporting their learning about ABA techniques included completing group projects, completing portfolios, and reflective journal writing. These instructional techniques were rated by the highest percentage of teachers as either not at all effective or slightly effective. This finding does not support the results of an earlier study, which

documented that reflective activities, such as journal writing and portfolios, were effective techniques used to improve beginning teachers' management skills (Emmer & Stough, 2001).

Perhaps this study found different results than prior research because, unlike the teachers who participated in Emmer and Stough's study (2001), many of the teachers in this study were not beginning teachers. Maybe teachers with more years of teaching experience perceive completing portfolios and reflective journal writing to be less effective techniques because they are more time-consuming due to their reflective nature. Also, teachers may feel that completing portfolios and reflective journal writing are less valuable instructional techniques because they receive less feedback when completing these activities, in comparison to being able to practice ABA strategies in their classroom and receive feedback from their students, colleagues, and/or administrators.

Effectiveness of instructional techniques and knowledge and frequency of use of ABA strategies

This study found that elementary teachers who rated role-playing as a more effective instructional technique in supporting their learning about ABA techniques tended to perceive themselves both as more knowledgeable about ABA strategies and also to use ABA techniques more often. These findings indicate the importance of teachers being able to apply their knowledge of ABA strategies as well as their implementation skills through role-playing. Role-playing allows teachers to practice using their knowledge and skills of ABA techniques in a controlled situation where they can receive feedback from the other role-play participants and/or an instructor.

This investigation also discovered that teachers who rated reading books/articles as more effective tended to perceive themselves as more knowledgeable about ABA techniques. This finding indicates that in addition to perceiving role-playing as a way to effectively enhance their knowledge of ABA strategies, teachers believe that they learn a lot by reading about behavior management techniques. This is further supported by this study's finding that teachers who rated independent reading to be more important in their attempts to learn to use ABA techniques tended to perceive themselves as more knowledgeable about ABA strategies.

Behavior management course and effectiveness of instructional techniques

This study found that elementary teachers who took a behavior management course tended to perceive reviewing case studies, reflective journal writing, and role-playing as increasingly effective instructional techniques in supporting their learning about ABA strategies. While this study did not ask teachers to specify which of their undergraduate/graduate courses utilized each of the above instructional techniques, this finding suggests that teachers who took a behavior management course may have either received increased exposure to reviewing case studies, reflective journal writing, and role-playing in their behavior management course or were taught by professors who used these instructional methods more effectively. Future research could further examine how instructional techniques utilized in behavior management courses affect teachers' knowledge and frequency of use of ABA strategies, in comparison to methods utilized in other courses.

Instructional Techniques Not Included in Training

Another question this study attempted to answer was: What instructional techniques are included/not included in elementary teachers' training when learning about ABA techniques? A previous study found that teacher preparation programs reported frequently using role-playing, reviewing case studies, audio-visual aids, lectures, group projects, and classroom observations as instructional methods to educate teachers-in-training about behavior management strategies (Blum, 1994). When the present study examined whether or not various instructional techniques (reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and completing portfolios) were included in elementary teachers' training, less than half of the teachers surveyed indicated that their training did not include each of these techniques. Approximately one quarter of elementary teachers indicated that their training did not include completing group projects, reflective journal writing, or reviewing case studies. Furthermore, about one fifth of participants reported that their training did not include role-playing or watching and reflecting on videotapes, and almost one third of participants indicated that their training did not include completing portfolios. While these results are promising and imply that the majority of teachers' training included each of the instructional techniques presented on the Behavior Management Survey, there still existed a small percentage of teachers who reported that their teacher preparation programs did not employ some of these instructional methods. Further research could look at potential reasons why some teacher preparation courses are not utilizing these instructional techniques, especially

since many of these techniques were reported by the teachers in this study, as well as teachers surveyed in previous research, to effectively increase their knowledge of ABA strategies.

Instructional techniques included/not included in training and frequency of use of ABA strategies

This study found that elementary teachers whose training did not include watching and reflecting on videotapes or role-playing tended to perceive themselves to use ABA techniques less frequently. Perhaps teachers in this study whose training did not include role-playing or watching and reflecting on videotapes felt as if they had insufficient opportunities to practice how to confront behavior problems prior to entering the classroom setting, and therefore they reported using ABA techniques less frequently. This finding indicates the potential importance of providing teachers with opportunities to watch how to effectively manage problematic behaviors via simulated or real-life situations and also to practice employing ABA strategies through role-playing.

Predicting frequency of use from instructional techniques included/not included in training

While the optimal combination of whether or not teachers' training included reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and/or completing portfolios did not significantly predict their perceived knowledge or frequency of use of ABA strategies, teachers' perceived frequency of use of ABA techniques was significantly predicted by the optimal combination of the above variables

when controlling for teachers' number of years teaching, whether or not they mostly taught special education, and their perceived importance of independent reading in their attempts to learn to use ABA strategies. In particular, teachers' perceptions about the importance of independent reading in their attempts to learn to use ABA strategies and whether or not their training included role-playing each significantly influenced their perceived frequency of use of ABA techniques. These results were likely impacted by the significant correlations between teachers' perceived frequency of use of ABA strategies and a) whether or not their training included role-playing as well as b) their perceived importance of independent reading in their attempts to learn to use ABA techniques.

The above findings suggest that the variety of instructional techniques that teachers are exposed to in their training programs, especially role-playing, in addition to teachers' belief that independent reading is an important activity when learning about ABA strategies and their increased professional and special education experience/training, significantly impact how often they reportedly implement ABA techniques. Independent reading likely builds upon teachers' prior knowledge gained from university courses and workshops, and as mentioned earlier, may be a convenient way for teachers to review and improve upon their implementation skills. In addition, role-playing provides teachers with a way to practice employing ABA strategies in a safe, structured setting. It is important to note, however, that whether or not teachers training included reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and/or completing portfolios, in addition to teachers' perceived importance of

independent reading in their attempts to learn to use ABA strategies, their number of years teaching, and whether or not they mostly taught special education students, did not account for all of the variance in their perceived frequency of use of ABA techniques. Furthermore, the unique contributions of teachers' perceptions about the importance of independent reading in their attempts to learn to use ABA strategies and also whether or not their training included role-playing only accounted for a small percentage of the variance in their perceived frequency of use. Therefore, there are likely other factors contributing to teachers' perceived frequency of use of ABA techniques, which require further exploration.

Frequency of Conditions as Barriers to Implementation

A final question that this study sought to answer was: How frequently do elementary teachers perceive various conditions to be barriers to their implementation of ABA strategies? A multitude of barriers to teachers' implementation of behavioral interventions have been identified in the literature. Some of the barriers mentioned in previous research include insufficient time to employ an intervention, a lack of administrative support, a lack of guidance to carry out an intervention, teachers believing that an intervention is not necessary, and teachers not believing in the effectiveness of an intervention (Foxy, 1996; Kincaid et al., 2007; Lohrmann et al., 2008).

Similar to prior research, this study found that elementary teachers rated a lack of knowledge/skill, a lack of supplies, a lack of feedback/guidance, and a lack of support from administration as barriers that occurred the most frequently when implementing behavior management strategies. However, less than one fifth of the teachers surveyed reported that any of these barriers occurred either often or very often. Teachers in this

study indicated that the following conditions were barriers to their implementation of ABA strategies the least often: believing that their colleagues did not support the use of a strategy, feeling that a strategy was not consistent with their general approach to teaching, believing that a strategy would not help them to achieve their work goals, and knowledge of others who had tried a strategy and thought it was ineffective.

Overall, many of elementary teachers who were surveyed reported that several of the barriers on the Behavior Management Survey occurred either never or seldom/rarely. Therefore, while some teachers in this study indicated confronting similar barriers as teachers in previous research, this investigation found that only a minority of elementary teachers reported frequently experiencing any barriers to their implementation of ABA strategies. These results are promising in comparison to findings from earlier research.

It is possible that the teachers in this study reported experiencing barriers less frequently than participants in prior research because the teachers in this investigation perceived themselves to be knowledgeable or very knowledgeable about each of the ABA strategies, and they also reported frequently using many of these strategies. Perhaps feeling knowledgeable and competent to use ABA strategies reduces the likelihood that teachers will be negatively affected by various conditions. For instance, teachers who perceive themselves to be knowledgeable about ABA strategies may be less likely to believe that conditions such as a lack of knowledge/skill, a lack of feedback/guidance, their colleagues not supporting the use of a strategy, and not believing that a strategy would work are barriers to their use of ABA strategies. These teachers may not feel the need for a lot of support or feedback from colleagues or administration due to increased confidence in their behavior management skills. This possibility is further supported by

this study's finding that teachers who reported a lack of knowledge/skill, believing that a strategy would not work, knowledge of other teachers who had tried a strategy and thought it was ineffective, and feeling that a particular strategy would not help them achieve their work goals as barriers that occurred more often tended to perceive themselves to be less knowledgeable about ABA techniques.

Predicting frequency of use from frequency of conditions as barriers to implementation

Although the optimal combination of the frequency with which teachers perceived the eleven conditions on the Behavior Management Survey to be barriers to their use of ABA techniques did not significantly predict their perceived knowledge or frequency of use of ABA strategies, teachers' reported frequency of use of ABA techniques was significantly predicted by the above variables when controlling for their number of years teaching, whether or not they mostly taught special education students, and their perceptions about the importance of independent reading in their attempts to learn to use ABA strategies. In particular, whether or not teachers mostly taught special education students and their perceptions about the importance of independent reading in their attempts to learn to use ABA techniques each significantly influenced their perceived frequency of use of ABA strategies. This finding supports prior results of this study, which indicated how important it is for teachers to continuously read about ABA strategies as well as possess increased training and/or experience teaching special education students. It is important to mention, though, that the optimal combination of the eleven barriers on the Behavior Management Survey, when controlling for teachers' perceived importance of independent reading, number of years teaching, and whether or not they mostly instructed special education students, did not account for all of the

variance in teachers' perceived frequency of use of ABA strategies. In addition, the unique contributions of whether or not teachers mostly taught special education students as well as their perceptions about the importance of independent reading in their attempts to learn to use ABA strategies only accounted for a small percentage of the variance in their perceived frequency of use. Therefore, there are likely additional factors impacting how often teachers implement ABA techniques that need to be studied further.

Limitations

One limitation of this study is that elementary teachers' perceptions/beliefs were assessed. Therefore, participants' ratings were subjective and there were no other measures utilized to compare teachers' perceptions to. Further research could compare elementary teachers' perceptions about their knowledge and frequency of use of ABA techniques to administrators' and/or colleagues' ratings of their behavior management skills to determine whether there is consistency between measures. Additional research could also utilize a standardized measure to assess teachers' knowledge and frequency of use of ABA strategies.

Another limitation of this study is that only elementary teachers were included, rather than preschool and/or secondary educators. Future research could look further into whether there are any significant differences between preschool, elementary, and/or secondary teachers' (a) perceived knowledge and frequency of use of ABA strategies, (b) perceived importance of various activities/experiences in their attempts to learn to use ABA strategies, (c) perceived effectiveness of various instructional techniques in supporting their learning about ABA strategies, (d) instructional methods used within their training, and (e) perceived frequency of various conditions as barriers to their use of

ABA strategies. In addition, this study only assessed two school districts located within one state. Future research could study a larger sample of teachers within multiple states to determine any significant differences between teachers' training in ABA strategies and whether different rules and regulations in each state impact teachers' knowledge and frequency of use of ABA techniques.

Summary

Overall, this study yielded many promising results. Unlike the results of earlier studies, the elementary teachers in this investigation perceived themselves to be either knowledgeable or very knowledgeable about a multitude of ABA strategies that have been proven effective at eliminating disruptive behaviors in the classroom setting. In addition, the elementary teachers in this study reported frequently utilizing a variety of positive ABA strategies in their classrooms, as opposed to the mostly punitive strategies documented within prior research.

When examining the effects of various demographic characteristics on teachers' perceived knowledge and/or frequency of use of ABA strategies, this investigation revealed some surprising and unique results. One finding of this study that was not documented in any of the literature reviewed was that special educators, in comparison to general educators, perceived themselves to be more knowledgeable about ABA strategies. This study also found, unlike earlier research, that female teachers reported possessing more knowledge about ABA techniques than did male teachers, and teachers with more years of experience tended to perceive themselves both as more knowledgeable and also to use ABA strategies more frequently. These findings indicate the potential importance of one's professional and/or special education

experience/training influencing their knowledge and frequency of use of behavior management techniques.

Similar to prior research, the elementary teachers in this study reported that professional development activities, their student teaching experience, independent reading, their university coursework, and discussion/working with colleagues were all important activities/experiences in their attempts to learn to use ABA strategies. One finding from this study that was not evident in the literature reviewed, however, was that teachers who believed independent reading, professional development activities, and their university coursework to be more important in their attempts to learn to use ABA strategies tended to perceive themselves as increasingly knowledgeable about ABA strategies. Furthermore, teachers who felt that their student teaching experience and independent reading were more important in their attempts to learn to use ABA strategies tended to report utilizing ABA techniques more frequently. These results suggest that both teachers' initial training in their teacher preparation programs and also the education they receive once they enter their profession are crucial to honing their knowledge and implementation of ABA strategies.

Like earlier research, this study revealed that teachers who perceived role-playing to be a more effective instructional technique in supporting their learning about ABA strategies tended to report being more knowledgeable about and using ABA techniques more often. In addition, observing mentors/cooperating teachers, practicing and receiving feedback, and reading books/articles were rated as some of the most effective techniques in supporting teachers' learning about ABA strategies. However, unlike earlier research, teachers in this study believed that completing group projects, completing portfolios, and

reflective journal writing were the least effective instructional techniques in supporting their learning about ABA strategies. Therefore, this study found that, in addition to gaining knowledge about ABA techniques from reading books/articles, teachers believe that practicing behavior management skills, observing others utilize these skills, and obtaining feedback are all particularly effective when learning how to implement ABA strategies.

When examining the types of instructional techniques included in teachers' training when learning about ABA techniques, the results of this study were mostly positive. Many of the teachers surveyed indicated that their training included each of the instructional techniques listed on the Behavior Management Survey. However, there still existed a small percentage of teachers who reported that their teacher preparation programs did not employ various instructional methods, such as completing group projects, reflective journal writing, reviewing case studies, role-playing, and completing portfolios. This study also revealed that teachers whose training did not include role-playing or watching and reflecting on videotapes tended to report using ABA strategies less often. These findings emphasize the potential importance of teacher preparation programs utilizing instructional methods such as role-playing and watching and reflecting on videotapes to assist teachers-in-training in implementing behavior management strategies through observation, practice, and feedback.

The results of this study were also promising when assessing the frequency with which teachers perceived various conditions to be barriers to the implementation of behavior management strategies. Similar to some of the literature reviewed, the teachers in this study indicated that a lack of feedback/guidance, a lack of knowledge/skill, a lack

of supplies, and a lack of support from administration were barriers that occurred the most often when implementing behavior management strategies. However, few teachers believed that any of the barriers included in the Behavior Management Survey occurred frequently. Therefore, the teachers in this study, perhaps because they perceived themselves to be knowledgeable about and skilled at using ABA strategies, did not report encountering various barriers as often as prior research has indicated.

Overall, this study discovered multiple factors that significantly predicted teachers' perceived knowledge and frequency of use of ABA strategies. Teachers' demographic characteristics (gender, number of years teaching, highest academic degree obtained, whether or not they mostly taught general or special education students, and whether or not they took a behavior management course) significantly predicted their perceived knowledge and frequency of use of ABA techniques. In particular, teachers' gender and number of years teaching significantly impacted their perceived knowledge of ABA strategies, and teachers' number of years teaching, perceptions about the importance of independent reading in their attempts to learn to use ABA techniques, and whether or not they mostly taught special education students significantly influenced their perceived frequency of use of ABA strategies.

Teachers' perceptions about the importance of professional development activities, their student teaching experience, their university coursework, independent reading, and discussion/working with colleagues also significantly predicted their perceived knowledge and use of ABA strategies. In particular, teachers' perceptions about the importance of independent reading in their attempts to learn to use ABA strategies significantly impacted how often they reportedly implemented ABA

techniques. In addition, whether or not teachers' training included a variety of instructional techniques (reviewing case studies, listening to lectures, reading books/articles, observing mentors/cooperating teachers, practicing and receiving feedback, reflective journal writing, watching and reflecting on videotapes, role-playing, completing group projects, and completing portfolios) significantly predicted teachers' perceived frequency of use of ABA strategies, although only when controlling for teachers' perceptions about the importance of independent reading, whether or not they primarily taught special education students, and their number of years teaching. Finally, the frequency with which teachers perceived various conditions to be barriers to their use of behavior management strategies significantly predicted their perceived frequency of use of ABA techniques, only when controlling for teachers' perceptions about the importance of independent reading, whether or not they primarily taught special education students, and their number of years teaching.

Overall, this study found several factors that, when combined, predicted teachers' perceived knowledge and/or frequency of use of ABA strategies. Furthermore, certain aspects of teachers' experience/background, such as their number of years teaching and whether or not they mostly taught special education students, in addition to their belief that independent reading is important in their attempts to learn to use ABA, were crucial unique contributing factors to their perceived knowledge and/or frequency of use. Teachers' gender also appeared to be a significant factor regarding their perceived knowledge of ABA strategies, indicating the possibility that there are other variables related to teachers' gender that might be involved. Taken in combination, the above results account for a large proportion of the variance in teachers' beliefs about their

knowledge and frequency of use of ABA techniques. However, more research is needed to determine other variables that might impact teachers' perceptions about their knowledge and frequency of use of ABA strategies.

In conclusion, the results of this study are hopeful because they indicate that elementary teachers perceive themselves as not only knowledgeable about but also frequently using a variety of positive, evidence-based ABA strategies. These findings suggest that the training elementary teachers are receiving, both in their teacher preparation programs (i.e. student teaching, independent reading, discussion/working with colleagues) and also after entering their profession (through professional development activities, discussion/working with colleagues, and independent reading), has positively influenced both how knowledgeable teachers feel about ABA strategies and also the frequency with which they employ these strategies. In addition, the results of this study reveal that some of the instructional techniques used in teachers' training, such as role-playing, have the potential to positively affect teachers' perceived knowledge and frequency of use of ABA strategies. Overall, this study's findings suggest that not only is it important for teacher preparation programs to continue to improve upon their instructional methods and to allow for teachers to observe, practice, and receive feedback about the information they learn in books/articles, coursework, and workshops/conferences, but it is also important for teachers to continue to independently read after they enter their profession, so that they can keep up-to-date on material and demonstrate flexibility when implementing ABA strategies with different populations of students. In addition, since teachers' number of years teaching and whether or not they mostly taught special education students uniquely influenced their perceived frequency of

use of ABA strategies, perhaps teacher education programs and future research can look further at the nature and scope of the behavior management training/experience that special education teachers receive as well as specific aspects of teachers' professional experience that might positively impact their ability to implement ABA strategies.

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Table 1

Frequencies and percentages of demographic characteristics within sample

Demographic characteristic	<i>n</i>	Valid %
Gender		
Male	9	8.4
Female	98	91.6
Academic degree		
Bachelor's	41	38.3
Master's	64	59.8
Doctorate	2	1.9
Population primarily taught		
General education	79	73.8
Special education	20	18.7
Both	8	7.5
District		
District 1	57	53.3
District 2	50	46.7
School		
School 1	15	14.0
School 2	42	39.3
School 3	25	23.4
School 4	25	23.4
Behavior management course		
Took	51	47.7
Did not take	56	52.3

Table 2

Percentage of academic degrees earned within each school

School	<i>n</i>	Bachelor's	Master's	Doctorate
School 1	15	13.3	86.7	0.0
School 2	42	33.3	66.7	0.0
School 3	25	48.0	52.0	0.0
School 4	25	52.0	40.0	8.0

Note. *N* = 107.

Table 3

Percentage of teachers within each school who did/did not take behavior management course

School	<i>n</i>	Took behavior management course	Did not take behavior management course
School 1	15	66.7	33.3
School 2	42	54.8	45.2
School 3	25	52.0	48.0
School 4	25	20.0	80.0

Note. *N* = 107.

Table 4

Means, standard deviations, and percentage of responses assessing knowledge of ABA strategies

ABA strategy	<i>M</i>	<i>SD</i>	Valid %				
			Not at all knowledgeable	Slightly knowledgeable	Somewhat knowledgeable	Knowledgeable	Very knowledgeable
Positive reinforcement - social	4.65	0.48	0.0	0.0	0.0	34.6	65.4
Positive reinforcement - preferred activity	4.42	0.53	0.0	0.0	1.9	54.2	43.9
Positive reinforcement - token economy	4.35	0.69	0.0	0.0	12.1	41.1	46.7
Positive reinforcement - food	4.12	0.95	2.8	2.8	14.0	40.2	40.2
Shaping	3.83	1.07	3.7	8.4	18.7	39.3	29.9
Behavior contract	4.22	0.73	0.0	1.9	12.1	48.6	37.4
Modeling	4.64	0.50	0.0	0.0	0.9	34.6	64.5
Prompting/fading	3.96	1.04	3.7	5.6	15.9	40.2	34.6
Group contingency	3.95	1.00	2.8	4.7	21.5	36.4	34.6
Extinction	3.91	0.99	2.8	5.6	19.6	42.1	29.9
Punishment	4.15	0.70	0.0	1.9	12.1	55.1	30.8
Reinforce incompatible behavior	4.15	0.74	0.0	1.9	15.0	49.5	33.6
Differential reinforcement	3.80	1.01	3.7	7.5	17.8	46.7	24.3
Time out	4.21	0.71	0.0	1.9	11.2	51.4	35.5
Overcorrection	3.43	1.06	5.6	14.0	25.2	42.1	13.1

Note. $N = 107$. Higher means indicate greater knowledge of ABA strategies.

Table 5

Pearson correlations for items assessing knowledge and frequency of use of ABA strategies

ABA strategy	Positive reinforcement - social	Positive reinforcement - preferred activity	Positive reinforcement - token economy	Positive reinforcement - food	Shaping	Behavior contract	Modeling	Prompting/fading
Positive reinforcement - social	(.56**)	.28**	.13	.01	.36**	.24*	.29**	.24*
Positive reinforcement - preferred activity	.50**	(.39**)	.42**	.20*	.29**	.31**	.13	.09
Positive reinforcement – token economy	.45**	.60**	(.55**)	.24*	.36**	.40**	.10	.23*
Positive reinforcement – food	.30**	.40**	.61**	(.19*)	.09	.02	-.11	.01
Shaping	.42**	.52**	.50**	.45**	(.72**)	.40**	.38**	.44**
Behavior contract	.41**	.47**	.43**	.58**	.57**	(.47**)	.31**	.37**
Modeling	.53**	.37**	.40**	.31**	.45**	.55**	(.56**)	.35**
Prompting/fading	.32**	.39**	.40**	.48**	.48**	.55**	.52**	(.78**)
Group contingency	.34**	.41**	.42**	.35**	.42**	.39**	.36**	.58**
Extinction	.37**	.36**	.37**	.39**	.36**	.46**	.41**	.43**
Punishment	.36**	.41**	.40**	.34**	.30**	.49**	.48**	.33**
Reinforce incompatible behavior	.44**	.42**	.42**	.41**	.44**	.57**	.40**	.39**
Differential reinforcement	.38**	.40**	.38**	.53**	.31**	.53**	.34**	.51**
Time out	.32**	.34**	.43**	.58**	.31**	.57**	.37**	.36**
Overcorrection	.26**	.26**	.27**	.37**	.23*	.38**	.33**	.38**
Total knowledge	.58**	.63**	.67**	.70**	.66**	.76**	.63**	.71**
Total frequency	.35**	.34**	.45**	.34**	.50**	.35**	.46**	.57**

Note. $N = 107$. Correlations for frequency of use of ABA strategies are presented above the shaded diagonal, and correlations for knowledge of ABA strategies are presented below the shaded diagonal. Correlations for frequency of use and knowledge of each ABA strategy are presented in parentheses on the shaded diagonal. Higher scores indicate greater knowledge and frequency of use of ABA strategies.

* $p < .05$. ** $p < .01$.

Table 5 (continued)

Pearson correlations for items assessing knowledge and frequency of use of ABA strategies

ABA strategy	Group contingency	Extinction	Punishment	Reinforce incompatible behavior	Differential reinforcement	Time out	Over-correction	Total knowledge	Total frequency
Positive reinforcement - social	.01	.26**	-.02	.34**	.18	.07	.13	.32**	.43**
Positive reinforcement - preferred activity	.03	.09	-.03	.35**	.22*	-.02	.29**	.30**	.50**
Positive reinforcement – token economy	.19	-.07	-.08	.27**	.12	-.02	.18	.25*	.53**
Positive reinforcement – food	.18	-.10	-.06	.04	-.01	-.12	.01	.04	.18
Shaping	.06	.00	.01	.43**	.01	.05	.22*	.44**	.58**
Behavior contract	.10	.05	-.11	.25**	.06	.11	.14	.39**	.52**
Modeling	.02	.13	-.05	.16	.05	.02	.21*	.21*	.39**
Prompting/fading	.23*	.24*	.05	.30**	.29**	.21*	.38**	.45**	.65**
Group contingency	.43**	.19	.20*	.07	.08	.23*	.27**	.07	.46**
Extinction	.56**	.67**	.15	.33**	.39**	.12	.05	.36**	.40**
Punishment	.40**	.62**	.18	.20*	-.05	.50**	.26**	-.03	.28**
Reinforce incompatible behavior	.44**	.67**	.73**	.59**	.37**	.24*	.28**	.55**	.64**
Differential reinforcement	.51**	.61**	.50**	.63**	.64**	.13	.29**	.42**	.45**
Time out	.41**	.49**	.70**	.63**	.57**	.24*	.33**	.24*	.41**
Overcorrection	.37**	.27**	.42**	.39**	.53**	.39**	.66**	.31**	.58**
Total knowledge	.70**	.72**	.71**	.76**	.77**	.72**	.59**	—	.61**
Total frequency	.51**	.41**	.33**	.44**	.44**	.28**	.42**	.61**	—

Note. $N = 107$. Correlations for frequency of use of ABA strategies are presented above the shaded diagonal, and correlations for knowledge of ABA strategies are presented below the shaded diagonal. Correlations for frequency of use and knowledge of each ABA strategy are presented in parentheses on the shaded diagonal. Higher scores indicate greater knowledge and frequency of use of ABA strategies.

* $p < .05$. ** $p < .01$.

Table 6

Means, standard deviations, and percentage of responses assessing frequency of use of ABA strategies

ABA strategy	<i>M</i>	<i>SD</i>	Valid %				
			Never use	Seldom/rarely use	Sometimes use	Often use	Very often use
Positive reinforcement – social	4.62	0.53	0.0	0.0	1.9	34.6	63.6
Positive reinforcement – preferred activity	3.36	0.94	1.9	14.0	43.9	27.1	13.1
Positive reinforcement - token economy	2.95	1.36	15.0	28.0	24.3	12.1	20.6
Positive reinforcement – food	1.50	0.74	62.6	28.0	6.5	2.8	0.0
Shaping	3.07	1.26	15.0	15.9	29.9	25.2	14.0
Behavior contract	2.99	1.03	5.6	26.2	42.1	15.9	10.3
Modeling	4.55	0.72	0.0	0.9	10.3	21.5	67.3
Prompting/fading	3.50	1.21	9.3	8.4	29.0	29.9	23.4
Group contingency	2.40	1.38	37.4	17.8	24.3	8.4	12.1
Extinction	3.19	1.09	8.4	14.0	40.2	25.2	12.1
Punishment	2.76	0.95	8.4	29.9	43.9	13.1	4.7
Reinforce incompatible behavior	3.45	0.92	0.0	16.8	34.6	35.5	13.1
Differential reinforcement	3.17	1.12	7.5	17.8	40.2	19.6	15.0
Time out	2.56	1.05	15.9	31.8	39.3	6.5	6.5
Overcorrection	2.23	1.03	29.0	31.8	28.0	9.3	1.9

Note. $N = 107$. Higher means indicate greater frequency of use of ABA strategies.

Table 7

Pearson correlations for demographic characteristics and knowledge and frequency of use of ABA strategies

Demographic characteristic	District	Number of years teaching	Gender	Academic degree	Behavior management course
District	—				
Number of years teaching	.10	—			
Gender	.08	.04	—		
Academic degree	-.17	.33**	-.08	—	
Behavior management course	.22*	.09	-.09	-.09	—
Total knowledge	.06	.21*	.22*	.17	-.17
Total frequency	-.09	.22*	.06	.12	-.05

Note. $N = 107$. Higher scores indicate greater knowledge and frequency of use of ABA strategies. District coded as 1 or 2. Gender coded as 1 = male, 2 = female. Academic degree coded as 1 = Bachelor's, 2 = Master's, 3 = Doctorate. Behavior management course coded as 1 = took, 2 = did not take.

* $p < .05$. ** $p < .01$.

Table 8

Means and standard deviations of demographic characteristics when assessing knowledge and frequency of use of ABA strategies

Demographic characteristic	Knowledge		Frequency of use	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gender				
Male	55.67	9.21	44.89	8.75
Female	62.35	8.18	46.42	7.23
Population primarily taught				
General education	60.75	8.35	45.95	7.27
Special education	65.90	7.96	49.40	7.12
Behavior management course				
Took	63.25	8.52	46.67	6.11
Did not take	60.45	8.20	45.95	8.33
Academic degree				
Bachelor's	60.24	6.61	45.59	7.49
Master's	62.56	9.39	46.42	7.09
Doctorate	68.50	2.12	56.50	7.78

Note. Higher scores indicate greater knowledge and frequency of use of ABA strategies.

Table 9

Multiple regression analysis predicting knowledge and frequency of use of ABA strategies from demographic characteristics

Model	Knowledge					Frequency of use				
	<i>B</i>	β	<i>t</i>	<i>p</i>	Semi-partial r^2	<i>B</i>	β	<i>t</i>	<i>p</i>	Semi-partial r^2
(Constant)	46.45		6.02	.000		33.92		4.94	.000	
Number of years teaching	0.18	0.19	1.98*	.050	.032	0.19	0.24	2.42*	.017	.051
Gender	6.07	0.20	2.17*	.032	.039	1.51	0.06	0.61	.545	.003
Academic degree	1.88	0.12	1.19	.237	.012	0.78	0.06	0.55	.581	.003
Behavior management course	-1.65	-0.10	-1.02	.309	.009	0.24	0.02	0.17	.865	.000
Primarily taught general education	-0.14	-0.01	-0.05	.962	.000	4.89	0.29	1.85	.067	.030
Primarily taught special education	4.66	0.22	1.36	.177	.015	8.82	0.47	2.89**	.005	.072

Note. $N = 107$. Higher scores indicate greater knowledge and frequency of use of ABA strategies. Gender coded as 1 = male, 2 = female. Academic degree coded as 1 = Bachelor's, 2 = Master's, 3 = Doctorate. Behavior management course coded as 1 = took, 2 = did not take. Primarily taught general education dummy-coded as 0 = not general education, 1 = general education. Primarily taught special education dummy-coded as 0 = not special education, 1 = special education.

* $p \leq .05$. ** $p < .01$.

Table 10

Means, standard deviations, and percentage of responses assessing importance of activities/experiences

Activity/experience	<i>M</i>	<i>SD</i>	Valid %				
			Not at all important	Slightly important	Somewhat important	Important	Very important
Professional development activities	3.77	1.07	2.8	11.3	19.8	37.7	28.3
Discussion/working with colleagues	4.40	0.75	0.9	0.9	7.5	38.3	52.3
University coursework	3.34	1.18	8.7	14.4	28.8	30.8	17.3
Student teaching experience	3.69	1.14	5.7	8.6	24.8	33.3	27.6
Independent reading	3.64	0.96	0.9	12.1	28.0	40.2	18.7

Note. Higher means indicate greater importance of activities/experiences.

Table 11

Pearson correlations for items assessing importance of activities/experiences and knowledge and frequency of use of ABA strategies

Activity/experience	Professional development activities	Discussion/working with colleagues	University coursework	Student teaching experience	Independent reading
Professional development activities	—				
Discussion/working with colleagues	.40**	—			
University coursework	.17	.04	—		
Student teaching experience	-.02	-.10	.29**	—	
Independent reading	.44**	.22*	.12	.03	—
Total knowledge	.19*	.18	.20*	.10	.29**
Total frequency	.16	.19	.16	.22*	.26**

Note. Higher scores indicate greater importance of activities/experiences and greater knowledge and frequency of use of ABA strategies.

* $p < .05$. ** $p < .01$.

Table 12

Pearson correlations for demographic characteristics and items assessing importance of activities/experiences

Demographic characteristic	Professional development activities	Discussion/working with colleagues	University coursework	Student teaching experience	Independent reading
District	.02	.05	-.05	.05	-.02
Number of years teaching	.02	-.04	-.11	.02	.13
Gender	.16	.16	.15	.13	.10
Academic degree	.01	-.06	.06	-.11	.11
Behavior management course	-.05	-.04	-.36**	-.03	.07

Note. Higher scores indicate greater importance of activities/experiences. District coded as 1 or 2. Gender coded as 1 = male, 2 = female. Academic degree coded as 1 = Bachelor's, 2 = Master's, 3 = Doctorate. Behavior management course coded as 1 = took, 2 = did not take.

** $p < .01$.

Table 13

Multiple regression analysis predicting frequency of use of ABA strategies from importance of activities/experiences

Model	Frequency of use				Semi-partial r^2
	B	β	t	p	
(Constant)	24.81		4.65	.000	
Professional development activities	-0.02	-0.00	-0.02	.982	.000
Discussion/working with colleagues	1.94	0.19	1.81	.073	.028
University coursework	0.53	0.08	0.86	.395	.006
Student teaching experience	1.24	0.19	1.95	.055	.033
Independent reading	1.79	0.23	2.17*	.032	.041

Note. $N = 103$. Higher scores indicate greater importance of activities/experiences and greater frequency of use of ABA strategies.

* $p < .05$.

Table 14

Multiple regression analysis predicting frequency of use of ABA strategies from importance of activities/experiences, controlling for demographic variables

Model	Frequency of use				Semi-partial r^2
	B	β	t	p	
(Constant)	21.76		4.20	.000	
Professional development activities	-0.20	-0.03	-0.27	.788	.001
Discussion/working with colleagues	2.27	0.22	2.20*	.030	.038
University coursework	0.47	0.08	0.78	.438	.005
Student teaching experience	1.17	0.18	1.93	.057	.029
Independent reading	1.62	0.21	2.06*	.043	.033
Number of years teaching	0.19	0.22	2.49*	.015	.049
Primarily taught special education	4.29	0.23	2.51*	.014	.050

Note. $N = 103$. Higher scores indicate greater importance of activities/experiences and greater frequency of use of ABA strategies. Primarily taught special education dummy-coded as 0 = not special education, 1 = special education.

* $p < .05$.

Table 15

Multiple regression analysis predicting frequency of use of ABA strategies from demographic characteristics, controlling for independent reading

Model	Frequency of use				Semi-partial r^2
	B	β	t	p	
(Constant)	31.69		4.65	.000	
Number of years teaching	0.18	0.22	2.24*	.028	.042
Gender	0.86	0.03	0.35	.728	.001
Academic degree	0.50	0.04	0.36	.718	.001
Behavior management course	-0.09	-0.01	-0.06	.951	.000
Primarily taught general education	3.87	0.23	1.47	.146	.018
Primarily taught special education	7.63	0.41	2.50*	.014	.052
Independent reading	1.55	0.20	2.13*	.036	.038

Note. $N = 107$. Higher scores indicate greater importance of independent reading and greater frequency of use of ABA strategies. Gender coded as 1 = male, 2 = female. Academic degree coded as 1 = Bachelor's, 2 = Master's, 3 = Doctorate. Behavior management course coded as 1 = took, 2 = did not take. Primarily taught general education dummy-coded as 0 = not general education, 1 = general education. Primarily taught special education dummy-coded as 0 = not special education, 1 = special education.

* $p < .05$.

Table 16

Means, standard deviations, and percentage of responses assessing effectiveness of instructional techniques

Instructional technique	<i>M</i>	<i>SD</i>	Valid %				
			Not at all effective	Slightly effective	Somewhat effective	Effective	Very effective
Reviewing case studies	2.92	1.00	6.6	28.9	35.5	23.7	5.3
Listening to lectures	2.81	0.94	8.1	28.3	41.4	19.2	3.0
Reading books/articles	3.47	0.97	1.0	17.1	30.5	37.1	14.3
Observing mentors/cooperating teachers	4.28	0.78	0.0	1.9	13.5	37.5	46.2
Practicing and receiving feedback	4.18	0.76	0.0	2.0	15.2	45.5	37.4
Reflective journal writing	2.47	1.12	24.7	27.3	26.0	20.8	1.3
Watching and reflecting on videotapes	3.11	1.09	6.0	25.0	32.1	26.2	10.7
Role-playing	2.91	1.18	13.3	21.7	38.6	13.3	12.0
Completing group projects	2.78	1.14	15.0	26.3	31.3	21.3	6.3
Completing portfolios	2.51	1.16	25.7	21.6	32.4	16.2	4.1

Note. Higher means indicate greater effectiveness of instructional techniques.

Table 17

Pearson correlations for items assessing effectiveness of instructional techniques and knowledge and frequency of use of ABA strategies

Instructional technique	Reviewing case studies	Listening to lectures	Reading books/articles	Observing mentors/cooperating teachers	Practicing and receiving feedback	Reflective journal writing	Watching and reflecting on videotapes	Role-playing	Completing group projects	Completing portfolios
Reviewing case studies	—									
Listening to lectures	.52**	—								
Reading books/articles	.39**	.64**	—							
Observing mentors/cooperating teachers	.44**	.35**	.37**	—						
Practicing and receiving feedback	.31**	.21*	.28**	.62**	—					
Reflective journal writing	.39**	.29*	.33**	.21	.35**	—				
Watching and reflecting on videotapes	.49**	.48**	.35**	.40**	.26*	.45**	—			
Role-playing	.39**	.44**	.27*	.31**	.28*	.41**	.46**	—		
Completing group projects	.43**	.46**	.26*	.24*	.24*	.32*	.49**	.52**	—	
Completing portfolios	.37**	.35**	.37**	.24*	.19	.56**	.53**	.49**	.63**	—
Total knowledge	.05	.14	.24*	.01	.20	.11	.21	.32**	.09	.15
Total frequency	.09	.06	.12	.05	.07	.15	.18	.25*	.11	.20

Note. Higher scores indicate greater effectiveness of instructional techniques and greater knowledge and frequency of use of ABA strategies.
* $p < .05$. ** $p < .01$.

Table 18

Pearson correlations for demographic characteristics and items assessing effectiveness of instructional techniques

Demographic characteristic	Reviewing case studies	Listening to lectures	Reading books/articles	Observing mentors/cooperating teachers	Practicing and receiving feedback	Reflective journal writing	Watching and reflecting on video-tapes	Role-playing	Completing group projects	Completing portfolios
District	-.21	-.01	.12	-.20*	-.16	-.07	-.13	-.23*	-.27*	-.02
Number of years teaching	-.13	.02	.07	-.14	.05	-.06	.01	.08	-.09	-.13
Gender	.17	.24*	.25**	.20*	.17	.05	.24*	.20	.10	.13
Academic degree	-.08	-.01	.01	-.10	.11	-.06	.10	.24*	.07	.05
Behavior management course	-.24*	-.04	-.02	.02	-.14	-.25*	-.11	-.24*	-.11	-.16

Note. Higher scores indicate greater effectiveness of instructional techniques. District coded as 1 or 2. Gender coded as 1 = male, 2 = female. Academic degree coded as 1 = Bachelor's, 2 = Master's, 3 = Doctorate. Behavior management course coded as 1 = took, 2 = did not take.

* $p < .05$. ** $p < .01$.

Table 19

Percentage of teachers whose training did not include instructional techniques

Instructional technique	Valid %
Reviewing case studies	27.6
Listening to lectures	6.6
Reading books/articles	1.9
Observing mentors/cooperating teachers	1.0
Practicing and receiving feedback	2.9
Reflective journal writing	24.5
Watching and reflecting on videotapes	19.2
Role-playing	21.0
Completing group projects	24.5
Completing portfolios	29.5

Table 20

Pearson correlations for items assessing instructional techniques included/not included in training and knowledge and frequency of use of ABA strategies

Instructional technique included/not included in training	Training did/did not include...									
	Reviewing case studies	Listening to lectures	Reading books/articles	Observing mentors/cooperating teachers	Practicing and receiving feedback	Reflective journal writing	Watching and reflecting on videotapes	Role-playing	Completing group projects	Completing portfolios
Reviewing case studies	—									
Listening to lectures	.36**	—								
Reading books/articles	.23*	.24*	—							
Observing mentors/cooperating teachers	.16	.37**	.70**	—						
Practicing and receiving feedback	.29**	.41**	.39**	.57**	—					
Reflective journal writing	.29**	.21*	.08	.17	.32**	—				
Watching and reflecting on videotapes	.31**	.27**	.11	.20*	.36**	.38**	—			

Note. Higher scores indicate greater knowledge and frequency of use of ABA strategies. Training did include technique coded as 0. Training did not include technique coded as 1.

* $p < .05$. ** $p < .01$.

Table 20 (continued)

Pearson correlations for items assessing instructional techniques included/not included in training and knowledge and frequency of use of ABA strategies

Instructional technique included/not included in training	Training did/did not include...									
	Reviewing case studies	Listening to lectures	Reading books/articles	Observing mentors/cooperating teachers	Practicing and receiving feedback	Reflective journal writing	Watching and reflecting on videotapes	Role-playing	Completing group projects	Completing portfolios
Role-playing	.34**	.15	.10	.19	.34**	.27**	.58**	—		
Completing group projects	.37**	.29**	.24*	.17	.31**	.31**	.41**	.52**	—	
Completing portfolios	.46**	.24*	.22*	.15	.28**	.43**	.39**	.44**	.69**	—
Total knowledge	-.14	.12	-.05	.01	-.03	.05	-.06	-.12	-.05	-.12
Total frequency	.04	-.09	.04	-.06	-.15	-.03	-.28**	-.23*	-.03	-.09

Note. Higher scores indicate greater knowledge and frequency of use of ABA strategies. Training did include technique coded as 0. Training did not include technique coded as 1.

* $p < .05$. ** $p < .01$.

Table 21

Percentage of teachers whose training did not include various instructional techniques, by population primarily taught

Population primarily taught	Training did not include reading books/articles	Training did not include reflective journal writing	Training did not include completing group projects
General education	0.0	18.4	21.8
Special education	10.0	35.0	20.0
General and special education	0.0	66.7	62.5

Table 22

Percentage of teachers whose training did not include various instructional techniques, by behavior management course

Behavior management course	Training did not include reviewing case studies	Training did not include listening to lectures	Training did not include watching and reflecting on videotapes	Training did not include completing group projects	Training did not include completing portfolios
Took	5.9	0.0	8.2	13.7	15.7
Did not take	48.1	12.7	29.1	34.5	42.6

Table 23

Multiple regression analysis predicting frequency of use of ABA strategies from whether or not training included instructional techniques, controlling for demographic characteristics and importance of independent reading

Model	Frequency of use				Semi-partial r^2
	B	β	t	p	
(Constant)	45.56		6.05	.000	
Training did/did not include reviewing case studies	2.94	0.18	1.49	.141	.020
Training did/did not include listening to lectures	-1.51	-0.06	-0.48	.633	.002
Training did/did not include reading books/articles	-0.93	-0.02	-0.12	.908	.000
Training did/did not include observing mentors/cooperating teachers	4.17	0.06	0.36	.717	.001
Training did/did not include practicing and receiving feedback	-6.05	-0.15	-1.11	.273	.011
Training did/did not include reflective journal writing	-1.82	-0.11	-0.87	.389	.007
Training did/did not include watching and reflecting on videotapes	-1.78	-0.10	-0.76	.451	.005
Training did/did not include role-playing	-5.51	-0.31	-2.28*	.026	.048
Training did/did not include completing group projects	-0.44	-0.03	-0.16	.871	.000
Training did/did not include completing portfolios	3.21	0.20	1.18	.241	.013
Number of years teaching	0.18	0.21	1.97	.052	.036
Primarily taught special education	3.93	0.21	1.83	.071	.031
Independent reading	1.63	0.21	2.01*	.048	.037

Note. $N = 92$. Higher scores indicate greater frequency of use of ABA strategies as well as greater importance of independent reading. Training did include technique coded as 0. Training did not include technique coded as 1. Primarily taught special education dummy-coded as 0 = not special education, 1 = special education.

* $p < .05$.

Table 24

Means, standard deviations, and percentage of responses assessing frequency of conditions as barriers to implementation

Barrier	<i>M</i>	<i>SD</i>	Valid %				
			Never a barrier	Seldom/rarely a barrier	Sometimes a barrier	Often a barrier	Very often a barrier
Lack of knowledge/skill	2.48	1.05	20.0	30.5	35.2	10.5	3.8
Lack of support from administration	2.43	1.16	26.2	28.0	27.1	14.0	4.7
Lack of feedback/guidance	2.61	1.09	16.8	29.9	34.6	13.1	5.6
Lack of supplies	2.48	1.12	22.4	29.0	32.7	10.3	5.6
Colleagues do not support use	1.93	1.06	46.0	26.0	19.0	7.0	2.0
Not consistent with my general approach to teaching	1.91	0.89	37.5	39.4	18.3	3.8	1.0
Takes too much time and effort	2.08	1.01	36.4	27.1	29.9	4.7	1.9
Did not believe it would work	1.94	0.91	37.4	36.4	21.5	3.7	0.9
Knew others who had tried it and thought it was ineffective	1.87	0.90	40.4	39.4	14.4	4.8	1.0
Thought it would not help me achieve my work goals	1.88	0.84	39.0	37.1	21.0	2.9	0.0
Believed it was not appropriate for the students in my class(es) and their specific problems	2.22	1.03	31.1	27.4	32.1	7.5	1.9

Note. Higher means indicate greater frequency of conditions as barriers to implementation.

Table 25

Pearson correlations for items assessing frequency of conditions as barriers to implementation and knowledge and frequency of use of ABA strategies

Barrier	Lack of knowledge/skill	Lack of support from administration	Lack of feedback/guidance	Lack of supplies	Colleagues do not support use	Not consistent with my general approach to teaching	Takes too much time and effort	Did not believe it would work	Knew other teachers who had tried it and thought it was ineffective	Thought it would not help me to achieve my work goals	Believed it was not appropriate for the students in my class(es) and their specific problems
Lack of knowledge/skill	—										
Lack of support from administration	.33**	—									
Lack of feedback/guidance	.46**	.76**	—								
Lack of supplies	.36**	.54**	.53**	—							
Colleagues do not support use	.48**	.48**	.49**	.50**	—						
Not consistent with my general approach to teaching	.41**	.17	.14	.17	.26**	—					

Note. Higher scores indicate greater frequency of conditions as barriers to implementation and greater knowledge and frequency of use of ABA strategies.

** $p < .01$.

Table 25 (continued)

Pearson correlations for items assessing frequency of conditions as barriers to implementation and knowledge and frequency of use of ABA strategies

Barrier	Lack of knowledge/skill	Lack of support from administration	Lack of feedback/guidance	Lack of supplies	Colleagues do not support use	Not consistent with my general approach to teaching	Takes too much time and effort	Did not believe it would work	Knew other teachers who had tried it and thought it was ineffective	Thought it would not help me to achieve my work goals	Believed it was not appropriate for the students in my class(es) and their specific problems
Takes too much time and effort	.35**	.31**	.34**	.24*	.23*	.35**	—				
Did not believe it would work	.43**	.18	.32**	.24*	.26*	.46**	.41**	—			
Knew other teachers who had tried it and thought it was ineffective	.32**	.14	.19	.16	.19	.53**	.38**	.70**	—		
Thought it would not help me to achieve my work goals	.30**	.05	.15	.12	.13	.57**	.43**	.67**	.71**	—	

Note. Higher scores indicate greater frequency of conditions as barriers to implementation and greater knowledge and frequency of use of ABA strategies.

* $p < .05$. ** $p < .01$.

Table 25 (continued)

Pearson correlations for items assessing frequency of conditions as barriers to implementation and knowledge and frequency of use of ABA strategies

Barrier	Lack of knowledge/skill	Lack of support from administration	Lack of feedback/guidance	Lack of supplies	Colleagues do not support use	Not consistent with my general approach to teaching	Takes too much time and effort	Did not believe it would work	Knew other teachers who had tried it and thought it was ineffective	Thought it would not help me to achieve my work goals	Believed it was not appropriate for the students in my class(es) and their specific problems
Believed it was not appropriate for the students in my class(es) and their specific problems	.27**	.08	.13	.13	.10	.45**	.26**	.52**	.44**	.56**	—
Total knowledge	-.20*	.05	-.08	.08	.06	-.13	-.10	-.23*	-.22*	-.24*	-.11
Total frequency	.00	.14	-.02	.00	.19	.06	-.06	-.05	-.10	-.13	-.18

Note. Higher scores indicate greater frequency of conditions as barriers to implementation and greater knowledge and frequency of use of ABA strategies.

* $p < .05$. ** $p < .01$.

Table 26

Means and standard deviations, one-way ANOVAs assessing population primarily taught and conditions as barriers

Population primarily taught	Frequency of conditions as barriers					
	Lack of supplies		Colleagues do not support use		Not consistent with my general approach to teaching	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
General education	2.32	1.10	1.79	1.05	2.03	0.92
Special education	3.05	1.05	2.47	1.02	1.75	0.72
General and special education	2.63	1.06	1.88	0.83	1.25	0.71

Note. Higher means indicate greater frequency of conditions as barriers to implementation.

Table 27

Pearson correlations for items assessing demographic characteristics and frequency of conditions as barriers to implementation

Demographic characteristic	Lack of knowledge/skill	Lack of support from administration	Lack of feedback/guidance	Lack of supplies	Colleagues do not support use	Not consistent with my general approach to teaching	Takes too much time and effort	Did not believe it would work	Knew other teachers who had tried it and thought it was ineffective	Thought it would not help me to achieve my work goals	Believed it was not appropriate for the student(s) in my class and their specific problems
District	-.34**	-.38**	-.39**	-.08	-.18	-.11	-.08	-.17	-.05	-.09	-.01
Number of years teaching	-.23*	-.03	-.15	-.20*	-.12	-.14	-.04	-.07	-.06	-.15	-.08
Gender	-.19	.08	.02	.13	.09	.05	-.01	-.21*	-.16	-.17	-.13
Academic degree	.06	-.00	.03	-.09	.03	-.01	.10	.10	.04	.11	.14
Behavior management course	-.14	-.10	-.09	-.13	-.23*	-.03	.12	-.04	-.06	-.05	-.15

Note. Higher scores indicate greater frequency of conditions as barriers to implementation. District coded as 1 or 2. Gender coded as 1 = male, 2 = female. Academic degree coded as 1 = Bachelor's, 2 = Master's, 3 = Doctorate. Behavior management course coded as 1 = took, 2 = did not take.

* $p < .05$. ** $p < .01$.

Table 28

Means and standard deviations, one-way ANOVAs assessing schools and conditions as barriers

School	Frequency of conditions as barriers							
	Lack of knowledge/skill		Lack of support from administration		Lack of feedback/guidance		Believed it was not appropriate for the student(s) in my class and their specific problems	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
School 1	2.86	1.03	3.00	1.31	2.87	1.25	2.40	1.06
School 2	2.80	1.19	2.79	1.24	3.05	1.15	2.17	1.06
School 3	2.20	0.87	1.72	0.74	2.12	0.78	2.60	1.08
School 4	2.00	0.71	2.20	0.87	2.20	0.82	1.79	0.78

Note. Higher means indicate greater frequency of conditions as barriers to implementation.

Table 29

Multiple regression analysis predicting frequency of use of ABA strategies from frequency of conditions as barriers to implementation, controlling for demographic characteristics and importance of independent reading

Model	Frequency of use				Semi-partial r^2
	B	β	t	p	
(Constant)	37.56		9.08	.000	
Lack of knowledge/skill	-0.07	-0.01	-0.08	.935	.000
Lack of support from administration	1.64	0.25	1.63	.108	.023
Lack of feedback/guidance	-1.61	-0.23	-1.45	.151	.018
Lack of supplies	-0.80	-0.12	-0.90	.371	.007
Colleagues do not support use	1.17	0.16	1.29	.202	.014
Not consistent with my general approach to teaching	1.96	0.23	1.80	.076	.028
Takes too much time and effort	-0.36	-0.05	-0.42	.678	.002
Did not believe it would work	1.25	0.15	0.96	.341	.008
Knew others who had tried it and thought it was ineffective	-0.96	-0.12	-0.75	.457	.005
Thought it would not help me achieve my work goals	-0.46	-0.05	-0.32	.754	.001
Believed it was not appropriate for the students in my class(es) and their specific problems	-1.26	-0.17	-1.44	.153	.018
Number of years teaching	0.17	0.19	1.86	.066	.030
Primarily taught special education	4.44	0.23	2.22*	.029	.043
Independent reading	1.61	0.20	2.03*	.045	.036

Note. $N = 97$. Higher scores indicate greater frequency of use of ABA strategies, greater frequency of conditions as barriers to implementation, and greater importance of independent reading. Primarily taught special education dummy-coded as 0 = not special education, 1 = special education.

* $p < .05$.

APPENDIX A

Behavior Management Survey

1. Approximately how many years have you been teaching? _____
2. What is your gender? Male Female
3. What academic degree(s) have you obtained? (Please check all that apply)
 Bachelor's Master's Doctorate Other _____
4. What grade(s) do you teach? (Please check all that apply)
 Kindergarten 1st 2nd 3rd 4th 5th
5. What type of population do you primarily teach? General Education Special Education
6. In your undergraduate or graduate education, did you take a course that focused primarily on behavior management? Yes No
7. Please rate the following behavior management strategies according to how knowledgeable you are about them and the frequency with which you use them in your classroom.

Positive Reinforcement – Social (Teacher gives student attention/praise when student demonstrates positive behavior.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Positive Reinforcement – Preferred Activity (Student earns preferred activity, such as computer time or class helper, when he/she demonstrates positive behavior.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Positive Reinforcement - Token Economy (When student demonstrates positive behavior, he/she earns tickets, points, etc. that can later be traded in for larger prizes.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Positive Reinforcement – Food (Student earns candy/food for demonstrating positive behavior.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Shaping (Teacher rewards student for reaching small steps toward positive behavior; student continues to be rewarded until he/she learns behavior completely.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Behavior Contract (Student and teacher decide together what behavior(s) the student will work on and the rewards he/she will earn.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Modeling (Teacher demonstrates the positive behavior(s) that he/she wants student to learn/adopt.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Prompting/Fading (Teacher prompts/guides student to learn positive behavior and then slowly takes away this guidance as student demonstrates the positive behavior.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Group Contingency (Rewards for class depend on one student or small group of students demonstrating positive behavior.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Extinction (Teacher stops his/her action(s) that are contributing to student's inappropriate behavior – i.e. if attention is rewarding to student, teacher ignores student.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Punishment (Teacher verbally reprimands student or takes away a privilege when student's behavior is inappropriate.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Reinforce Incompatible Behavior (Teacher rewards student for demonstrating positive behavior(s) that are opposite of student's inappropriate behavior – i.e. student is rewarded for staying in seat when he/she often leaves seat.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Differential Reinforcement (Teacher rewards student's positive behavior while simultaneously not rewarding student's inappropriate behavior – i.e. teacher praises student for looking at blackboard/attending while ignoring the same student kicking his/her desk.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Time Out (Student is temporarily separated from peers/situation following inappropriate behavior.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

Overcorrection (When student's behavior is inappropriate, teacher requires student to practice more positive behavior – i.e. student who is rude to peer is required to practice giving his/her peer at least one compliment every day.)

Not at all Knowledgeable <input type="checkbox"/>	Slightly knowledgeable <input type="checkbox"/>	Somewhat knowledgeable <input type="checkbox"/>	Knowledgeable <input type="checkbox"/>	Very knowledgeable <input type="checkbox"/>
Never use <input type="checkbox"/>	Seldom/rarely use <input type="checkbox"/>	Sometimes use <input type="checkbox"/>	Often use <input type="checkbox"/>	Very often use <input type="checkbox"/>

8. In your attempts to learn to use the above behavior management strategies, how important were the following?

	Not at all important	Slightly important	Somewhat important	Important	Very important
a) Professional development activities (i.e. workshops, conferences)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Discussion/working with colleagues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) University coursework (graduate/undergraduate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Student teaching experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Independent reading (i.e. books, journal articles)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. How effective were the following instructional techniques in supporting your learning about the above behavior management strategies?

	Not at all effective	Slightly effective	Somewhat effective	Effective	Very effective	My training did not include this technique
a) Reviewing case studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Listening to lectures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Reading books/articles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Observing mentors/cooperating teachers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Practicing and receiving feedback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Reflective journal writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Watching and reflecting on videotapes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Role-playing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Completing group projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Completing portfolios	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. How frequently are the following conditions barriers to your use of behavior management strategies?

	Never a barrier	Seldom/rarely a barrier	Sometimes a barrier	Often a barrier	Very often a barrier
a) Lack of knowledge/skill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Lack of support from administration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Lack of feedback/guidance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Lack of supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Colleagues do not support use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Not consistent with my general approach to teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Takes too much time and effort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Did not believe it would work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Knew other teachers who had tried it and thought it was ineffective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Thought it would not help me achieve my work goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) Believed it was not appropriate for the students in my class(es) and their specific problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX B

Principal Approval Letter

February, 2010

Dear Principal,

I am a school psychology doctoral candidate at the Rutgers University Graduate School of Applied and Professional Psychology. I would like to invite the teachers employed at your school to participate in a study that I am conducting this school year (2009-2010). The purpose of this research is to explore elementary teachers' knowledge and use of behavior management strategies as well as barriers that might prevent the implementation of behavior management strategies.

A total of approximately 200 elementary teachers will be asked to participate in this study. Each teacher will be asked to complete a 3 page survey about behavior management strategies that he/she is knowledgeable about and implements in his/her classroom. The survey also contains a few brief demographic questions. It should take approximately 20 minutes for each teacher to complete the entire survey.

Participants' answers will be **anonymous** and will not be linked to them in any way. In addition, the name of your school and school district will remain anonymous. There are no foreseeable risks to participation in this study. A benefit to this study is that it may produce valuable information about how elementary teachers learn about behavior management strategies and conditions that are barriers to the implementation of behavior management strategies. This information can then be used by teachers, principals, professors of teacher education programs, school psychologists, and other professionals who consult with elementary teachers to more effectively educate teachers-in-training about behavior management strategies and how these strategies can be implemented.

Teachers' participation in this study is **voluntary**. They may choose not to participate in this study and if they do choose to participate, they may change their mind and stop working on the survey at any time without any penalty to them.

If you have any questions about the study procedures, you may contact me, Marissa Randazzo, Psy.M. at maris1179@yahoo.com. If you have any questions about the rights of the teachers as research participants, you may contact the IRB Administrator at Rutgers University at:

Rutgers University Institutional Review Board for the Protection of Human Subjects
Office of Research and Sponsored Programs
3 Rutgers Plaza
New Brunswick, NJ 08901-8559
Tel: 732-932-0150 ext 2104
Email: humansubjects@orsp.rutgers.edu

If you agree to allow the teachers employed at your school to be invited to participate in this study, please sign and date below.

Principal's Signature

Date

APPENDIX C

Rutgers, The State University of New Jersey
INFORMED CONSENT FORMElementary Teachers' Knowledge and Use of Behavior Management Strategies

You are invited to participate in a study being conducted by a school psychology doctoral candidate at Rutgers University. The purpose of this research is to explore elementary teachers' knowledge and use of behavior management strategies as well as barriers that might prevent the implementation of behavior management strategies.

Approximately 200 elementary teachers will be asked to participate in this study. You will be asked to complete a 3 page survey about behavior management strategies that you are knowledgeable about and implement in your classroom. You will also be asked a few brief demographic questions. **It should take approximately 10 - 15 minutes to complete the entire survey.**

Your answers will be **anonymous** and will not be linked to you in any way. There are no foreseeable risks to participation in this study. This study may produce valuable information about how elementary teachers learn about behavior management strategies and conditions that are barriers to the implementation of behavior management strategies. This information can then be used by teachers, principals, professors of teacher education programs, school psychologists, and other professionals who consult with elementary teachers to more effectively educate teachers-in-training about behavior management strategies and how these strategies can be implemented.

Your participation in this study is **voluntary**. You may choose not to participate in this study and if you do choose to participate, you may change your mind and stop working on the survey at any time without any penalty to you.

If you have any questions about the study procedures, you may contact either the Principal Investigator, Marissa Randazzo, Psy.M. (maris1179@yahoo.com, (973) 769-9149), or the Co-Principal Investigator, Susan Forman, Ph.D. (sgforman@rci.rutgers.edu, (732) 445-2000, ext. 119), at: Graduate School of Applied and Professional Psychology, 152 Frelinghuysen Road, Piscataway, NJ 08854-8020.

If you have any questions about your rights as a research participant, you may contact the IRB Administrator at Rutgers University at: Rutgers University Institutional Review Board for the Protection of Human Subjects, Office of Research and Sponsored Programs, 3 Rutgers Plaza, New Brunswick, NJ 08901-8559, (732) 932-0150, ext. 2104, humansubjects@orsp.rutgers.edu.

You may make a copy of this consent form for your records.

Please check the appropriate box below indicating whether you agree to participate in this study. Then return this form, with your completed survey, to the designated envelope in your school's main office.

- I agree to participate in this study.
- I do not agree to participate in this study.

APPENDIX D

Survey Cover Sheet

**Please place your
completed survey, with
your consent form attached,
in the large envelope in the
main office marked
“Dissertation Surveys”**

by JUNE 2, 2010

**Thank you again for your
participation!**

APPENDIX E

Survey Reminders

Reminder 1



This is a friendly reminder about my dissertation survey, if you haven't completed it yet. There are extra copies in the main office if you need one. If you already filled one out, thank you! I appreciate your help, especially at this time of year. 😊

- Marissa Randazzo

Reminder 2

One last friendly reminder about my dissertation survey! The last day to hand it in is tomorrow. If you have not completed it yet, there are still extra copies in the main office. Thank you again.

- Marissa Randazzo