Professional Development in Practice: Improving Novice Teachers' Use of Evidence-based Classroom Management Practices

PROFESSIONAL DEVELOPMENT IN PRACTICE: IMPROVING NOVICE TEACHERS' USE OF EVIDENCE-BASED CLASSROOM MANAGEMENT PRACTICES

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Abstract

Employing evidence-based classroom management (EBCM) practices can reduce disruptive behavior and improve academic engagement (Brophy & Good, 1986; Simonsen et al., 2014). Additionally, teachers who use EBCM practices report higher levels of efficacy about themselves, their instruction, and their students (Kelm & McIntosh, 2012). Novice educators possess minimal knowledge of EBCM practices (Stough & Montague, 2015). The limited preparation during their preservice programs, minimal induction support, and poorly designed in-service professional development may contribute to their lack of knowledge (Ingersoll & Strong, 2012). Despite much excellent work, scholars in the field have not yet adequately addressed professional development methods to improve novice teachers' use of EBCM practices and monitor student outcomes (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Without such tools, educators will continue to have ill-prepared novice teachers and a cycle of teachers entering and leaving the field (Ingersoll & Merrill, 2010). This purpose of this study was to examine the effect of a strategically designed practice-based professional development (PBPD) workshop on EBCM practices with six elementary teachers during their first three years of teaching. Using a multiple-baseline design, I found that a program of PBPD increased teachers' knowledge, practice, and self-efficacy, and changes in teachers' actions also increased student engagement. In addition, teachers implemented EBCM practices with fidelity and rated the PBPD as socially acceptable.

Keywords: classroom management, novice teacher, practice-based professional development, professional development, self-efficacy

DEDICATION

To Michael, witty and loving always.

To Eli, inquisitive and inspiring always.

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CHAPTER I: CRITICAL NEED TO PROVIDE NOVICE TEACHERS CLASSROOM MANAGEMENT

There is no question that teachers play an important role in the lives of their students. At the same time, teachers have incredibly challenging jobs that require them to execute diverse skills to reach their students. Teachers are expected to draw on content knowledge, pedagogical knowledge, understanding of their students, prior student knowledge, and effective classroom management practices to be effective educators (Bateman, 2007; Emmer & Stough, 2001; Harris & Rutledge, 2010; Stough & Montague, 2015). These skills are not executed in isolation; rather evidence-based classroom management (EBCM) practices are pedagogical skills that teachers must be able to embed simultaneously into their instruction to create a positive learning environment, maximize time, and promote student learning (Bateman, 2007; Evertson & Weinstein, 2006). The task can be challenging for all teachers, but especially for novice teachers.

Novice Teachers and Classroom Management

There are many terms used to describe teachers in their first years of teaching such as "beginning teacher" (Ingersoll, 2012), "new teacher" (Stallion & Zimpher, 1991), or "early career" (Shernoff et al., 2011). For the purposes of this study, the term, novice teacher refers to educators within their first three years of teaching (Guarino, Santibanez, & Daley, 2006; Pogodzinski, Youngs, & Frank, 2013). In 2008, nearly 200,000 first-year teachers entered the teaching force in the United States (U.S.; Ingersoll & Perda, 2010). In the same year, over one-quarter of the entire U.S. teaching force had five or fewer years of experience (Ingersoll & Merrill, 2010). The terms "trial-by-fire," "sink-or-swim," and "lost-at-sea" have been used to

describe the multiple challenges (e.g., lack of content knowledge or classroom management skills or both) these novice and beginning teachers encounter (Flores & Day, 2006; Ingersoll, 2012; Smith & Ingersoll, 2004), as they are largely left on their own. It is not surprising, then, that novice teachers report significantly lower self-efficacy (their perceptions of their ability to affect student behaviors such as academic achievement, motivation, and on-task behavior) in the area of classroom management than experienced teachers report (Tschannen-Moran & Hoy, 2007).

These challenges, among others, have prompted a large percentage of teachers to leave the field after a short period of teaching (Ingersoll & Smith, 2003). Researchers estimate that almost 10% of all teachers leave before the end their first year and anywhere between 40% and 50% of teachers leave the profession within their first five years of teaching (Ingersoll, 2003, 2012; Ingersoll & Perda, 2010; Ingersoll & Smith, 2003). When surveyed, teachers cited student discipline and misbehavior as the second leading factor for leaving the field (Ingersoll & Smith, 2003; Sutton, Mudrey-Camino, & Knight, 2009) and reported feeling underprepared to prevent and address challenging behaviors in the classroom (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Evertson & Harris, 1991). Therefore there is a clear need to support novice teachers in the area of classroom and behavior management. Thus the purpose of this dissertation study is to evaluate a classroom management proffessional development program for novice teachers.

Challenging Behavior in the Classroom

Researchers estimate that 12% of school-age youth exhibit mild manifestations of emotional or behavioral disorders (EBD; Forness, Freeman, Paperella, Kauffman, & Walker, 2012). Based on this statistic, in a class of 20 students, it is possible that two to three students

will exhibit manifestations of EBD. Manifestations of EBD typically include challenging behaviors such as defiance, inappropriate outbursts, physical aggression, or painfully shy and withdrawn behavior (Landrum, 2011). Students exhibiting manifestations of EBD typically demonstrate substandard performance in academics and lack the social skills necessary to develop and maintain friendships (Lane, Barton-Arwood, Nelson, & Wehby, 2008; Trout, Nordness, Pierce, & Epstein, 2003). Such challenges can disrupt the ability of students to learn and of teachers to deliver instruction effectively. With such a high number of students exhibiting challenging behaviors and only about 1% of students receiving special education services under the special education label of Emotional Disturbance (Individuals with Disabilities Education Act, 2004), it is highly likely that general educators will be primarily responsible for delivering instruction to students manifesting behaviors associated with EBD. Therefore, it is imperative for all educators to know how to address behavior problems using evidence-based classroom management (EBCM) practices (Farley, Torres, Wailehua, & Cook, 2012). Given the number of students exhibiting manifestations of EBD, and the significant percentage of new teachers citing classroom management as one of their greatest concerns (Wei et al., 2009), and a substantial percentage of teachers leaving the profession every year, these questions arise: What are the evidence-based classroom management practices that these teachers can employ? Why are teachers unprepared to implement these EBCM practices? How can we improve their use of appropriate EBCM practices?

Evidence-Based Classroom Management Practices

There is a general consensus that teachers must be competent in utilizing a series of nonacademic teaching skills to be successful (Bateman, 2007; Lewis & Sugai, 1999; Oliver & Reschly, 2007; Reinke, Herman, & Sprick, 2011; Simonsen et al., 2008). Reinke and colleagues

(2011) categorized these skills as follows: (a) classroom structure (e.g., physical layout); (b) behavioral expectations (e.g., clear classroom expectations, rules, and routines); (c) instructional management (e.g., active supervision, opportunities to respond); (d) teacher-student interactions (e.g., noncontingent interactions); (e) responding to appropriate behavior (e.g., contingent behavior-specific praise, reinforcement); and (f) responding to inappropriate behavior (e.g., planned ignoring, differential reinforcement).

However moving EBCM practices from research into applied settings and teachers' repertoires can be challenging (Gersten, Vaughn, Deshler, & Schiller, 1997; Landrum, Cook, Tankersley, & Fitzgerald, 2007). First, teachers might not have enough knowledge about which strategies are considered evidence-based (Burns & Ysseldyke, 2009; Conroy & Sutherland, 2012). Second, teachers may have knowledge but not value research-supported practices or not implement them with fidelity (Boardman, Arguelles, Vaughn, Hughes, & Klingner, 2005; Landrum et al., 2007). Third, teachers often have limited opportunities to practice a strategy and receive performance feedback (Fixsen & Paine, 2009). This poor state of the field for implementing EBCM practices prompts one to look at both teacher preparation activities and professional development practices.

Teacher Preparation

Many have argued that preservice teachers do not receive sufficient training in classroom management (e.g., Evertson & Weinstein, 2006; Greenberg, Putman, & Walsh, 2013; Oliver & Reschly, 2010). Fewer than half (44%) of the top 50 universities in the United States offer specific courses in classroom management (Stough, Williams, & Montague, 2004 as cited in Stough & Montague, 2015). An even smaller percentage (27%) of special education teacher preparation programs offer courses devoted solely to classroom management. Therefore, it is

likely that most schools of education are incorporating instruction in classroom management practices within other general pedagogy courses. O'Neill and Stephenson (2011) identified 30 out of 35 teacher preparation programs that embed classroom management content into other courses (e.g., introductory education courses). Furthermore, O'Neill and Stephenson found the mean number of hours devoted to classroom management in these courses to be 2.3 hours, compared to 25.5 hours spent on content. One reason for this limited emphasis is that teacher preparation programs have shifted programmatic foci to content area requirements while deemphasizing classroom management (Imig & Imig, 2008). This change has been attributed to educational reform movements (e.g., No Child Left Behind, 2004) coupled with the lack of classroom management competencies set by professional organizations and state licensure boards (Brownell, Ross, Colon, & McCallum, 2005; Stough, 2006; Stough & Montague, 2015). As a result, most pre-service teachers receive little training in classroom management during their teacher preparation programs (Stough & Montague, 2015). To illustrate, Begeny and Martens (2006) found that only 43% of surveyed teachers indicated that their coursework included classroom and instructional practices, such as how to deliver reinforcement.

Therefore, pre-service teachers often do not possess adequate knowledge of which management strategies are considered evidence-based and are not allowed the opportunity to implement these strategies before entering the classroom (Burns & Ysseldyke, 2009; Conroy & Sutherland, 2012; Fixsen & Paine, 2009). Additionally, preservice teachers may not have a thorough enough understanding of EBCM practices to value research-supported practices (Boardman, Arguelles, Vaughn, Hughes, & Klingner, 2005). With the minimal amount of training provided and a large percentage of teachers reporting feeling unprepared to manage challenging classroom behaviors, we must identify a way to provide teachers with the knowledge

and skills to be successful classroom managers (Albin & Robinson, 2002; MacDonald & Speece, 2001). Thus it is imperative that school districts support teachers by addressing behavior management practices and student behavior through professional development (Epstein, Atkins, Cullinan, Kutash, & Weaver, 2008; Sutherland, Denny, & Gunter, 2005).

Professional Development

Practicing teachers may not implement EBCM practices because they have not received adequate professional development on how to integrate EBCM practices into their teaching repertoire (Begeny & Martens, 2006). Wei et al. (2009) reported that surveys conducted in 1999-2000 and 2003-2004 showed 17% and 18% (respectively) of teachers ranked "student discipline and management" as their top priority for professional development with only two other topics ranking slightly higher. However, with few exceptions, professional development related to classroom management is unlikely to provide novice teachers with the skills they need to be successful classroom managers (e.g., Briere, Simonsen, Sugai, & Myers, 2015) or to report high levels of self-efficacy in the area of classroom management (Reinke, Stormont, Herman, Wachsmuth, & Newcomer, 2015).

Unfortunately, the majority of school-based professional development can be characterized as train-and-hope practice (Stokes & Baer, 1977): A workshop is delivered over a short period of time, on a topic that might be relevant to the participants, in a lecture format, and the trainer hopes the participants learn a sufficient amount of information to influence their practice and their students' behaviors. Traditional professional development workshops are not typically aligned with on-going practice (Ball & Cohen, 1999; Loucks-Horsley, Hewson, Love, & Stiles, 1999). Moreover, the content of the workshops are often based on provider knowledge rather than the needs of the teachers (Hill, 2007). During these sessions, researchers have

indicated it is rare for teachers to have opportunities to practice new skills or receive performance feedback (Allen & Forman, 1984; Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005). Further, teachers who only receive theoretical information during professional development are not likely to transfer the content from the training to the classroom, making the professional development ineffective (Joyce & Showers, 2002). In addition, traditional professional development does not track: (a) whether the teacher participants are implementing the new skills in the classroom with fidelity, and (b) whether the professional development resulted in durable changes in teacher skills and behavior (Ball & Cohen, 1999; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Fixsen and colleagues (2005) contend that lecture-based professional development, on its own, does not support the implementation of classroom management strategies. Therefore, professional development providers are charged with the responsibility of building novice teachers' repertoires to help translate EBCM strategies into daily instruction.

To that end, a growing body of research has demonstrated that systematic, on-going teacher professional development is more effective than traditional one-shot workshops (Ball & Cohen, 1999; Desimone, 2009; Klingner, 2004). To shift away from train-and-hope practices, educators must consider practices that build long-term teacher capacity to increase teacher expertise and improve student learning in an effort to help novice teachers adopt new practices (Desimone, 2009; Klingner, 2004; Wei et al., 2009). Professional development is most effective when practitioners receive coordinated training and consultation (Simonsen et al., 2014). Additionally, to encourage novice teachers to use new practices, professional development providers need to provide opportunities to practice skills followed with feedback (Gersten et al., 1997).

A variety of frameworks exist to design professional development that address the aforementioned characteristics. One in particular, practice-based professional development (PBPD; Ball & Cohen, 1999), has been shown to be effective in delivering professional development on both academic content (Harris et al., 2012) and behavioral interventions (Lane et al., 2015a). However, PBPD has yet to be implemented and empirically evaluated with novice in-service teachers' use of a package of EBCM practices.

Purpose of the Present Study

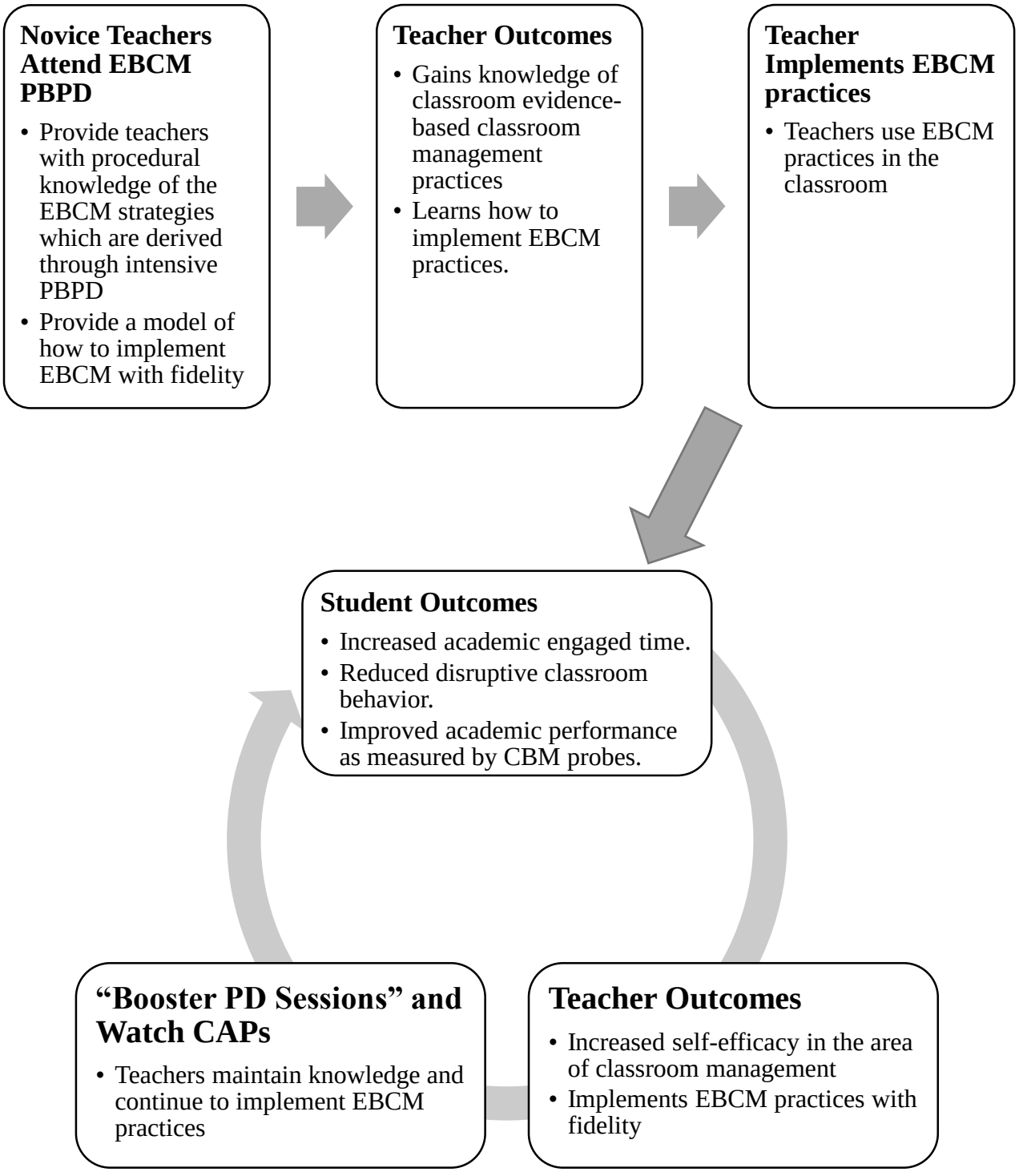
The underlying rationale for this project is that most educators enter teaching with minimal knowledge of behavior management practices, and professional development can be designed strategically to allow for better implement EBCM practices. In this study, I combine criterion-referenced instructional design principles with the PBPD framework to teach novice teachers EBCM. PBPD has yet to be investigated for use with novice teachers in the area of EBCM practices. For this study, I use a single-subject multiple baseline design to investigate the efficacy of a strategically designed PBPD with novice teachers. I evaluate the effects of a PBPD on teachers' use of EBCM as well as their knowledge practice, along with their self-efficacy while also monitoring student behavior and academic outcomes (see Figure 1 for contextual framework). The two main research questions that drive this study are:

- Whether Practice-Based Professional Development increases teachers' use of evidence-based classroom management practices with fidelity.
- Whether teachers' use of evidence-based classroom management practices increases student engagement and academic performance.

Beyond these two main questions I also examine more specific questions. Following a literature review, I discuss additional topics (e.g., whether student risk status changes over time,

correlations among variables, social validity of EBCM PBPD, teacher self-efficacy). Findings from this study have implications for teachers, district administrators, and teacher educators.

Figure 1.1 Logic Model: The Rationale for EBCM PBPD with Novice Teachers



CHAPTER II: REVIEW OF THE LITERATURE

It is critical to examine the literature base surrounding professional development related to EBCM practices for novice teachers. To that end, this chapter is divided into four parts. The first section addresses the body of literature surrounding classroom management with evidence of the several classroom management practices. Next, an overview of the state of professional development is provided, including a description of various professional development models. In the third section, the existing research on novice teacher professional development in the area of classroom management is presented. Specifically, it includes a comprehensive overview of the previous studies with novice teachers. Following, that, the theoretical framework driving the present research study is presented along with the conceptual framework that includes the use of the practice-based professional development framework (Ball & Cohen, 1999) to create the multifaceted training on evidence-based classroom management practices with novice teachers. The chapter concludes with the rationale for the current study as well as the research questions.

Classroom Management

There are many different perspectives on and definitions of classroom management (Emmer & Sabornie, 2015). Educators have viewed classroom management as a "bag of tricks" (as described in Brophy, 1988) or reactive classroom discipline tactics rather than a suite of proactive research-based skills that are central to teacher development (Emmer & Sabornie, 2015; Sugai & Horner, 2002). McCaslin and Good (1998) note that when students fail to respond to a teacher, classroom management strategies often include an array of punishment tactics. Although reactive practices with an emphasis on punishment are likely to produce short-term reductions in problem behavior, they also exacerbate antisocial behavior, and fail to create a positive climate that prevents the development of antisocial behavior (Sugai & Horner, 2002). In

light of the ineffectiveness of reactive discipline, classroom management historically has been associated with classroom discipline that emphasizes the response of misbehavior (Emmer & Sabornie, 2015). In 1986, Doyle proposed a definition to classroom management which included a variety of proactive teacher based tactics and strategies (e.g., planning, routines, monitoring) that engage students and establish order. These recommendations align with the core features of positive behavior supports (Sugai & Horner, 2009).

Definition

Although definitions vary across different reports and papers, the essential features of effective classroom management are similar. Evertson and Weinstein (2006) extend Doyle's (1986) concept by further defining classroom management as:

> the actions teachers take to create an environment that supports and facilitates both academic and social-emotional learning. It not only seeks to establish and sustain an orderly environment so students can engage in meaningful academic learning, it also aims to enhance students' social and moral growth. (p. 4)

Brophy (1988) characterized classroom management as the "major teaching functions" including classroom design (e.g., visibility) and teaching strategies (e.g., monitoring students' progress). Teaching functions are correlated with student behavior (Doyle, 2006) and achievement (Brophy & Good, 1986). Many evidence-based practices are grounded in the applied behavior analysis principles (Baer, Wolf, & Risley, 1968). Although many of the discrete practices encompass classroom management (Simonsen et al., 2008), they must be performed in unison (Emmer & Stough, 2001). One way to organize the plethora of EBCM practices is through the Antecedent-Behavior-Consequence model.

Antecedent-Behavior-Consequence Model

Classroom management is an umbrella term that contains a plethora of teacher behaviors which are distributed into a three-term contingency; Antecedent-Behavior-Consequence (ABC). A behavior is a specific observable and measurable action (Cooper, Heron, & Heward, 2007). In the ABC model, an antecedent is defined as "an environmental condition or stimulus change existing or occurring prior to a behavior of interest" (p. 689) and a behavior is defined as a specific observable and measurable action by the teacher. Finally, consequences affect the frequency that student behavior will occur in the future under similar conditions (Cooper et al., 2007). In the classroom, antecedent-based strategies prompt desirable behaviors. Specific teaching behaviors maximize student achievement and engagement. And teacher delivered, consequence-based strategies maintain, increase, or decrease the likelihood of an undesirable behavior to reoccur. When looking at the ABC sequence, the antecedents teach students how and when to engage in a desired behavior. Whereas the consequences determine the likelihood a behavior will occur. Thus, to manage classroom behavior successfully, teachers must employ antecedent strategies, teaching behaviors, and appropriate consequences throughout their instruction. In the following section, I provide an overview of the ABC variables that affect behavior.

Antecedent-based strategies. An antecedent adjustment prompts a student to perform a desired behavior. Martin et al.'s (in press) definition of classroom management, defines the antecedents as teacher actions that guide classroom activities and instruction. These antecedent teacher actions are "preplanned efforts to prevent misbehavior" (Martin et al., in press, p. 12). Examples of effective antecedent-based strategies include: (a) designing the environment to promote positive interactions and prevent disruptive behavior; (b) providing students with a

visible daily schedule; (c) posting the classroom expectations; and (d) systematically teaching classroom procedures (Reinke et al., 2011).

Teaching behaviors. Teachers can affect student behavior by engaging in specific teaching behaviors. Teaching behaviors include teaching students expected classroom expectations and routines (Reinke et al., 2011) and providing examples and nonexamples of expected classroom behaviors. Explicit or direct instruction (small d, small i) also fall under the umbrella of teaching behaviors. The following behaviors are included when delivering explicit instruction: (a) provide students with an advanced organizer, (b) introduce and model new skills, (c) provide opportunities for guided student practice, (d) program for independent practice, (e) include an end-of-the lesson wrap up for students, and (f) conduct informal assessments of student learning (Lane, Menzies, Bruhn, & Crnobori, 2011).

Consequence-based strategies. In the classroom, consequence-based strategies are related to the specific teacher behaviors that follow student behavior. Consequences such as behavior-specific praise or token economies strengthen or increase the likelihood of a desirable behavior to reoccur. Differential reinforcement or response-cost procedures are designed to decrease undesirable behaviors (Cooper et al., 2007).

Taken together, the antecedents, teaching behaviors, and consequences create a paradigm for classroom management. To prevent and respond to behavior problems in the classroom successfully, teachers must be equipped with knowledge on how to execute the various skills associated with the ABC model (Cooper et al., 2007). Only certain ABC strategies have been shown to change student behavior effectively.

Table 2.1. *Evidence-based Classroom Management Practices*

Strategy	Epstein et al. (2008)*	Oliver and Reschly (2007)	Simonsen et al. (2008)	# of Reviews Recommended
Antecedent				
Physical Arrangement	X	X	X	3
Post, teach, review, and provide feedback on expectations	X	X	X	3
Daily schedule is posted and clearly visible to students	X	X		2
Classroom routines are systematically taught, reinforced, and monitored	X	X		2
High classroom structure			X	1
Behavior				
Active supervision	X	X	X	3
Class-wide peer tutoring	X	X	X	3
High rate of opportunities to respond	X	X	X	3
Response cards		X	X	2
Direct instruction	X		X	2
Computer-assisted instruction			X	1
Guided notes			X	1
Consequence				
Specific and/or contingent praise	X	X	X	3
Class-wide group contingencies	X	X	X	3
Token economy	X	X	X	3
Differential reinforcement	X	X	X	3
Behavior contracting		X	X	2
Performance feedback	X		X	2
Planned ignoring plus contingent praise and/or instruction of classroom rules		X	X	2
Response cost		X	X	2
Time out from reinforcement		X	X	2
Error corrections			X	1
Total EBCM Practices	**13**	**16**	**20**	

Note. * Recommendations referring to secondary or tertiary support, professional relations, schoolwide programs, and implementation were not included.

Research on EBCM Practices

The following section contains an analysis of the three foundational reviews of the research on EBCM practices that have been associated with the ABC model discussed previously: Epstein, Atkins, Cullinan, Kutash, and Weaver (2008); Oliver and Reschly (2007); and Simonsen, Fairbanks, Briesch, Myers, and Sugai (2008). These reviewers have highlighted over a dozen strategies that effective teachers demonstrate to both decrease inappropriate behavior and to increase student engagement. These reports synthesized the literature and laid the groundwork for the field by identifying dozens of EBCM practices. See Table 2.1 for a complete list of the practices highlighted in the reviews.

Epstein, Atkins, Cullinan, Kutash, and Weaver (2008)

In another review of the research, a panel of experts proposed a series of classroom management recommendations for elementary general education teachers to reduce problem behavior (Epstein, Atkins, Cullinan, Kutash, & Weaver, 2008). Epstein et al. reported that three practices were found to have strong evidence supporting their effectiveness. Based on their review, the first recommendation by the panel was to identify and understand why the problem behavior is occurring by recording data. Specifically, teachers should observe the student behavior to determine the antecedents that prompt the behavior along with the consequences that maintain the behavior. The second recommendation was to structure the classroom environment to decrease the likelihood of problem behavior. Suggestions include teaching (and reinforceing) behavioral expectations, rearranging the classroom environment, creating a schedule, and employing learning activities that promote student engagement. The final recommendation based on strong evidence was to teach and reinforce new behaviors and skills to replace the problem

behaviors. Additionally teachers should provide students with opportunities to practice exhibiting their replacement behaviors.

Oliver and Reschly (2007)

In 2007, Oliver and Reschly provide a comprehensive list of classroom management practices which are designed for teacher preparation programs. The Oliver and Reschly (2007) tool capture the essential components of effective instruction based on the work of Carnine (1979) and others (e.g., Emmer & Stough, 2001). Examples include: structuring the environment, frequent opportunities to respond, immediate feedback, active supervision, and data collection. Oliver and Reschly (2014) also outlined the components of classroom management. Their recommendations are based on a detailed review on special education teacher preparation and the critical components outlined in the meta-analysis (Oliver & Reschly, 2007, 2010). They described the critical components of classroom management as a packaged that should be taught together rather than scattered throughout various courses (Oliver & Reschly, 2014). The core components include: environment structure; active supervision; classroom rules and routines; increasing appropriate behavior; decreasing inappropriate behavior; and schoolwide behavioral expectations.

Simonsen, Fairbanks, Briesch, Myers, and Sugai (2008)

Simonsen and colleagues (2008) reviewed the research on classroom management practices. They reviewed ten college and graduate-level classroom management textbooks to identify key topics. Next they conducted a systematic literature search on each of the topics. Studies (N = 81) were read and evaluated using criteria similar to those used by the What Works Clearinghouse to determine whether they were supported by evidence. Through this approach, Simson et al. identified 20 evidence-based classroom management practices that fell into five

broad categories: (a) maximizing structure and predictability; (b) posting, teaching, reviewing, monitoring, and reinforcing expectations; (c) actively engaging students in observable ways; (d) using a continuum of strategies to acknowledge appropriate behavior; and (e) using a continuum of strategies to respond to inappropriate behavior. Each broad category contained two to six practices with three to eight studies supporting the effectiveness of the practice. The work of Simonsen et al. was an important step in examining and identifying EBCM practices.

To be an effective educator, research has shown that classroom management skills must be performed in unison rather than in isolation (Evertson & Weinstein, 2006; Oliver et al., 2007; Oliver & Reschly; 2010). Moreover, there is preliminary evidence that professional development on instructional management practices such as providing opportunities to respond can increase novice teachers' use of the practice (e.g., Briere, Simonsen, Sugai, & Myers, 2015). Likewise, professional development focused on multiple components of EBCM as recommended by Oliver and Reschly (2010, 2014), and others (e.g., Evertson & Weinstein, 2006), is essential to help teachers become evidence-based effective. The proposed study will examine EBCM practices that were included in two or more of the reviews (Table 2.1 provides an overview). In the following section, I review research on professional development as a method to prepare novice teachers to employ EBCM practices.

Professional Development

The ultimate goal of professional development for teachers is to improve instructional practices to improve student outcomes (Wei et al., 2009). In the following section, I present literature on the main components of professional development. Specifically, I address the format, dosage and substance, instructional design, and evaluation of professional development.

Format

Researchers have identified one of the main problems with traditional professional development workshops as being typically misaligned with on-going practice (Ball & Cohen, 1999; Loucks-Horsley et al., 1999). These types of workshops have been described as topics based on the professional development provider's knowledge rather than teacher need (Hill, 2007). One possible explanation for the prevalence of these workshops could be that school districts often hire outside individuals or expert consultants to deliver professional development (Fixsen et al., 2005). Research has also indicated that participants are not provided with opportunities to practice new skills learned during professional development or receive performance feedback on their implementation of these skills (Allen & Forman, 1984; Fixsen et al., 2005). In addition, traditional professional development does not track whether the teacher participants are implementing the new skills in the classroom with fidelity and whether the professional development resulted in durable changes in teacher skills and behavior (Ball & Cohen, 1999; Yoon et al., 2007). Further, teachers who receive only theoretical information during professional development are not likely to transfer the professional development content from the training to the classroom, making the professional development ineffective (Joyce & Showers, 2002). Given the known issues with typical professional development discussed above, it is not surprising that Fixsen et al. (2005) contend that most school-based professional development on its own does not support the implementation of classroom management strategies.

Dosage and Substance

Researchers continue to examine the effects of duration of professional development on student outcomes and teacher knowledge. Traditional-type professional development generally

consists of one or two-day sessions, described by Ball and Cohen as "one shot" (1999, pg.4), in which the trainers hope that the participants apply the skills taught during the training. Research has shown that single shot professional development does not reliably lead to changes in teacher instruction or student behavior (Fixsen et al., 2005; Stokes & Baer, 1977; Yoon et al., 2007). To that end, Yoon and colleagues (2007) reported that studies that implemented an average of 49 hours (range 30-100 hours) of professional development demonstrated significant effects on student achievement.

However, increasing the duration of the professional development workshop does not necessarily change teacher behavior in meaningful ways (Desimone & Stuckey, 2014). In a 2010 study, Garet and colleagues provided 114 hours of professional development on mathematics content to practicing teachers. Although the teachers participated in highly engaging content, they did not score significantly better on knowledge measures or positively influence student outcomes. Similar findings have been identified in professional development in other content areas (e.g., early childhood literacy; Davidson et al., 2009).

In another study evaluating dosage, Piasta and colleagues (2010) designed a professional development program to change teachers' reading behaviors during whole-class shared read-aloud. Specifically Piasta et al. (2010) evaluated the extent to which attending three different types of professional development programs influenced teachers' use of references to print over the course of a school year. Results indicated teachers who participated in an 11-hour professional development (1 full-day workshop with a half-day booster workshop) demonstrated significant changes in teacher behavior after attending the professional development. Moreover, the results were maintained for an entire academic year.

Desimone and Stuckey (2014) propose that a reason various professional development attempts have failed to affect student achievement is that the professional development focused on content rather than instructional behaviors. Further, "the more concrete the behaviors asked for in the professional development, the more likely teachers are to be high implementers" (p. 476).

Instructional Design

Effective professional development design includes clear objectives and regular feedback (Ball & Cohen, 1999; Hill, 2007). Programs without clear objectives can lead to poor outcomes (e.g., off-topic content, confused learners, ineffective teaching; Mager, 1997). Thus to address increased implementation of EBCM practices we must design professional development workshops that provide teachers with a clear focus and concrete description of the behaviors (Desimone & Stuckey, 2014). Explicit professional development objectives and goals are important for teachers and should contain the following three characteristics (Mager, 1997). First, an objective must describe what the teacher is expected to do in the classroom after the professional development. Second, an objective should include the conditions for or should state when a teaching behavior should occur. Finally, an objective must contain a measure of acceptable performance describing learner performance (i.e., how well the teacher must perform in order to demonstrate mastery or meet standards). Taken together, providing teachers with a clear and measurable professional development goal is critical when conducting professional development programs.

Another vital component of effective professional development is providing teachers with regular performance feedback (Fallon, Collier-Meek, Maggin, Sanetti, & Johnson, 2015; Stormont, Reinke, Newcomer, Marchese, & Lewis, 2015). Performance feedback involves a

coach, administrator, or external expert conducting a classroom observation and providing the teacher with feedback on topics such as areas of strength, areas of improvement, implementation of targeted skills, and student data (Solomon, Klein, & Politylo, 2012). These observations are shared with the teachers through a face-to-face meeting, in writing, or in an email (Briere et al., 2015; Simonsen et al., 2014). A recent review declared performance feedback to be an evidence-based practice per the *What Works Clearinghouse Guidelines* (Fallon et al., 2015). Others have found it to be a critical component to supporting teachers' fidelity of classroom management practices (Fixsen et al., 2005). Taken together, strategically designing professional development programs with embedded performance feedback is a promising method for supporting teachers' implementation of evidence-based classroom management practices (Stormont et al., 2015).

Evaluation of Professional Development Effectiveness

In addition to producing minimal changes in teacher behavior, a majority of professional development studies report subjective outcome measures such as teachers' perceptions and opinions of practices (Fixsen et al., 2005; Yoon et al., 2007). Changes in teachers' implementation of practice and student performance are considered legitimate outcomes for professional development (Yoon et al., 2007). For example, Yoon and colleagues (2007) examined over 1,300 professional development studies to determine the effects of teacher professional development on student achievement. Of the studies identified only nine interventions met the *What Works Clearinghouse* evidence standards by demonstrating a rigorous research design that directly examined the effect of teacher professional development on student achievement. Further, the use of broad outcomes measures is another concern of professional development providers as it is difficult to see immediate changes in student performance. Desimone and Stuckey (2014) proposed that outcomes measures should be closely

matched to the professional development content or skill. Thus it is critical to establish a pathway that examines teacher learning, implementation, and student gains. In the following section I discuss professional development activities that engage teachers.

Professional Development Models

A growing body of research has identified that systematic, on-going teacher professional development is more effective than traditional one-shot workshops (Ball & Cohen, 1999; Desimone, 2009; Klingner, 2004). At this time, there is no single empirically validated professional development framework; however, there are several (e.g., four) professional development features that are considered to be effective (Borko, Koellner, Jacobs, & Seago, 2011). Many educational researchers contend that in order to build long-term teacher capacity to increase teacher skills and improve student learning, school-based professional development should: (a) be a collaborative effort to coordinate training, (b) provide explicit instruction on skills, (c) situate learning opportunities to practice skills, and (d) provide feedback through an established infrastructure (Ball & Cohen, 1999; Borko et al., 2011; Desimone, 2009; Desimone & Stuckey, 2014; Klingner, 2004; Wei et al., 2009). To understand the various professional development programs that offer such features, I describe three models that are proven to be effective and provide a conceptual framework for the study. In the next section, I will also provide a detailed overview of practice-based professional development framework that contains elements of each of the three programs.

Teacher Study Groups

Over the past three decades, researchers have used teacher study groups as a form of professional development (e.g., Gersten, Dimino, Jayanthi, Kim, & Santoro, 2010; Sugai, 1983). The teacher study group is a comprehensive professional development framework that is

designed to establish a network of colleagues, provide concrete examples, and engage participants in ongoing professional development activities. George Sugai (1983) first described the teacher study groups as a program to translate research concepts into teacher practices. In teacher study groups, teachers play an active role in professional development by engaging in lively discussions that are guided by a facilitator, not an expert, to help them (a) build an understanding of the educational research, (b) plan school improvements, and (c) facilitate the implementation of curriculum (Gersten et al). The discussions have a high level of structure and teachers are assigned specific activities within the discussion. Sugai (1983) proposes that teacher study groups provide opportunities for maintenance and generalization of skills.

The teacher study group has been used as a component in several studies thus it is difficult to determine the specific feature and their effectiveness. To illustrate, Foorman and Moats (2004) documented the use of a teacher study group as part of a professional development program on reading instruction. Social validity revealed that both teachers and researchers found them to be worthwhile. In their nine-month study, Tichenor and Heins (2000) documented the perceptions of teacher study group participant who met to discuss readings on integrating research-based strategies into their teaching. Participating teachers reported changes in student participation and self-esteem. In a subsequent, eight month long study, Gersten and colleagues (2010) examined the teacher study group intervention on vocabulary instruction and explicit reading comprehension instruction, question-answer-relationship strategy, generating main ideas, making and evaluating predictions, and story grammar. The main segments of these study group meetings consisted of: teachers debriefing on their implementation of a previous topic, walk through the research and discuss implementation, walk through the lesson, and collaborative planning (Gersten et al., 2010). As part of the study, the researchers assessed teacher knowledge,

practice, and student achievement. Gersten and colleagues found that participants in teacher study groups showed statistically significant improvements in teachers practice, knowledge measures, and student outcomes indicated marginally significant effects in oral vocabulary compared to participants in the control group. In conclusion, the teacher study group program is a promising professional development framework with research supporting its use and effectiveness.

Instructional Coaching

School-based instructional coaching is another popular and promising method of professional development designed to increase teachers' use of specific instructional practices (Yoon et al., 2007; Youngs & Lane, 2014). During instructional coaching, teachers work with a coach who is an expert or skilled peer to learn new practices while receiving performance feedback (Kretlow & Bartholomew, 2010). The coach does not have a supervisory or evaluative role. Instead he or she can provide support within the instructional setting. There are various forms of coaching models including supervisory, side-by-side, and web-based virtual coaching. The supervisory coaching model (Joyce & Showers, 2002) allows a coach to conduct an observation of the teacher following a general professional development training. After the observation, the coach provides performance feedback to the teacher. During the performance feedback session, a coach typically provides direct feedback on the implementation of strategies shared in the PD along with the strengths of the observation, areas of improvement, and strategies to improve implementation. In the side-by-side coaching model, teachers watch the coaching model of the skill and receive immediate feedback on the implementation. Finally, web-based virtual professional development coaching is a promising practice used to provide

immediate feedback in real-time to teachers (Rock et al., 2012; Rock, Zigmond, Gregg, & Gable, 2011). Virtual coaching incorporates both immediate and delayed feedback.

Instructional coaching has been used in EBCM to improve teachers' use of active student responding (Kretlow, Wood, & Cooke, 2011) and to increase teachers' delivery of praise and opportunities for students to respond (Capizzi, Wehby, & Sandmel, 2010). This method of coaching has improved fidelity for implementing interventions and evidence-based practices (Kretlow, Wood, & Cook, 2010). Additionally teachers have reported a positive perspective on instructional coaching (Capizzi et al., 2010; Kretlow & Bartholomew, 2010). Despite the positive impact of instructional coaching discussed above, Kretlow and Bartholomew (2010) only found the consequential effects of coaching on student achievement in two out of 13 coaching studies. Thus, researchers continue to call for information on whether professional development using instructional coaching consistently and significantly affects student achievement (Kretlow & Bartholomew, 2010; Wayne et al., 2008).

Content Acquisition Podcasts (CAPs)

Content Acquisition Podcasts (CAPs) are a form of enhanced podcasts in which still visuals are combined with on-screen text and voice-over narration that can be used to augment a teacher's instructional knowledge of a teaching practice (Kennedy & Thomas, 2012). CAPs are created using Mayer's (2009) evidence-based instructional design principles (2008), which collectively provide a framework for designing multimedia that does not introduce undue cognitive load on a viewer. An emerging body of literature supports CAPs as a tool that can provide teacher candidates with information they need to understand various aspects of teaching and working with students with exceptionalities (e.g., Kennedy, Hart, & Kellems, 2011; Kennedy et al., 2012; Kennedy et al., 2013; Kennedy & Thomas, 2012). A recent study

examined the effectiveness of learning introductory content related to the basic principles of the Functional Behavioral Assessments (FBA) process when teacher candidates learn using a traditional live lecture compared to learning using CAPs (Hirsch, Kennedy, Haines, Thomas, & Alves, 2015). Knowledge of FBA practices significantly increased for all participants as measured by a delayed posttest; however participants in the CAPs condition scored significantly higher than those in the control group. This provides compelling evidence that learning using CAPs is durable and could help teachers maintain knowledge over time (Hirsch et al., 2015).

An extension of the CAPs research line are CAPs plus video modeling interventions where an individual watches a video of him or herself or a peer engage in a behavior or strategy (Ely, Kennedy, Pullen, Williams, & Hirsch, 2014). Video modeling is grounded in social learning theory that states that people learn through observation (Bandura, 1969, 1986, 1997) and has been used to improve teaching (Dieker et al., 2009), boost teacher confidence (Dymond & Bentz, 2006; Friel & Carboni, 2000), and improve teacher knowledge (Santagata, 2009; Zhang, Lundeberg, McConnell, Koehler, & Eberhardt, 2010). Researchers have found CAPs plus video modeling to be an effective tool in improving preservice teachers' knowledge of instruction and increasing use of evidence-based practices during instruction (Ely et al., 2014) along with implementation of classroom management skills (Kennedy, Hirsch, Rogers, Bruce & Lloyd, in preparation). Moreover, in an applied study where teachers watched a peer video demonstrating effective practice for classroom management strategies (Kennedy et al., in preparation), the participants significantly increased implementation of those practices following professional development and a coaching session. However to date, a majority of the CAPs research has occurred with preservice teachers in tightly controlled settings (e.g., university courses) over a

short period of time. There is limited information on whether CAPs can lead to long-term changes in the instructional practices of in-service teachers.

Practice-based Professional Development

Practice-based professional development (PBPD; Ball & Cohen, 1999) is a promising professional development framework that has been used to deliver in-service PD in many areas including writing (Harris et al., 2012; McKeown, FitzPatrick, & Sandmel, 2014), mathematics instruction (Smith, 2001), and functional-based assessment interventions (Lane et al., 2015a). Unlike other professional development practices that solely focus on building teacher knowledge, PBPD procedures are centered on building teachers' knowledge and application of skills. The six tenets of PBPD are as follows: (1) engage faculty members with similar needs, (2) contextualize professional development for teachers' current needs, (3) assess and address prerequisite knowledge and skills, (4) model and independent practice, (5) use similar materials to those that will be used in the classroom, and (6) give feedback on the independent practice (Ball & Cohen, 1999; Harris et al., 2012). Similar to the aforementioned teacher study group model, PBPD engages faculty with similar needs to discuss and review materials and also includes elements of instructional coaching such as modeling, independent practice, and performance feedback.

A traditional lecture based professional development asks teachers to learn a theory in isolation and then later apply the theory in the classroom. Rather, PBPD provides teachers with material around "professional learning tasks" (Ball & Cohen, 1999, p. 27). The tasks are designed around specific behaviors that teachers encounter in the classroom. With a practice-based approach, teachers have an opportunity to develop skills (based on theory) by connecting

them to their practice. Teachers also receive feedback as they practice the new skills in the classroom.

Lane and colleagues (2015a) examined the effectiveness of a PBPD training on FBAs with 48 general education teachers, special education teachers, administrators, and related service providers. School-based teams of educators attend the 4-day training together. Prior to the teachers' provided feedback their students' key behaviors (strengths, areas of improvement). During the training the teachers' read example articles on the FBA process. Training materials were similar to those used by the district. On-site and web-based support was provided for the teachers. Additionally, the participants received performance feedback after each training. Pre- and post-surveys were administered to gauge teacher knowledge as well as self-report of knowledge, confidence, and usefulness. Results found significant improvements in teachers' knowledge and report of knowledge, confidence, and usefulness. Findings support the use of PBPD with other classroom topics such as EBCM practices.

Elements of PBPD (i.e., systematic, engaging professional development with direct feedback) have been implemented to increase individual in-service teachers' use of evidence-based classroom management practices (Myers, Simonsen, & Sugai, 2011; Simonsen et al., 2013; Simonsen, Myers, & DeLuca, 2010). Individual EBCM practices (e.g., opportunities to respond, behavior specific praise) have been evaluated using expert consultation and self-evaluation with teacher instructional delivery (Myers et al., 2011; Simonsen et al., 2010, 2014). However, no study has assembled the full array of PBPD to teach a suite of EBCM practices to teachers.

Classroom Management Professional Development for Novice Teachers

To determine the extent to which the field has evaluated professional development to improve novice teachers' use of classroom management strategies, I reviewed the literature. I began by identifying articles and dissertations using an electronic and ancestral search. I retrieved and read the articles to determine whether they met the inclusion criteria described below and subsequently coded those that did on various descriptive characteristics. I provide a summary of the results of the included studies along with the limitations and implications.

Article Selection Procedures

I searched the EBSCO Host (Academic Search Premier, Education Full Text, Education Research Complete, ERIC, Primary Search PsychArticles, Psychology and Behavioral Sciences Collection) and PsycINFO research databases. Search terms included: (a) "early career teachers" or "beginning teachers" or "novice teacher" or "new teacher," and (b) "behavior supports" or "positive behavior supports" or "classroom management" or "classroom strategies" or "behavior management" and (c) "teacher training" or "professional development" or "in-service training" or "induction" or "continuing education." The search yielded 298 articles and dissertations.

To be included in the study, the article or dissertation had to meet two criteria. First, the study had to include an intervention that focused on increasing novice teachers' use of classroom management strategies. Dissertations and international publications were included in this search and non-experimental studies such as literature reviews, surveys, meta-analyses, qualitative studies, and case studies were excluded, as they do not provide quantitative evidence regarding intervention outcomes (e.g., Melnick & Meister, 2008), which is a critical feature of professional development (Yoon et al., 2007). Second, the study needed to include practicing teachers who provided core academic content to students in K-12 public, private, or charter schools. Excluded

were preservice teachers, teachers with four or more years of experience, paraprofessionals, behavior specialists, career and technical educators, music, art, and physical educators, and caregivers. To determine if the study met these criteria, I read each title and abstract and then decided if it merited further investigation.

Using the above criteria, I retrieved 16 studies from the electronic search. An additional three studies were identified by an ancestral search evaluating the documents cited in these articles, for a total of 19. Each of these studies was then read in full. Upon closer inspection, I found that 13 studies were not experimental, and one study (i.e., Shernoff et al., 2011) included participants who were described as new teachers, however they had been teaching for five years. As a result, a total of five studies were included and coded.

Coding Procedures

To identify the presence or absence of various components, as well as to provide descriptive details of components, each study was independently coded (see Appendix A for definitions). The first set of variables provided information on the professional development details (e.g., format, dosage, technology) and whether the training included elements of PBPD. A second set of variables provided information on the participants, setting, research design, and evaluation procedures. The following section contains, a summary on each of the included studies. Tables 2.2 and 2.3 provide the specific information on each study.

Experimental and Group Contrast Results

Briere, Simonsen, Sugai and Myers (2015). Briere, Simonsen, Sugai, and Myers (2015) assessed the effectiveness of a within-school consultation provided by mentor teachers on novice teachers' use of specific praise. Briere and colleagues (2015) employed a multiple baseline design across three elementary-school teachers in their first and second year of teaching. Each

teacher was paired with a veteran mentor teacher. The mentor and novice teachers were paired and introduced and then attended a training together on behavior specific praise and self-monitoring. The mentor and novice teacher met weekly, and the following components were discussed: (a) self-monitoring data were graphed, (b) explicit performance feedback was provided, (c) strategies for improvement were discussed, and (d) behavior specific praise goals were created. At the conclusion of the study, all three novice teachers demonstrated an increase in level and trend in the rate of specific praise statements per minute. Visual analysis revealed no overlapping data points between baseline and intervention for all participants. Additionally, after at least four weekly sessions, the novice and veteran teacher no longer met. Direct observation data collection continued and provided maintenance data. All three teachers were able to sustain their use of specific praise after the four-week consultations ended and the authors reported high levels of treatment integrity and social validity.

Although teachers increased their use of specific praise, Briere et al. (2015), did not also assess student behavior and academic performance. A few limitations of this study include (a) new teachers may have been influenced by the first author's role overseeing the districts schoolwide positive behavior interventions and support initiative, (b) teachers were compensated for their voluntary participation, (c) generalizability was limited due to the small sample size, (d) it is unclear which intervention package was related to changes in teacher behavior, (e) teachers were aware of the purpose of the study, (f) teachers were observed for 15-min of instruction, and (g) student outcome (academic and behavioral) data were not reported. Although Briere et al. (2015) only taught teachers one EBCM practice, this is a promising step forward in supporting novice teachers to implement EBCM practices.

Dicke, Elling, Schmeck, and Leutner (2015). Dicke, Elling, Schmeck, and Leutner (2015) conducted a quasi-experimental group-contrast design to determine whether classroom management training resulted in changes in first year teachers' self-report of the following measures: efficacy, knowledge, classroom disturbances, perceived stress, positive feedback, and prosocial success. The wait-control trial study assigned (N = 97) first-year teacher participants to one of three conditions: classroom management (n = 36), stress management (n = 42), or a control group (n = 19). The classroom management group attended two 8-hour trainings and one 3-hour follow-up session in which they received training in the following content from the Classroom Organization and Management Program (Evertson & Harris, 1999): (a) classroom organization, (b) rules and procedures, (c) beginning the school year, (d) maintaining the classroom management system, (e) problem behavior, (f) interpersonal relationships, and (g) communication. The training consisted of group discussions, group work, and role playing activities. The classroom management training group reported significant higher levels of efficacy in classroom management, goal achievement, and positive feedback than the other two groups. There were no significant effects on teacher reports of classroom disturbance and prosocial success. A finding that is particularly relevant to the current study is that teachers reported higher levels of self-efficacy immediately following the training and then again 12-weeks after the training. Limitations of this study included the use of teachers' self-reported data, non-random assignment, lack of pretest of teacher knowledge and a small sample size. Additionally researchers did not program for maintenance (by proving follow-up professional development support), report or mention social validity or report treatment integrity of the professional development. Despite the limitations of Dicke et al. (2015)'s approach to evaluate a

novice teacher professional development, their findings indicate that novice teachers' reported higher levels of efficacy after attending a relatively brief training on classroom management.

Evertson and Smithey (2000). Evertson and Smithey (2000) conducted a randomized controlled trial with first-year teachers (N = 46) as part of the Classroom Organization and Management Program mentioned earlier in this literature review. Specifically, they evaluated whether using a research-based mentoring program assisted protégés (novice) teachers in the areas of classroom management, lesson planning, and goal setting. The treatment group (n = 23) mentors attended a 4-day workshop on mentoring and supporting new teachers in the area of classroom management. Activities included role playing, analyzing case studies, discussing research, and practicing observations. The comparison group (n = 23) mentors completed a 1-2 day district-developed orientation or did not receive an orientation. Protégés in both the treatment and comparison group attended a 3-day workshop on classroom management (i.e., organization, starting the year, the establishment of classroom routines, behavior management practices). Following the workshop, the treatment group mentors and protégés attended monthly meetings to discuss classroom management. The dependent variables included the percentage of engaged students, implementation of classroom management practices (e.g., establishing routines, motivating students, managing student behavior, and classroom climate). Protégé teacher needs, videotapes of the mentor-protégé conferences, and weekly summaries of mentoring activities were also analyzed. There were significant differences between the two conditions. New teacher protégés mentored by teachers trained in mentoring had classrooms with lower levels of inappropriate behavior and reported higher levels of student engagement than the comparison group. Overall, new teachers trained in classroom management who met with a mentor were found to be significantly better at managing instruction, monitoring student

engagement, and managing student behavior. One serious limitation of this study is the short duration of data collection (only the first half of the school year) with no follow-up data collected for longer lasting effects. Furthermore, the study did not assess student academic performance, social validity or treatment integrity.

Funk (2013). Funk's (2013) dissertation evaluated the effectiveness of teacher consultation with first and second-year teachers (N = 3). Evidence-based strategies from three sources were used to create a 17-item checklist (MacSuga & Simonsen, 2011; Simonsen et al., 2008; Tincani, 2011). The checklist contained three sections: beginning of class, during instruction, and responding to student behavior. Funk (2013) employed a multiple baseline design across three special education teachers in self-contained settings. The professional development consisted of four phases: (a) baseline; (b) checklist; (c) checklist, feedback, and action plan; and (d) maintenance. Percentage of strategies implemented and student disruptive behavior were the dependent variables. Training fidelity and social validity were reported. Results indicated A few limitations include: (a) student engagement or academic performance were not collected, (b) a lack of a program to maintain teacher implementation after the study, and (c) the dosage or duration of the training meetings.

Stallion and Zimpher (1991). Stallion and Zimpher (1991) conducted a control group posttest design study to evaluate whether an intensive mid-year induction training plus mentoring resulted in increased classroom management practices. This study was designed to support first-year teachers and teachers who were either new to the district, returning after a leave, or changing grade levels, subject matter, or buildings (N = 35). Researchers trained teachers on the principles of effective classroom management: planning, presenting, and maintaining (altered from materials used by Evertson et al., 1983). Teachers were randomly assigned: (a) to attend a

2-day training on classroom management with a mentor, (b) for the mentor to receive the 2-day training and then meet with the new teacher, or (c) to the control condition, mentoring only and neither the mentor or new teacher to attend the training. Stallion and Zimpher (1991) found that teachers who received the 2-day training had significantly fewer students demonstrating off-task behaviors compared to untrained teachers' classrooms. However, no significant differences in classroom ratings (instructional management, rules and procedures, meeting student concerns, managing pupil behavior, and student misbehavior) were found between groups. The study design is a clear limitation of the study because it did not include a pretest or randomly assign teachers to the three conditions. Additionally student academic performance, social validity, and fidelity data were not collected. A finding that is particularly relevant to the current study is that teachers can be trained to use strategies that have positive results on students' classroom behavior.

Table 2.2. *Components of Professional Development*

	Training Details					Practice-Based Professional Development Features					
Author(s) and year	**Format**	**Dosage**	**Training topic**	**Follow-Up Program**	**Technology**	**Actively engage faculty**	**Contextualize PD**	**Assess and address prerequisite skills**	**Model and independent practice**	**Use similar materials**	**Feedback**
Briere et al. (2015)	Coaching	Weekly Meetings	Specific praise	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Dicke et al. (2015)	Inservice	2 and a half days	Classroom Management, interpersonal relationships; communication; stress management	No	No	Yes	No	No	Yes	Yes	No
Evertson & Smithey (2000)	Inservice and Coaching	4 days, weekly follow up for 4 months	Classroom management, start of the year, routines, behavior management	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Funk (2013)**	Teacher Consultation	--	Classroom management	No	No	No	Yes	Yes	No	Yes	Yes
Stallion & Zimpher (1991)	Inservice and Coaching	2 full day	Classroom management	No	No	No	Yes	No	No	Yes	Yes
			# Studies included the component	2	0	2	4	2	3	5	4

Note: **indicates dissertation

Table 2.3. *Evaluation of Novice Teacher Professional Development*

Authors and year	**Participants**	**Setting**	**Research Design**	**Teacher DV**	**Student behavior DV**	**Student academic DV**	**Treatment integrity**	**Social validity**
Briere et al. (2015)	First and second year teachers, *N* = 3	Elementary	Single Subject, multiple baseline	Observation of teacher specific praise – Positive Results	Not assessed	Not assessed	Reported	Reported
Dicke et al. (2015)	First year teachers, *N* = 97	Primary and vocational schools in Germany	Group, quasi-Experimental	Teacher report of efficacy, knowledge, stress, positive feedback, success – Positive Results	Teacher report of classroom disturbances – Not significant	Not assessed	Not Reported	Not Reported
Evertson & Smithey (2000)	First year teachers, *N* = 46	K-12	Group, experimental	Observation with rating scale – Positive Results	Direct observation of student engagement (on and off-task) and Classroom Activity Record – Positive results	Not assessed	Not Reported	Not Reported
Funk (2013)*	First and second year teachers, *N* = 3	Self-contained emotional behavioral support teachers	Single subject, multiple baseline	Observation with checklist - Positive Results	Direct observation of student disruptive behavior – Positive Results	Not assessed	Reported	Reported
Stallion & Zimpher (1991)	First year teachers and others,** *N* = 35	Elementary	Group, Pre-experimental	Observation with rating scales – Null Results	Direct observation of student behavior (on task, probably on task, off task) – Positive Results	Not assessed	Not Reported	Not Reported

Notes: DV = dependent variable, *indicates dissertation, **others include teachers returning after an extended leave, teaching a new grade or subject, or new to the building or district.

Qualitative Research

The *What Works Clearinghouse Standards* outline the use of experimental and group contrast designs to evaluate the effectiveness of interventions and programs. However, because there have only been a handful of experimental and group-contrast designs I also examined a select number (i.e., three) of qualitative studies. The following section provides an overview of a three qualitative studies to help provide insight and understanding of novice teacher professional development in the area of classroom management.

Shernoff, Marinez-Lora, Frazier, Jakobsons, Atkins, and Bonner (2011). Shernoff et al. (2011) used a qualitative iterative design across to evaluate the use of multi-component professional development which included professional learning communities (PLC), group seminar, and coaching for teachers (N = 6). Five of the teachers were within their first three years of teaching (M = 3.4 years) in an urban public school. The researchers conducted a multi-component professional development program for teachers on evidence-based practices for classroom management. Professional development activities included two group seminars a month, classroom coaching on a regular basis, and monthly PLC meetings. Coaches provided performance feedback, reviewed expectations, co-taught classes, and modeled skills. Focus groups provided information on teacher satisfaction in respect to the professional development activities. Teacher participants recorded professional development (including coaching) fidelity. Each participant completed a checklist indicating the instructional methods employed. Participants also indicated the helpfulness of the session. Results indicated participants increased professional development attendance (e.g., group seminars, PLC meetings). Researchers report that the mid-year focus group findings allowed them to make several adaptations to the coaching

model. Specifically, they included written feedback in post-conferences and technology (e.g., texting email, phone) to enhance communication. Results indicate teachers' perceptions of effectiveness and feasibility were similar to their colleagues. Researchers opted to allow the participants more time to share their implementation successes.

Marks (2011). Marks (2011) conducted a case study of the blog activity of preservice teachers (N = 19) who were encouraged to discuss their classroom interactions during their student teaching placement. Researchers divided students into small groups of 3-4 students. Each week a different topic prompted the online discussions (e.g., classroom set-up, rules; procedures, and routines; management practices for difficult behaviors). Group members were encouraged to reply, show support, ask questions, or share their experience. A typological analysis of the blog data revealed common themes across groups. Students shared dilemmas surrounding classroom and behavior management. They often tried to "find the answer" to "fix" (Marks, 2011, p. 56) a problem and focus on their teaching. Marks (2011) stated that the students repeatedly wanted specific instructions when it comes to behavior management. This study reaffirms the need for support (such as mentoring, coaching, or professional development) for novice teachers.

Ferguson-Patrick (2011). Ferguson-Patrick (2011) utilized an action research approach to understand two early career (1st and 3rd year) teachers' beliefs and feelings of cooperative learning (CL) professional development framework over the course of six months. Ferguson-Patrick (2011) conducted classroom observations which were used to drive the professional learning sessions. The teachers' attended three professional learning sessions over a six month period. The study presents the results of the semi-structured exit interviews to provide information on the teachers' perceptions of the CL elements. Both teachers exhibited improved use of a CL in the classroom. Further, they expressed substation increases in the use of the CL

elements in their teaching. However, the third year teacher made greater gains in understanding and implementing CL compared to the first year teacher. This study stresses the importance of beginning teachers to focus on teaching pedagogy by examining their practice while receiving feedback.

Implications

I analyzed the current research on novice-teacher professional development in the area of classroom management. There have been a number of qualitative studies however only five empirical research studies assessing the effectiveness of EBCM professional development with novice teachers in the current literature base. In general, the limited findings support the notion of the use of professional development to train novice teachers on classroom management practices. However, there are noticeable gaps in the current literature base regarding the components and evaluation of professional development.

Components of professional development. The format for the studies included in-service (n = 3), coaching (n = 3), and teacher consultation (n = 1). One study (Evertson & Smithey, 2000) combined in-service and coaching. The majority of studies (n = 3) provided four or fewer days of training. Two studies included weekly meetings (Briere et al., 2015; Evertson & Smithey, 2000). Training topics included specific praise (Brier et al., 2015) and classroom management (Dicket et al., 2015; Evertson & Smithey, 2000; Funk, 2013; Stallion & Zimpher, 1991). Only two studies (Briere et al., 2015; Evertson & Smithey, 2000) provided follow-up support after the initial training. None of the studies reported the use of technology as part of the training or follow-up procedures.

Across the studies, it appears that features of PBPD such as training faculty members who have similar needs (n = 2) and assessing teachers' prerequisite knowledge (n = 2) were

employed. Four of the studies contextualized the PD for the teachers (Briere et al., 2015; Evertson & Smithey, 2000; Funk, 2013; Stallion & Zimpher, 1991). Three included models and opportunities for teachers to practice the skills independently, and all five used similar materials to those that are used in the classroom. Four studies included performance feedback on teachers' independent practice. None of the studies addressed all six features of the PBPD. Further, the PBPD framework has yet to be aligned with instructional learning theories (Mager, 1997) which provide participants with clearly defined objectives. Therefore, using a framework such as PBPD to deliver content on EBCM practices could be an effective method to support teachers and their students.

Methods of evaluating professional development. The design, dependent variables, reporting of fidelity and social validity varied across studies. Two studies employed single subject designs (multiple-baseline across participants) and three employed group designs (pre-experimental, quasi-experimental, experimental; Campbell & Stanley, 1963). Four studies reported direct observation of teacher behaviors (Briere et al., 2015; Evertson & Smithey, 2000; Funk, 2013; Stallion & Zimpher, 1991). Three of the studies reported direct observation of student behavior (Evertson & Smithey, 2000; Funk, 2013; Stallion & Zimpher, 1991). One study assessed teacher-report of knowledge, efficacy, positive feedback, and success (Dicke et al., 2015). However, none of the studies assessed student academic outcomes. To address this issue, as we move toward establishing evidence-based professional development practices, student-based dependent variables are necessary to draw accurate conclusions about effectiveness.

Elements of the quality indicators (i.e., treatment integrity and social validity) were used to analyze the five studies. Though antidotal reports of social validity were noted in the studies, only two studies quantified social validity (Briere et al., 2015; Funk, 2013). Thus it is difficult to

determine whether the dependent variable is socially important, practical, and cost-effective (Horner et al., 2005). Similar to social validity, only two studies documented the professional development fidelity (Briere et al., 2015; Funk, 2013). Further research needs to attend to the delivery of empirically validated EBCM professional development with novice teachers.

Present Study

Taken together, these findings show that PBPD is a promising framework for delivering professional development for teachers that could be strengthened by applying instructional learning theory and incorporating existing professional development tools (e.g., Content Acquisition Podcasts; Kennedy & Thomas, 2012). However all of the PBPD elements, has yet to be evaluated with novice teachers' use of EBCM practices. The logic model (see Figure 1.1) for this project holds that, because most educators enter teaching with minimal knowledge of behavior management practices, strategically designed PBPD will allow teachers to gain knowledge of EBCM practices. This knowledge will promote novice teachers' use of EBCM practices in the classroom while increasing their self-efficacy in the area of classroom management and we can expect increases inappropriate student behavior and academic performance.

Research Questions and Hypotheses

Although some teacher preparation and in-service programs attempt to provide preservice teachers with classroom management skills, a large gap remains between evidence-based practices and implementation (Wayne, Yoon, Zhu, Cronen, & Garet, 2008). This study was designed to address many of the needs that emerged from the literature. In particular, I am seeking to lessen the research-to-practice gap by examining the potential effects of a professional development program designed to augment novice teachers' use of EBCM practices based on

theories of learning (Mager, 1997) and existing classroom management tools (Reinke et al., 2011). The research questions for this project are intended to help address the research-to-practice gap related to the poor implementation of EBCM practices for novice teachers. The research questions for this project are as follows:

- RQ1: Whether PBPD increases teachers' use of EBCM practices. To what extent can PBPD help teachers gain knowledge and implement EBCM practices?

    Hypothesis: Based on my applied pilot study using PBPD (Hirsch, Lloyd, Ely, & Snead, in preparation), my hypothesis is that after attending PBPD seminars on EBCM, teachers will demonstrate higher levels of EBCM practices knowledge and skills.

- RQ2: Whether teachers' use of EBCM practices increases student engagement and academic performance. To what extent does student engagement increase after a teacher attended EBCM PBPD?

    Hypothesis: Novice teachers who implement multiple EBCM (e.g., opportunities to respond, behavior specific praise, token economy) will demonstrate higher student engagement (as measured by direct observation) and academic performance (as measured by a standardized curriculum based measure).

- RQ3: To what extent do specific behavioral practices correlate with positive student behavioral outcomes?

    Hypothesis: Teachers' use of EBCM practices will correlate with student engagement as measured by frequency counts of teacher behaviors and duration recording of student behavior.

- RQ4: To what extent does student risk status change following EBCM PBPD?

Hypothesis: Teachers' increased use of EBCM will decrease student risk levels as measured by a systematic screening tool.

- RQ5: To what extent does teachers' use of evidence-based classroom management practices maintain after the PBPD?

  Hypothesis: After the EBCM PBPD (e.g., one, two, and three months), teachers will continue to implement EBCM as demonstrated by maintenance probes.

- RQ6: What are the teachers' views of the goals, procedures, and outcomes of the PBPD program of EBCM?

  Hypothesis: Based on the social validity interview results from our pilot study (Hirsch, Lloyd, Ely & Snead, in preparation), teachers who complete EBCM PBPD will be satisfied with the goals, procedures, and outcomes of the professional development program.

- RQ7: To what extent do self-reports of novice teacher efficacy and burnout change after completing EBCM PBPD?

  Hypothesis: We expect novice teachers' report of their own efficacy to increase after completing EBCM PBPD. We also expect novice teachers to decrease their levels reported levels of burn-out.

CHAPTER III: METHODS

As summarized in detail at the end of Chapter 2 the overarching goal of this research is to evaluate a strategically designed PBPD on EBCM practices for novice teachers. I used a single-subject multiple-baseline design across teachers in small groups to examine six novice teachers' implementation of EBCM under two different conditions. First, Condition A consisted of an active baseline (Birnbrauer, Peterson, & Solnick, 1974). All teachers received a tutorial on progress monitoring and engaged in regular classroom practices. Next, Condition B included a program of PBPD about the use of EBCM practices. I conducted direct observations of teacher and student behaviors to collect dependent variables, looking first for effects of the professional development program on teachers' use of the management procedures and, second, for effects on their students' behavior. I also assessed the teachers' knowledge of EBCM practices; teacher self-efficacy, burnout, social validity of the procedures; and the fidelity of the independent variable. In the following sections, I describe the setting, participants, dependent measures, and provide the details of the research plan.

Participants

Upon receiving approval from the University of Virginia Institutional Review Board (IRB), I sought local school district permission to invite teachers to participate in the study. With the support of the building administers, I invited all classroom (general and special education) elementary (including upper elementary) teachers who were in their first through third year of teaching core academic classes in five schools. I excluded teachers who had more than three full years of teaching. In addition, paraprofessionals and related arts teachers (e.g., music) were excluded because we will be unable to track student academic progress. Pseudonyms are used to describe the school, teachers, and student participants.

Teachers

A total of ten teachers were invited to participate in the study across five schools. Three teachers declined following the information session. A fourth teacher consented to participate however was excluded after her classroom role changed during the beginning of Condition A (Standard Condition). A total of six teachers participated in the study. Participant demographic data were collected through a brief survey (see Appendix J) during Condition A (Standard Condition) to aid generalizability of the findings (Lane, Wolery, Reichow, & Rogers, 2007). Teacher variables included: gender, grade, teaching experience degree, and training experience. Demographic information is provided for all teachers who participated in the study in Table 3.1. All teachers were general education teachers with less than two years of experience teaching in kindergarten through sixth grade classrooms. Five out of the six teachers were female. Additionally, all of the teacher participants completed a classroom management course.

Table 3.1. *Teacher Participant Demographics*

Teacher Name	Gender	School	Grade	Year(s) Teaching Public School	Highest Degree Earned	Completed Classroom Management Course	Attended Previous Classroom Management PD	Number of Students in Class
Group 1								
Ms. Stewart	F	Bavaro Elementary	4	1st	BA	Yes	No	17
Ms. Susanne	F	Bavaro Elementary	K	1st	BA	Yes	No	19
Group 2								
Ms. Berger	F	Cabell Elementary	2	2nd	M.Ed.	Yes	Yes	15
Ms. Snead	F	Darden Upper Elementary	6	1st	M.A.	Yes	No	20
Group 3								
Mr. Taylor	M	Jefferson Elementary	2	1st	BA	Yes	No	18
Ms. Anelli	F	Gilmer Elementary	K	2nd	M.Ed.	Yes	Yes	23

Students

Once teacher consent was obtained, parental notifications were sent out. Given that the teachers have an average of 18.65 students (range: 15-20; *SD:* 2.5), 112 parents were notified. One parent declined to have her child participate in the study, one student moved out of the district, and was absent for more than 10 observation days. A total of 109 students were included in this study. The student data were requested from the teacher before beginning baseline data collection. Student variables include: child's gender, age, race, history of special education, and ELL status. Demographic information is provided for all students who participated in the study in Table 3.2.

Table 3.2. *Teacher Classroom Roster*

Teacher Name	Students	Gender		Age	Race					Eligible for SPED	ELL Status
	Total	M	F	*M* (SD)	Black	Asian	White	Hispanic	Other	Total	Total
Ms. Stewart	17	12	*5*	*9.24* (0.42)	5	2	8	1	1	1	0
Ms. Susanne	19	9	*10*	*5.11* (0.31)	3	2	14	0	0	2	3
Ms. Berger	15	9	*6*	*7.13* (1.65)	8	0	4	3	0	Y	2
Ms. Snead	20	8	12	*11.05* (0.38)	7	2	8	2	0	2	3
Mr. Taylor	18	9	9	7.00 (0.0)	12	1	4	0	1	0	2
Ms. Anelli	23	6	*17*	5.00 (0.20)	4	5	13	0	1	2	0

To identify students for direct observations, we screened students to determine student behavioral risk status. Teachers completed a behavior screener (i.e., *Systematic Risk Screening Scale: Internalizing and Externalizing*; *SRSS-IE*; Drummond, 1994; Lane et al., 2015b) for all students in their classroom prior to the start of Condition A (Standard Condition). Psychometric information for the SRSS-IE is provided in the measures section. Using this tool, teachers identified three students who scored high-risk for problem behavior (i.e., were considered to be at-risk for EBD) as target students (for observation) in each classroom. Eighteen students across six classrooms were identified. Each of the teachers were provided a list of target students (for observation) to confirm: (a) the proposed student would be appropriate to observe and (b) they plan to provide teacher-directed math instruction with the student during the observation period. One student from Ms. Susanne's class moved during Condition A. Another student from Ms. Stewart's class was absented for over ten observations and was removed from the study. A total of sixteen students were observed during each phase of the study. Table 3.3 provides demographic information for the sixteen target students.

Table 3.3. *Target Student Demographics*

S - ID	Teacher	Grade	Age	Gender	Race	Retention	ELL Status	Identified with SPED	SRSS-IE* (Externalizing Only)
101	Ms. Stewart	4	10	Male	Black	No	No	Yes	21 (17)
103	Ms. Stewart	4	9	Male	White	No	No	No	18 (15)
202	Ms. Susanne	K	5	Female	White	No	No	No	10 (9)
203	Ms. Susanne	K	5	Male	White	No	Yes	No	11 (9)
401	Ms. Berger	2	7	Male	White	No	No	No	19 (11)
402	Ms. Berger	2	7	Male	White	No	No	No	20 (14)
403	Ms. Berger	2	7	Male	Black	No	No	No	25 (17)
701	Ms. Snead	6	11	Male	Black	No	No	No	29 (16)
702	Ms. Snead	6	11	Female	Black	No	No	No	23 (19)
703	Ms. Snead	6	12	Male	Hispanic	No	No	No	18 (16)
501	Ms. Anelli	2	5	Male	Black	No	No	Yes	9 (9)
502	Ms. Anelli	2	6	Female	Black	Yes	No	Yes	9 (14)
503	Ms. Anelli	2	5	Male	White	No	No	Yes	9 (12)
601	Mr. Taylor	K	7	Male	Black	No	No	No	12 (11)
602	Mr. Taylor	K	7	Female	Black	No	No	No	16 (14)
603	Mr. Taylor	K	7	Male	Black	No	No	No	14 (12)

Note. S-ID = Student Identification Number, *SRSS-IE score is based on the initial screening.

I treated novice teachers in clusters (of two) to adhere to the PBPD framework (Ball & Cohen, 1999). I had hoped to create these clusters within school buildings, permitting the teachers to meet and to support each other. However, only two of the teachers (Ms. Stewart and Ms. Susanne) resided in the same building. Therefore, two groups of teachers were from different schools.

Setting

This study took place in a small urban district with 4,369 students (Virginia Department of Education Report, 2015). The student population of the district is 51% male and 49% female. The district student racial composition includes 39.33% White, 37.42% Black, 10.45% Hispanic, 6.50% Asian, and 6.34% other (i.e., Hawai'ian, Am-Indian, two or more races). Fifty-five percent of the student population are eligible to receive free or reduced lunch. The school division has six elementary schools (PreK-4), one upper elementary (5-6), one middle school, and one high school. The district average class-size range from 17.3-21.1 in K-4 and 19.5 in grades 5-6. There are 421 teachers in the district with an average of 14 years experience. Additionally, 67% of teaching staff hold advanced degrees (retrieved from the district's website). The setting for data collection for each teacher was her or his classroom. Each teacher identified a 30-minute period during teacher-directed math instruction to be the focus of the data collection. The follow sections provide an overview of the six participating teachers' classrooms.

Ms. Stewart. Ms. Stewart taught fourth grade at Bavaro Elementary School. She selected the first part of her math instruction (11:45 a.m. - 12:15 p.m.) for direct observations. During this block of time, she either provided whole group instruction or small group instruction (to the target students). Her classroom contained individual student desks, two tables for center

activities, and a kidney-shaped table for teacher-led instruction. The student desks were situated side-by-side and formed a "U" shape. A rocking chair and bookcase were located in the front of the room.

Ms. Susanne. Ms. Susanne taught Kindergarten at Bavaro Elementary School. She selected the first part of math instruction (1:15-1:45 pm) as the direct observation period. During the 30-min math segment she spent approximately 15 minutes on the calendar and then would spend the remaining time on small group activities. The target students would spend this time working with Ms. Susanne. Her classroom contained four student tables (four to five students per table), one kidney shaped table, and an extra circle table. Whole-group instruction occurred at the rug situated in the front of the classroom. A rocking chair and small bench were located next to the rug. Small group teacher-led instruction occurred at the kidney table.

Ms. Berger. At the time of the study, Ms. Berger taught second grade at Cabell Elementary School. She taught math daily and selected 8:30-9:00 as the focus of data collection. She conducted small-group teacher-led instruction for the entire 30-minute observation with the target students. The small-group instruction took place at a kidney table located in the back of the classroom. Her classroom also contained 15 student desks which were a group in sets of two or three and two extra tables. A small rug was located the front of the room.

Ms. Snead. She taught math to the entire sixth grade at Darden Upper Elementary School. She reported that she selected her fourth math block (10:45-11:15 am) as the focus of data collection due to ongoing behavioral challenges. During the observations (across phases) she delivered teacher-led instruction to the entire class. This instruction was often delivered using a Smartboard. The students were situated individual desks in rows. She also had two small tables in the classroom to store materials.

Ms. Anelli. Ms. Anelli was a kindergarten teacher at Gilmer Elementary School. She taught math daily and selected 9:15-9:30 am as the target time for direct observation. Across phases, she split her math time between whole-group math instruction and small-group instruction (for the target students). Her classroom contained five student tables (four to five students per table) and a circle table. Whole-group instruction occurred at the rug situated in the front of the classroom. Small group teacher-led instruction occurred at the circle table in the back of the room. There were four carpets throughout the room. They were used for small group student activities.

Mr. Taylor. Mr. Taylor was a second-grade teacher at Jefferson Elementary School. He taught math daily and selected 8:20-8:50 am as the target time for direct observation. Across phases, he split his math time between whole-group math instruction and small-group instruction (for the target students). His classroom contained individual student tables which were placed together into three large groups. Whole-group instruction occurred at the rug situated in the front of the classroom. Small group teacher-led instruction occurred at the kidney table in the side of the room.

Dependent Variables

This study utilized multiple measures. Table 3.4 provides a timeline for the study with the corresponding measures. Direct observations of teacher and student behavior are the primary dependent variable. Secondary measures include tests of teacher knowledge, *Teacher Survey of Practices*, *Teacher's Sense of Efficacy Scale* (*TSES*; Tschannen-Moran & Hoy, 2001), *Maslach Burnout Inventory* (Maslach, Jackson, & Leiter, 1997, *Systematic Risk Screening Scale: Internalizing and Externalizing* (*SRSS-IE*; Drummond, 1994; Lane et al., 2015b), and curriculum-based measures (CBM). In addition to the teacher and student measures, social

validity and fidelity of implementation were assessed. In the following section, each measure is described in detail. Copies of the measures are also available in their corresponding appendix.

Table 3.4. *Intervention Timeline by Phase and Dependent Variables*

<table>
<tr><th colspan="3">Phase I: Standard Condition</th></tr>
<tr><td>Session</td><td>Topic</td><td>Measure</td></tr>
<tr><td>1</td><td>Provide teachers with an overview of the project (e.g., contact information, timeline, observation information). Teachers will also receive information on progress monitoring and complete six measure: demographic, practice survey, knowledge measure, SRSS-IE, Self-efficacy measure.</td><td>• Teacher Survey of Practices
• Demographic Survey
• Knowledge Pretest
• SRSS-IE
• Self-efficacy and burnout
On-Going
• Direct observation of student and teacher behavior
• CBM</td></tr>
<tr><th colspan="3">Phase II: EBCM PBD</th></tr>
<tr><td>1</td><td>Review Modified-Classroom Ecology Feedback Form, create and Action and self-monitoring plans.
Watch exemplar videos, direct instruction on how to use, practice using skills, and receive feedback.
Teachers access to CAPs to reinforce skills.</td><td rowspan="4">On-Going
• Direct observation of student and teacher behavior
• CBM
• Direct observation of student and teacher behavior (including fidelity of EBCM practices)
• Fidelity of EBCM PBPD (Phase II training)

Session 4:
• Knowledge Posttest
• SRSS-IE
• Self-efficacy and burnout
• Social validity survey and interview</td></tr>
<tr><td>2</td><td>Review weekly performance, review action plan, teacher self-monitor, troubleshoot. Teachers access to CAPs</td></tr>
<tr><td>3</td><td>Review weekly performance, review action plan, teacher self-monitor, troubleshoot. Teachers access to CAPs</td></tr>
<tr><td>4</td><td>Review weekly performance, review action plan, teacher self-monitor, troubleshoot, Complete Post PBPD measures.
Teachers access to CAPs</td></tr>
<tr><th colspan="3">Phase III: Maintenance</th></tr>
<tr><td>n/a</td><td>Access CAPs</td><td>• Direct observation of student and teacher behavior (including fidelity of EBCM practices)
• CBM
• Self-efficacy and burnout</td></tr>
</table>

Direct Observation

Direct observation of teacher and student behaviors provide the primary dependent variables. In our pilot study, we used pen and paper to observe according to a momentary time-sampling system with an auditory prompt to signal observers (see Appendix B). Trained data collectors observed student academic engagement (active and passive) and off-task duration recording. Teacher direct observation variables were also collected. This included teacher positive feedback, teacher negative feedback, and opportunities to respond. Our observation system featured two types of observation categories and codes (duration, event). The purpose of this method is to capture as much information in a systematic manner.

I ran Multi-Option Observation System for Experimental Studies (MOOSES; Tapp, 2004) on hand-held Dell Venue tablets to gather teacher classroom management behaviors as well as student behaviors. In a recent direct observation study, researchers ran the Brief Classroom Interaction Observation -Revised (BCIO-R) on MOOSES to collect information on teachers' classroom instructional and management practices along with student disruptive were collected (Reinke, Stormont, Herman, Wachsmuth, & Newcomer, 2015). Teacher frequency codes included specific praise, general praise, explicit reprimand, harsh reprimand, opportunity to respond, precorrective statement. Student frequency codes included disruptive and aggressive behavior. The teacher duration codes include collected teaching and not teaching. Reinke and colleagues (2015) observed 105 elementary school classrooms before and after a classroom management training. Results indicated the BCIO-R to be a reliable and valid measure. We employed a direct observation system similar to the one created by Reinke and colleagues (2015). In the following paragraphs, I provide a brief overview of the student-teacher classroom observation system. Appendix C contains an outline of the observation protocol. Although the

observation protocol contains additional codes for this study, we reported student engagement (duration) and teacher event (frequency) behaviors.

Duration recording. The observer decided how the students were engaged (i.e., engaged active, engaged passive, disengaged, or waiting). Active and passive engagement were recorded separately. The data were combined to form a total student engagement score.

Frequency counts. Events occur only for a brief time and cannot be assessed in the same way as on-going behaviors such as those observed with the duration system. The observer recorded the teacher and student discrete events using a frequency count throughout the observation. The teacher events have to do with (a) requesting a student response and (b) providing different types of feedback about student performance. The student events are related to disruptive behavior. When these events occurred, the observer clicked the appropriate code. Multiple events took place during an interval. The following formula is used to calculate the rate of specific behaviors such as opportunities to respond, general praise, specific praise, reprimands: Total behavior per session/ duration of a session = Total behavior per minute.

Observer training. Before completing observations for this study, four observers become reliable. To develop their observation skills, the observers attended a series of training sessions in which I (a) provided operational definitions of behaviors, (b) introduced the observation tool, and (c) required observers to practice using the tool and definitions while watching multiple videotaped classroom segments. Next the observers participated in a minimum of three live sessions with a reliability observer. Training continued until each observer reached inter-observer agreement (IOA) with a standard observer (the principal investigator) of at least 80% (Tapp, 2004). MOOSES calculates the reliability of each variable using a second-by-second

comparison within a 5-second window. Agreements and disagreements are tallied. An agreement to disagreement ratio is calculated.

Inter-observer reliability. A total of 195 classroom observations were conducted using MOOSES (Tapp, 2004). Reliability was collected during 20-42.86% of observations per teacher, per phase; a total of 29.74% (n = 50) sessions were conducted (see Table 3.5 for an overview).

Table 3.5. *Inter-observer Agreement Observations*

	Phase			
Teacher	Standard Condition % (n)	PBPD % (n)	Maintenance % (n)	Total % (n)
Ms. Stewart	30% (3)	35.71% (5)	NAO	33.33% (8)
Ms. Susanne	25% (2)	28.57% (4)	33.33% (1)	28% (7)
Ms. Berger	33.33% (5)	33.33% (1)	33.33% (1)	33.33% (11)
Ms. Snead	20% (4)	31.25% (5)	33.33% (1)	25.64% (10)
Ms. Anelli	20% (4)	31.25% (5)	33.33% (1)	25.64% (10)
Mr. Taylor	27.7%8 (5)	42.86% (6)	33.33% (1)	34.29% (12)
Total	25.27% (23)	33.71% (30)	33.33% (5)	29.74% (58)

Notes. NAO = Not Available or Observed

Inter-rater reliability was calculated using the formulas above in MOOSES. Agreement rates at or above 80% is considered acceptable (Tapp, 2004) and were used as the criteria in this study. IOA for student engagement scores were found to be acceptable (Tapp, 2004) with an overall mean of 91% ranging from 88% to 93%. For frequency counts, MOOSES utilized a second-by-second comparison of raters with a 5-second agreement window to determine the reliability of event behaviors. Agreements / total agreements + disagreements x 100. The mean percentage of agreement across raters for EBCM teacher behaviors was 91%, ranging from 81 to

100%. The same calculation was used to determine the reprimand rate. IOA scores for reprimands are slightly lower with an overall mean of 87% and a range of 50 to 100%. One explanation for the wide range of variability in the event data (specifically reprimands) is that some of these events occurred at low rates. For example, during an IOA session, one observer recorded one reprimand for Ms. Anelli during the PBPD phase. During another session, the reliability observer did not record a reprimand which explains her 50% reliability score. See Table 3.6 for specific agreement.

Table 3.6. *Inter-observer Agreement Across by Teacher and Phase*

	Student Engagement			Teacher EBCM Event Codes					
	Engagement			EBCM Event Codes			Reprimands		
Teacher	Standard Condition	PBPD	Maintenance	Standard Condition	PBPD	Maintenance	Standard Condition	PBPD	Maintenance
Ms. Stewart	90%	97%	NAO	100%	96%	NAO	100%	100%	NAO
Ms. Susanne	85%	96%	97%	93%	93%	100%	75%	100%	100%
Ms. Berger	80%	85%	95%	90%	91%	100%	85.29%	100%	80%
Ms. Snead	76%	91%	90%	80%	90%	81%	84.84%	80.95%	90.91%
Ms. Anelli	93%	90%	80%	93%	90%	92%	100%	50%*	80%
Mr. Taylor	85%	96%	97%	82%	91%	93%	100%	100%	100%
Total	88%	93%	90%	89%	91%	90%	85%	90%	93%

Notes. NAO = Not Available or Observed; *only one reprimand observed

Teacher Survey of Practices (TSP)

The *TSP* is a researcher created a checklist that I used to provide feedback on evidence-based classroom management to the participants. I created the checklist by examining the practices listed in reviews of EBCM (i.e., Epstein et al., 2008; Oliver et al., 2011; Simonsen et al., 2008); I compiled practices that appeared in at least two of the reviews into the *TSP*. The *TSP* was completed by the teacher as a survey. Throughout Standard Condition (baseline) and EBCM (intervention) phases I observed the classroom and gathered data to determine whether the change in teacher behavior is a result of the intervention. See Appendix D for a copy of the *TSP*.

Test of Teacher Knowledge of EBCM Practices

To examine teachers' learning of the content of the professional development program, I created a measure of knowledge and application to corresponding to critical information provided in the EBCM PBPD. The measure included eight multiple-choice items, three true/false, and ten open-response questions. The maximum score is 25. The Test of Teacher Knowledge was administered as a pre-and posttest measure before and at the end of the intervention. The measure was completed and scored by hand. A copy of the test of knowledge is available in Appendix E.

Teacher's Sense of Efficacy Scale (TSES)

The *TSES* (also known as the *Ohio State Teacher Efficacy Scale*; Tschannen-Moran & Hoy, 2001) is a measure of teacher self-efficacy in the area of student engagement, instructional strategies, and classroom management. Teachers rate their perceptions of each item on a nine-point Likert-type scale (1 = nothing to 9 = a great deal). Long and short forms of the *TSES* are available. The long form (eight items) on teacher self-efficacy related to classroom management

was used in this study. Tschannen-Moran and Hoy reported .90 alpha for the long form of the classroom management scale. Higher coefficient alphas (.95 and .96) were reported by Reinke and colleagues (2015) for the same scale. Teachers completed this measure at three-time points: Standard Condition, EBCM PBPD, and maintenance. See Appendix F.

Maslach Burnout Inventory

Teachers completed a four-item survey on teacher burnout in the area of Emotional Exhaustion from the *Maslach Burnout Inventory* (Maslach, Jackson, & Leiter, 1997). The measure has a four-point scale and .90 alpha. This measure has been employed as part of longitudinal studies evaluating teacher efficacy and burnout over time (e.g., Pas, Bradshaw, & Hershfeldt, 2012). Similar to the *TSES*, the *Maslach Burnout Inventory* was administered at three-time points: Standard Condition, EBCM PBPD, and maintenance. See Appendix G for a copy.

Systematic Risk Screening Scale: Internalizing and Externalizing (SRSS-IE)

The *SRSS-IE* (Drummond, 1994; Lane et al., 2015b) is a one-page tool used to screen students for risk of behavior problems (see Appendix H). This tool was used to identify three target students for direct observation, identify students with antisocial behavior patterns, and gauge classroom risk level. As part of this one-stage screener, teachers take approximately 15 min per class to rate each student in their class on 12 items (i.e., steal; lie; cheat; sneak; problem behavior; peer rejection; low academic achievement; negative attitude; aggressive behavior; emotionally flat; shy, withdrawn; sad, depressed; anxious; lonely). Total scores on first seven externalizing items are used to determine individual levels of risk as established by the test developer (Drummond, 1994). The remaining five items are used when analyzing students at the classroom level to identify students with internalizing patterns of behavior or co-morbidity (Lane

et al., 2015b). Each student receives an individual score that can be monitored to determine whether risk levels shift over time (Lane, Kalberg, Bruhn, Mahoney, & Driscoll, 2008). Each teacher completed the SRSS-IE before beginning observations (September 2015) and during their final EBCM PBPD session (November or December 2015).

Curriculum-based measures (CBM)

CBMs were administered weekly during the baseline, intervention, and maintenance phases. The CBMs were used to track student academic progress over a short period (e.g., weekly; Hosp, Hosp, & Howell, 2007). For this study, the CBMs were administered in a group format (e.g., 1-minute calculation probes) for students in grades 1-6. The kindergarten teachers administered the 1-minute number identification probes individually to each of their target students. The elementary (1^{st}-4^{th} grade) calculation probe calculation probe contained addition and subtraction problems. The upper elementary calculation probe (6^{th} grade) contained addition, subtraction, multiplication, and division. The elementary and upper elementary calculation probes were administered to the target students as a group. Sample calculation and number identification probes are available in Appendix I.

Social Validity

Teachers completed, a 12-item teacher satisfaction survey using a 5-point Likert-type scale. I created a rating scale to assess five factors influencing intervention acceptability. Specifically the social validity survey prompted participants to rate the degree to which: (a) the intervention changed their knowledge about EBCM practices; (b) they were satisfied with the training; (c) they viewed the amount of time required; (d) they viewed the intervention as effective; (e) they liked the Action Plan that they created. This tool was administered at the end of the PBPD phase (Session 4).

At the completion of the PBPD phase (within one week after Session 4), Teachers participated in a 30 min-semi-structured interview with the primary investigator. This interview, unlike the social validity rating scale, allowed the teacher to contextualize the intervention and provide information that may be used to adjust future interventions (Gresham & Lopez, 1996). For example, teachers were asked about: (a) the strengths and weaknesses of the intervention, (b) what they would do differently in training and implementation, (c) how the intervention might be improved, and (d) components they would recommend for use. The survey and interview questions are available in Appendix J.

Fidelity of Training

I delivered all trainings with checklists requiring signature signifying the delivery of content. Item-level fidelity percentages were calculated using the formula: number of occurrences/number of opportunities x 100%. An average of item-level percentages provided a index of session-level fidelity. A copy of the checklist is available in Appendix O.

Experimental Design

I employed a multiple baseline design across three groups of teachers to assess the efficacy of the professional development program and whether there are changes in teachers' use of EBCM practices. This design examines effects of the PBPD to be compared within and across groups of teachers. The time-lagged application of procedures controls for history, maturation, and other threats to internal validity (Kennedy, 2005). Furthermore, the study adhered to the quality indicators for evidence-based single-subject research (Horner et al., 2005; Kratochwill et al., 2010). Specifically I (a) conducted within-subject analyses; (b) defined measures operationally and systematically; (c) measured the dependent variable repeatedly; (d) manipulated the independent variable systematically and repeatedly; (e) recorded a minimum of

at least five data points (Kratochwill et al., 2010), demonstrating the intervention's effect in each phase for each group of subjects; (f) recorded social validity of the intervention; (g) recorded implementation fidelity; (h) assessed inter-scorer agreement for at least 20% of observations for each phase, for each teacher participant; and (i) reported detailed descriptions of participants, setting, and procedures. The present study met all of the quality indicators. In the following section, I describe the two levels of the independent variable: (a) regular classroom practices that occurred in the standard condition and (b) EBCM PBPD. Table 3.4 provides a summary of the conditions along with corresponding measures.

Standard Condition (A)

Upon receiving teacher consent and student assessment, participating teachers were invited to attend a 2-hour meeting. During the meeting, the teachers completed the following measures: demographic survey (Appendix K), Teacher Survey of Practices (Appendix D), Teacher Knowledge Measure (Appendix E), Student Risk Screening Scale: Internalizing and Externalizing (Appendix H), Self-efficacy (Appendix F), and burnout inventory (Appendix G).

Additionally, the principal investigator provided all of the teachers with a brief workshop on conducting curriculum-based measurement. The CBM training during the workshop in the A condition served two purposes. First, it ensured that all participants can provide consistent CBM data for the project; these data are a means of tracking potential effects of teachers' use of EBCM procedures on students' academic performance. Second, having all participants using at least one consistent feature during the A condition will advance this condition beyond "treatment as usual" in group designs (Horner et al., 2005, p.168) that characterizes many studies; both behavior analytic (Birnbrauer et al., 1974) and group-contrast researchers (Kaji & Lewis, 2015)

have recommended employing “active baseline” or “active control” conditions as ways of obtaining stronger comparisons in experimental studies.

At the end of the meeting, the principal investigator arranged an observation schedule. All observations occurred during math instruction. Observations occurred approximately three times per week and lasted between nine and 27 minutes per session. During observations, each target student was observed twice for 270 seconds (540 seconds/60 seconds = 9 minutes). The order of these observations was created using an online random number generator. The output of the random number generator was used to create a calendar with the observation sequence (see Appendix L). For example, on September 29 the observation was as follows: Student 3, Student 2, Student 1, Student 3, Student 2, and Student 1. Each observer received a hard-copy of a calendar that specified the order of observations. Additionally, a calendar was programmed on the observer’s tablets to alert the observer of the observation order.

EBCM PBPD (B)

The intervention was introduced to groups of teachers in a staggered fashion according to a multiple-baseline design. As in Standard Condition (A), observations lasted between nine and 27 minutes, three times a week. During this time teachers participated in a 2-hour PBPD focusing on the critical components of EBCM. The multi-component program outlined in the following section was deliberately designed to deliver rigorous PD on critical components of classroom management (e.g., structured environment, active supervision, procedures for increasing appropriate behavior and decreasing inappropriate behavior; Reinke et al., 2011; Simonsen et al., 2008) based on professional learning theories (Ball & Cohen, 1999) and combined with elements of explicit instruction to build teacher knowledge and fluency (Mager,

1997). Table 3.7 provides an overview of the components that are incorporated in PD content and format.

Table 3.7. *EBCM PBPD*

Element of PBPD (Ball & Cohen, 1999)	**EBCM PBPD**
Actively engage faculty with similar needs in the same school	All participants were in their first three years of teaching. Participants delivered the same content (i.e., math).
Assess and address prerequisite knowledge and skills	A pretest of teacher *knowledge* occurred prior to collecting baseline data. The teacher self-report survey gauged a *percentage of time* teachers engage in EBCM and the principal investigator also completed a similar survey during a direct observation.
Contextualize PD for teachers' current needs	The PD was based around the current needs of the teachers derived from the Teacher Practice Survey. A modified version of the Classroom Check-Up Feedback Form (Reinke et al., 2011) was used to communicate the results of the survey and observations. This form provided teachers with their strengths and areas of improvement. Teachers created a modified version of the Action Plan (Reinke et al., 2011) to help them identify specific, observable, and realistic goals.
Model and independent practice	Teachers engaged in active learning by watching and analyzing videos in addition to practicing the new methods.
Use similar materials that will be used in the classroom	Teachers were provided with materials in the training that were be used in the classroom. This includes short videos that describe a skill, provide examples, and nonexamples. During the trainings the teachers created an individual Action Plan. Information from the Action Plan was used to create a teacher self-monitoring plan.
Receive feedback on the independent practice	Teachers received weekly feedback (for four weeks) as they learned to implement the skills. Oral and written feedback (e.g., sharing graphs) after the training was used to aid the transfer of the skills from the training to the classroom with fidelity.

Teachers met in small groups (same as the multiple baseline leg) with the principal investigator. During the initial professional development meeting (Session 1), the principal investigator worked with the teachers to review specific EBCM practices by providing explicit skill instruction along with the rationale along with feedback on their current practices (see Appendix M for a Sample Feedback Form along with each group's Feedback Form). Examples and nonexamples are critical for teachers to see what works and what the skill looks like in the classroom. Teachers viewed short videos of a model teacher engaging in the skill. This provided a video-model of the skill. The use of video models in teacher education is a promising practice (Dieker et al., 2009; Ely, Kennedy, Pullen, Williams, & Hirsch, 2014). In an effort to engage teachers actively, after watching the video, teachers discussed and practiced the strategy while developing an action plan for implementation (see Appendix L for a template along with each group's Action Plan). Next, each group of teachers outlined how they intend to engage in the EBCM, when they will engage in the practice, and how they will monitor their own performance (e.g., self-monitoring checklist) during a designated period of instruction (see Action Plan in Appendix P).

To ensure the PD sessions were delivered in the same format, I created a fidelity checklist (see PBPD Agendas in Appendix O) to score the components of the PD content. At the conclusion of each meeting, a fidelity checklist was completed by the principal investigator. The initial EBCM PBPD was completed with 100% fidelity (i.e., every agenda item was covered across the three groups). Fidelity ratings for the nine follow sessions (three sessions per group) were 98.96%.

Immediately following the initial training, teachers had access to a series of the videos (CAPs plus video), to reinforce the EBCM PBPD content. The CAPs plus video provided

explicit instruction on the various components of EBCM based on a procedural fidelity checklist. The content for the CAPs plus video was divided into three segments to match the EBCM content: antecedent-based practices (5 mins, 23 secs), teaching behaviors (12 mins, 02 secs), and consequence-based strategies (14 mins, 45 secs). The CAPs plus videos were available online through the EdPuzzle website (see https://edpuzzle.com/join/bimsire). EdPuzzle created unique logins for the teachers and tracked whether the teachers viewed each of the three CAPs plus videos. Teachers were instructed to view the three videos at least two times on their free time (e.g., during planning). Data from EdPuzzle indicate that most of the teachers watched at least one CAP plus video with high variability (range = 0 – 4 per teacher). Half of the teachers watched some of the videos within three days of the initial EBCM PBPD Meeting. One teacher watched a video three weeks after the initial EBCM PBPD Meeting. See Table 3.8 for information on each teacher.

Table 3.8. *Views of CAPs plus Video on EdPuzzle Following the Initial PD*

Teacher	EBCM PBPD Meeting Date	CAP plus Video 1	CAP plus Video 2	CAP plus Video 3	Total Views
Group 1					
Ms. Stewart	10/19	3 Days	3 Days		3
Ms. Susanne	10/19	21 Days			1
Group 2					
Ms. Berger	11/08	2 Days	2 Days	10 Days	4
Ms. Snead	11/08	0	2 Days	2 Days	3
Group 3					
Ms. Anelli	11/17				0
Mr. Taylor	11/17	1 Day	1 Day	1 Day	3
				Mean	2.33
				Mode	3
				Median	3
				Range	0-4

Note. The table features the number of days following the initial training. For example, Ms. Stewart attended a training on 10/19 and watched CAP plus Video 1 on 10/21 equaling 3 Days.

Teachers recorded data on their action plans as a form of self-monitoring (see a sample in Appendix P along with each group's self-monitoring forms). Within the first week of the initial professional development, I conducted a classroom observation and provided the teacher feedback on the implementation of the action plan strategies (see Appendix N) for observation notes. All feedback to teachers was delivered via email.

Periodic visits continued to occur throughout the EBCM PBPD and Maintenance Phases. I used a checklist containing the teachers' Action Plan components to determine presence or absence of each component (see Table 3.9). The reliability was calculated by dividing the components observed by the components possible and multiplying the quotient by 100. PBPD scores ranged from 82.86% to 100%. Maintenance scores ranged from 55% to 100%

Table 3.9. *Observed Implementation of Action Plan Components*

	PBPD		**Maintenance**	
Teacher	# of Obs	% Of Components Implemented	# of Obs	% Of Components Implemented
Group 1				
Ms. Stewart	4	100%	-	-
Ms. Susanne	2	100%	3	55.55%
Group 2				
Ms. Berger	5	93%	3	100%
Ms. Snead	4	83.33%	1	50%
Group 3				
Ms. Anelli	5	96%	1	80%
Mr. Taylor	7	82.86%	1	60%

Follow-up sessions occurred weekly after the initial training for three weeks. Teachers continued to have access to the series of CAPs-plus-video to watch on their own time. During each follow up meeting, I followed a scripted agenda to ensure equivalent treatment across groups. At the same time, I worked with the teachers to review and revise their Action Plans, as needed. Teacher performance feedback was provided each week to the group (as a group not as

individual teachers). Performance feedback included two graphs: (a) average rate of EBCM practices per minute and (b) average target student engagement. At the conclusion of the EBCM PBPD, teachers met one-on-one with the PI to complete the social validity interview. During this meeting, the PI provided each teacher with a copy of his or her individual graphs (i.e., target student engagement, EBCM practices).

None of this information was used for school-based teacher evaluations. Only the principal investigator had access to these data. The principal investigator continued to conduct ongoing classroom observations. Direct observation data (e.g., frequency counts and student engagement data) were recorded to determine the teacher's response to the EBCM PBPD (same procedures as Standard Condition A).

Post-PBPD Maintenance Observations

At the conclusion of the EBCM PBPD Phase, observations continued in the same format as Conditions A and B. During the post-intervention phase the teachers did not formally meet with the principal investigator or receive direct support. During this period the teachers continued to have access to the CAPs- plus-video materials. Four to nine weeks after the final session of the EBCM PBPD phase, the principal investigator and a data collector conducted three classroom observations. Inter-observer agreement was collected on 42% of observations during maintenance for five of the six teachers. One teacher's (Ms. Stewart) classroom role changed and she was unavailable. At the same time, teachers completed CBMs weekly. During the final week of maintenance observations, teachers completed the self-efficacy and burnout measure.

Data Analysis

To draw conclusions about the effects of EBCM PBPD on student and teacher behavior, I analyzed the data using single-subject methodology outlined in the *What Works Clearinghouse:*

Single Case Design Guideline (Kratochwill et al., 2010). Specifically, the individual teacher was the unit of analysis with two teachers in each leg of the multiple baseline. Next, operational descriptions of baseline conditions, participants, settings, and the independent variable were provided. Additionally, multiple measures were employed to assess teacher implementation and student performance.

I visually inspected the data represented on a graph in a time series format to determine whether there was a functional relationship. The dependent measures (e.g., EBCM practices per minute; total student engagement) are featured on the vertical axis and time on the horizontal axis. EBCM practices per minute is a composition of the frequency of four teacher specific behaviors: general feedback, specific feedback, opportunities to respond, and precorrections.

The procedural guidelines outlined by Cooper and colleagues (2007) were used to determine the results. These include: level, trend, variability, immediacy of effect, overlap, and consistency of data patterns across similar phases. To supplement visual analysis, a percent of nonoverlapping data (PND) is computed. This calculates the proportion of treatment data that exceed the highest baseline data point to determine the degree of separate between conditions for each participants (Scruggs & Mastropieri, 1998, 2012).

CBM data are displayed visually on a graph. The aforementioned procedures were employed to analyze the effect of EBCM PBPD on student academic performance. The percentage of EBCM components delivered during the lesson were calculated (see Capizzi et al., 2010). I also calculated correlations between: student behavioral outcomes and teacher implementation of various teaching practices (i.e., opportunities to respond, general praise, specific praise, direct commands, precorrections, and reprimands). Pearson correlations were used to assess the strength of the association between each variable and student engagement.

Next, the teacher report of efficacy and burnout prior to the training, immediately following the training, and approximately three months after the training were evaluated using basic statistics including *t*-tests and ANOVAs. Finally, I summarized social validity data descriptively.

CHAPTER IV: RESULTS

The underlying rationale for this study is that most educators enter teaching with minimal knowledge of behavior management practices, but professional development can be strategically designed to help them implement evidence-based classroom management (EBCM) practices. In this dissertation, I investigated the effects of an EBCM practice-based professional development (PBPD) with novice teachers during math instruction. To enhance the novice teachers' acquisition of the EBCM practices, I combined instructional design principles with the PBPD framework to provide them with a series of multimedia videos (CAPs-plus-video materials). I used a single-subject multiple baseline design across six teachers in three groups of teachers located at five sites to investigate the efficacy of a PBPD. We observed two to three target students in each teachers' classroom. During these observations, data collectors tracked the frequency of EBCM practices and duration of student engagement. I also evaluated the effects of a PBPD on teachers' EBCM practice knowledge, along with their self-efficacy and burnout. Math curriculum based measures (CBMs) were administered by the teachers to the students throughout the duration of the study.

In this chapter, I present the results of the EBCM PBPD with the six novice teachers. First, the rate of EBCM practices per minute and fidelity of implementation are discussed. Second, student engagement data are presented across phases (Standard Condition, EBCM PBPD, and Maintenance). Correlations between student engagement and teacher use of EBCM practices are presented. Third, CBM results are presented as a percentage of digits correct. Fourth, the results of the *Teacher Knowledge Test* are presented. Fifth, the results *Teacher Survey of Practices* are discussed. Sixth, class-wide and target student risk levels are reported.

Seventh, the results of teacher self-reports of efficacy and burnout are presented. Finally, the results of social validity surveys and interviews are presented. These data are summarized descriptively.

Teachers' Use of EBCM Practices

I collected direct observation data about teachers' use of EBCM practices during math instruction. The EBCM practices were defined as the rate of specific teacher actions per minute per observation session. These actions include: (a) providing opportunities to respond, (b) general praise statements, (c) specific praise statements, (d) direct commands, and (e) pre-corrections. In addition to recording positive actions, observers also recorded reprimands and I present these as a rate per minute data. The data are represented by group (EBCM rate, Figure 4.1; reprimand rate, Figure 4.2). Appendix R (EBCM rate) and Appendix S (reprimand rate) contain individual teacher graphs.

I analyzed each teacher and group to determine whether there were changes in the following five factors: (1) level or mean value of each phase; (2) trend within and between phases; (3) variability of the data within each phase; (4) immediacy of effect; and (5) percent of overlap, across each phase (Kratochwill et al, 201x). I calculated descriptive statistics to support visual analyzes. Tables 4.1 (Group EBCM Practices per Min), 4.2 (Individual EBCM Practices per Min), 4.3 (Individual Teacher Reprimands per Min), and 4.4 (Individual Teacher EBCM Practices per Min) present the mean, medians, ranges, slope coefficient, and percentage of nonoverlapping data.

Figure 4.1 EBCM Practice Rate

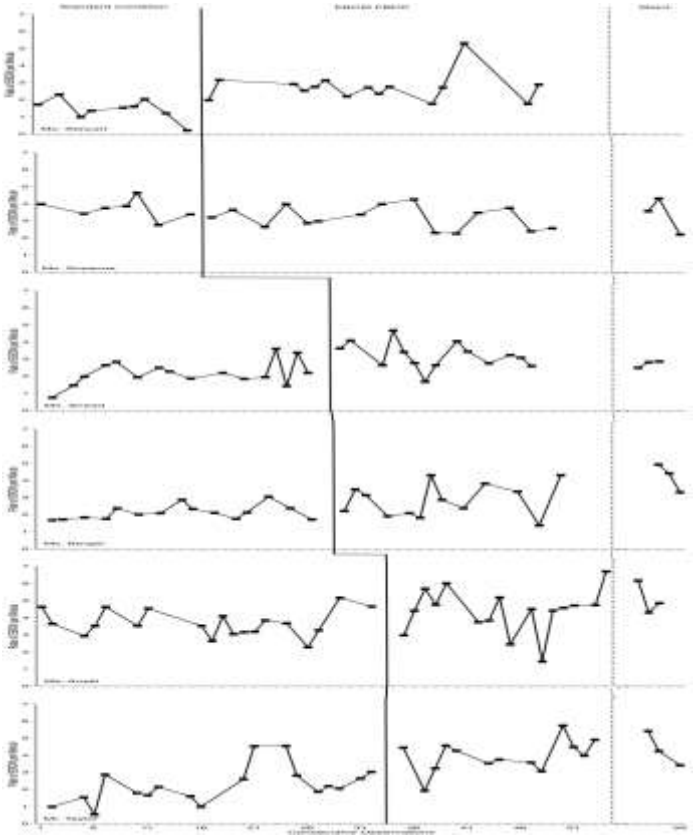
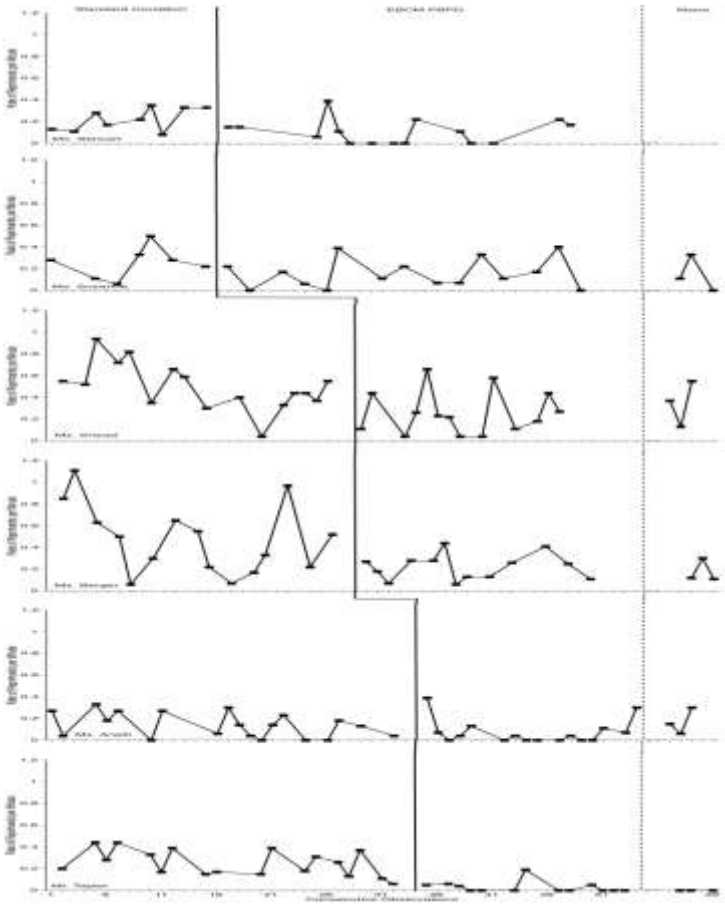


Figure 4.2 Reprimand Rate



Group 1 (Ms. Stewart and Ms. Susanne) EBCM Practice and Reprimand Rates

Figures 4.1 and 4.2 show Ms. Stewart and Ms. Susanne's EBCM practice data across the Standard Condition (A), EBCM PBPD (B), and Maintenance phases. It is important to note that both teachers were absent due to illness for five or more days during the EBCM PBPD phase of the study; therefore graphs have missing data. In addition, Ms. Stewart's schedule and role changed for two weeks in November. These changes affected the number of times the teacher taught math, thus limiting the number of observations.

During the Standard Condition (A), Ms. Stewart had a mean EBCM rate-per-minute score of 1.45 (*SD* = 0.58), and Ms. Susanne had an average score of 3.70 (*SD* = 0.54). The

average for Group One in the Standard Condition was 3.24 (*SD* = 0.88) and the trend line showed a decreasing trend. After attending the EBCM PBPD, Ms. Stewart demonstrated increased levels of EBCM practices per minute as evidenced by the increasing trend and level (slope + 0.70). According to visual analysis (level and trend), Ms. Susanne decreased the rate of EBCM practices to an average of 3.28 (*SD* = 0.66) EBCM practices per minute. During maintenance data collection Ms. Susanne slightly increased her EBCM practice rate to 3.37 (*SD* = 0.87), which exceeded baseline. Although it is generally not a good idea to compare data from non-adjacent phases (Franklin, Gorman, Beasley, & Allison, 1994) in this case I am doing so because the only intervening phase is the active intervention, so the comparison is between performance before intervention and during maintenance following the intervention. The average for the maintenance phase (only Ms. Susanne) was 3.37 (*SD* = 0.87). Ms. Stewart and Ms. Susanne demonstrated a high degree of overlapping data, with 73.33% and 100% respectively. The nonoverlap average for Group One was 52.63%.

Changes in reprimands were congruent with changes in EBCM practice rate. During Standard Condition (A), Ms. Stewart had a mean reprimand rate per minute score of 0.22 (*SD* = 0.10), and Ms. Susanne had an average score of 0.25 (*SD* = 0.14). The average for Group One in the Standard Condition was 0.24 (*SD* = 0.09), equivalent to approximately one reprimand every four minutes. After attending the EBCM PBPD, both teachers used reprimands less frequently. Ms. Stewart and Ms. Susanne decreased their rates of reprimands to 0.10 (*SD* = 0.11) and 0.15 (*SD* = 0.13) per minute, respectively. During maintenance data collection, Ms. Susanne's reprimand rate remained stable at 0.15 (*SD* = 0.14). The average rate of reprimands for Group One during the PBPD phase was 0.13 (*SD* = 0.10) with for 42.11% of data points not overlapping on average when comparing the Standard Condition to PBPD.

Group 2 (Ms. Berger and Ms. Snead) EBCM Practice and Reprimand Rates

During the Standard Condition (A), Ms. Berger had a mean EBCM rate per minute score of 2.13 (*SD* = 0.40), and Ms. Snead had a mean score of 2.19 (*SD* = 0.69). The mean for Group Two in the Standard Condition was 2.16 (*SD* = 0.46) with an increasing trend (slope = +4.62). After attending the EBCM PBPD, Ms. Berger demonstrated increased levels of EBCM practices per minute as evidenced by the increasing trend, level, and slope. Ms. Berger had a mean rate of 2.83 (*SD* = 0.87) practices per minute after attending the PBPD. Her EBCM practice rate continued to rise during maintenance with an average of 4.68 (*SD* = 0.25) practices per minute. According to visual analysis (level and trend), Ms. Snead also increased the rate of EBCM practices to an average of 3.21 (*SD* = 0.74) EBCM practices per minute. However during maintenance data collection Ms. Snead decreased her EBCM practice rate to 2.74 (*SD* = 0.16); however, this level exceeded her baseline. The averages for Group Two during the PBPD phase and maintenance phases were 2.99 (*SD* = 0.44) and 3.39 (*SD* = 0.33), respectively. Ms. Berger and Ms. Snead demonstrated a small percentage of nonoverlapping data, with 52.94% and 23.53% respectively. The nonoverlap average for Group Two was 26.32%.

Similar to Group One, changes in reprimands were congruent with changes in EBCM practice rate. During the Standard Condition, (A) Ms. Berger had a mean reprimand rate per minute score of 0.48 (*SD* = 0.31), and Ms. Snead had a mean score of 0.50 (*SD* = 0.21). The mean for Group Two during the Standard Condition was 0.49 (*SD* = 0.21), equivalent to approximately one reprimand every other minute. After attending the EBCM PBPD, both teachers demonstrated significant lower rates of reprimands per minute. Ms. Berger and Ms. Snead decreased their rates of reprimands to 0.22 (*SD* = 0.11) and 0.26 (*SD* = 0.20) per minute, respectively. Compared to the Standard Condition, during Maintenance, both Ms. Berger and

Ms. Snead continued to issue reprimand at lower rates with 0.17 (*SD* = 0.09) and 0.35 (*SD* = .20), respectively. The mean reprimand rate for the PBPD phase was 0.28 (*SD* = 0.17) with average for 15% of nonoverlapping data.

Group 3 (Ms. Anelli and Mr. Taylor) EBCM Practice and Reprimand Rate

During the Standard Condition, Ms. Anelli had a mean EBCM rate per minute score of 3.68 (*SD* = 0.74), and Mr. Taylor had a mean score of 2.26 (*SD* = 1.05). The mean for Group Three in the Standard Condition was 2.97 (*SD* = 0.81) with an increasing trend (Slope = +3.53). After attending the EBCM PBPD, Ms. Anelli demonstrated increased levels of EBCM practices per minute as evidenced by the increased level (*M* = 4.40, *SD* = 1.27) and accelerating slope (slope = +0.47) of EBCM practices per minute. Mr. Taylor also increased his rate to 3.97 (*SD* = 0.92) practices per minute after attending the PBPD. Ms. Anelli and Mr. Taylor's EBCM practice rates remained high during maintenance, 5.13 (*SD* = 0.78) and 4.37 (*SD* = 0.82), respectively for an average of 4.75 (*SD* = 0.89) practices per minute. Ms. Anelli and Mr. Taylor demonstrated a small percentage of nonoverlapping data, with 27.78% and 33.33%, respectively. The nonoverlap average for Group Three was 20%.

Similar to Groups One and Two, changes in reprimands are congruent with changes in EBCM practice rate. During Standard Condition (A) Ms. Anelli had a mean reprimand rate per minute score of 0.15 (*SD* = 0.12), and Mr. Taylor had a mean score of 0.25 (*SD* = 0.12). The mean for Group Three during the Standard Condition was 0.20 (*SD* = 0.10), equivalent to approximately one reprimand every five minutes. After attending the EBCM PBPD, both teachers demonstrated significant decreased rate of reprimands per minute as evidenced by the decreasing trend and level. According to visual analysis (level and trend), Ms. Anelli decreased the rate of reprimands to 0.04 (*SD* = 0.08) per minute and Mr. Taylor decreased the rate of

reprimands to 0.03 (*SD* = 0.05) per minute. Ms. Anelli's reprimand rate increased slightly (compared to the Standard Condition) to 0.17 (*SD* = 0.10) whereas Mr. Taylor's decreased to 0.00 (*SD* = 0). The average for Group Two during the PBPD phase was 0.05 (*SD* = 0.06) with average for 50% of data points nonoverlapping when comparing the Standard Condition to PBPD.

Table 4.1. *EBCM Practices Descriptive Statistics by Teacher*

	Standard Condition			PBPD			Maintenance			Effect Size
Teacher	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	N-ODP
Ms. Stewart	1.45 (0.58)	1.55 (0.22 – 2.35)	-2.34	2.74 (0.81)	2.04 (1.77-5.31)	+0.70	NAO	NAO	NAO	73.33
Ms. Susanne	3.70 (0.50)	3.82 (2.77-4.65)	-1.08	3.28 (0.66)	3.21 (2.77 – 4.27)	-1.75	3.37 (0.87)	3.58 (2.21-4.32)	-0.60	0.00
Ms. Berger	2.13 (0.40)	2.10 (1.73 – 3.06)	+4.22	2.83 (0.87)	2.88 (1.38 – 4.32)	+1.05	4.23 (0.67)	4.43 (3.32-4.94)	-1.18	58.82
Ms. Snead	2.19 (0.69)	2.10 (0.77-3.62)	+2.67	3.21 (0.74)	2.95 (1.44-4.69)	-1.81	2.74 (0.16)	2.83 (2.51-2.88)	+4.54	25.53
Ms. Anelli	3.68 (0.74)	3.54 (2.29-5.18)	-0.14	4.40 (1.27)	4.56 (1.46-6.72)	+0.47	5.13 (0.78)	4.87 (4.32-6.72)	-0.71	27.78
Mr. Taylor	2.26 (1.05)	2.11 (0.55-4.56)	+2.39	3.97 (0.92)	3.99 (1.94-5.75)	+1.76	4.37 (0.82)	4.26 (3.43-5.43)	-0.99	33.33

Note. NAO = Not Available or Observed

Table 4.2. *EBCM Practices Descriptive Statistics by Group*

	Standard Condition			PBPD			Maintenance			Effect Size
Group	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	M (SD)	Median (Range)	Slope	N-ODP
1	2.24 (0.88)	2.62 (0.22-3.10)	-2.17	2.95 (0.55)	2.91 (1.77-3.94)	-2.59	3.37* (0.87)	3.58* (2.21-4.32)	-0.60*	52.63
2	2.15 (0.46)	2.14 (1.23-3.34)	+4.62	2.99 (0.44)	3.04 (2.23-3.65)	+0.84	3.39 (0.33)	3.48 (2.88-3.72)	-2.25	25.00
3	3.10 (0.18)	2.99 (1.75-5.18)	+3.53	4.27 (1.02)	4.45 (1.94-6.72)	+2.39	4.75 (0.89)	4.59 (3.34-6.19)	-1.18	20.00

Notes. Notes. NAO = Not Available or Observed; N-ODP = Nonoverlapping Data Percentage; Slope = Slope Coefficient. *Scores only reflect teacher Ms. Susanne

Table 4.3. *Reprimand Descriptive Statistics by Teacher*

	Standard Condition			PBPD			Maintenance			Effect Size
Teacher	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	N-ODP
Ms. Stewart	0.22 (0.10)	0.22 (0.08-0.35)	+0.02	0.10 (0.11)	0.11 (0-0.39)	-4.71	NAO	NAO	NAO	53.33
Ms. Susanne	0.25 (.14)	0.28 (0.06-0.50)	+4.76	0.16 (0.13)	0.11 (0-0.40)	+0.005	0.15 (0.14)	0.11 (0.00-0.33)	-1.99	41.18
Ms. Berger	0.48 (0.31)	0.50 (0.06-1.11)	-1.06	0.22 (0.11)	0.23 (0.06-0.44)	+0.001	0.17 (0.09)	0.12 (0.11-0.30)	-0.31	5.56
Ms. Snead	0.50 (0.21)	0.48 (0.04-0.94)	-11.09	0.26 (0.20)	0.23 (0.04-0.66)	1.06	0.35 (0.17)	0.37 (0.13-0.55)	+2.07	11.76
Ms. Anelli	0.15 (0.12)	0.14 (0.00-0.39)	-7.21	0.05 (0.08)	0.02 (0.00-0.30)	+18.93	0.17 (0.10)	0.15 (0.06-0.30)	+4.95	42.11
Mr. Taylor	0.25 (0.12)	0.23 (0.06-0.44)	-19.40	0.03 (0.05)	0.00 (0.00-0.19)	-17.11	0.00 (0.00)	0.00	0.00	93.73

Notes. Notes. NAO = Not Available or Observed; N-ODP = Nonoverlapping Data Percentage; Slope = Slope Coefficient.

Table 4.4. *Reprimand Descriptive Statistics by Group*

	Standard Condition			PBPD			Maintenance			Effect Size
Group	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	N-ODP
1	0.24 (0.09)	0.25 (0.11-0.36)	+17.99	0.13 (0.10)	0.14 (0.00-0.39)	+3.24	0.15* (0.14)	0.11* (0.00-0.33)	-5.83*	45.00
2	0.49 (0.21)	0.50 (0.11-0.81)	-10.66	0.24 (0.11)	0.26 (0.08-0.47)	+1.98	0.28 (0.17)	0.23 (0.11-0.55)	-0.27	20.00
3	0.20 (0.10)	0.22 (0.04-0.39)	-20.11	0.05 (0.07)	0.02 (0.00-0.30)	+22.57	0.05 (0.06)	0.03 (0.00-0.30)	-1.90	50.00

Notes. Notes. NAO = Not Available or Observed; N-ODP = Nonoverlapping Data Percentage; Slope = Slope Coefficient. *Scores only reflect Ms. Susanne

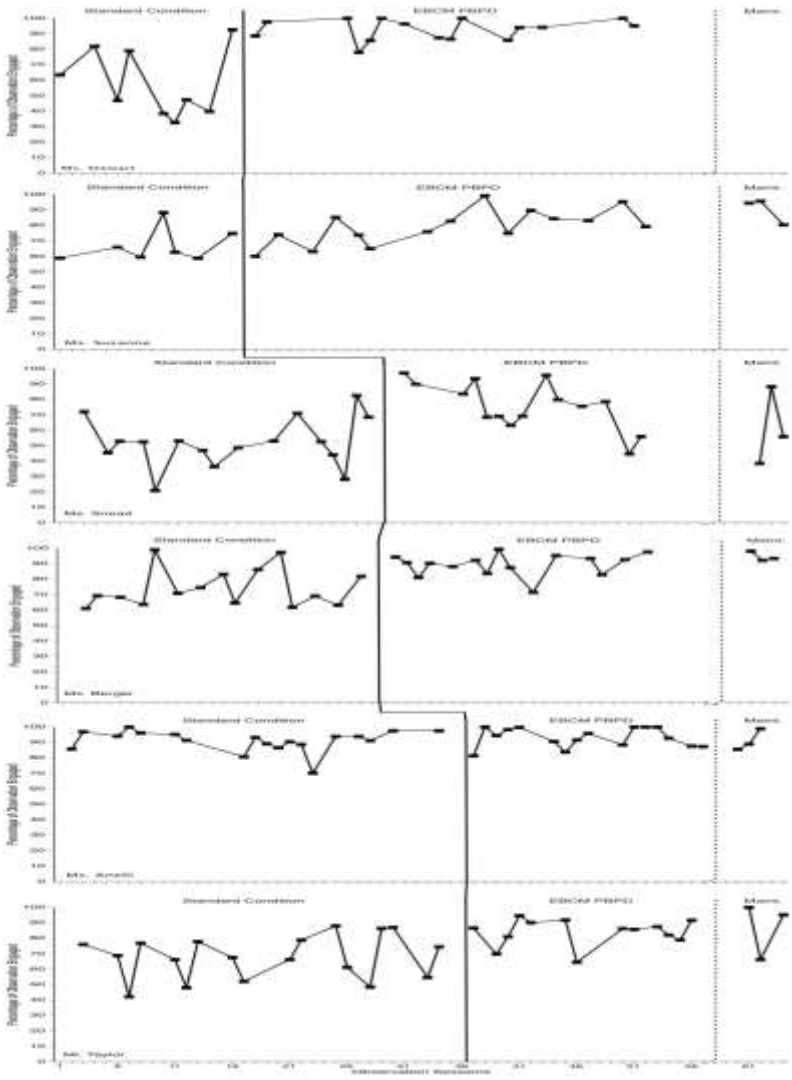
Student Engagement

In addition to teacher observations, target student engaged time was simultaneously assessed during scheduled math observations. At least two target students (identified by the SRSS-IE) were observed in each teachers' classroom. Engaged time was defined as the percentage of the observation period that the student was actively and passively engaged (see Appendix B for operational definitions, examples, and nonexamples). Student engagement results are presented by teacher (see Figure 4.3). Descriptive statistics are presented in Table 4.4 and 4.5. Individual teacher graphs are available in Appendix T.

Group 1 (Ms. Stewart and Ms. Susanne) Student Engagement

In the Standard Condition (A), Ms. Stewart's students had a mean engaged time of 57.94% (*SD* = 20.70), and Ms. Susanne's students had a mean engaged time of 67.07% (*SD* = 26.39). The mean for Group One was 62.38% (*SD* = 16.78) with a slight increase in trend (Slope +0.01). Mean levels of engagement increased from the Standard Condition for Group One (*M* = 85.46, *SD* = 10.21) after the teachers attended the EBCM PBPD training. Specifically, target students in Ms. Stewart and Ms. Susanne's classrooms demonstrated increased levels of 92.65% (*SD* = 6.62) and 79.10 (*SD* = 10.86). Only Ms. Susanne's students were observed during maintenance due to scheduling constraints. Post-PBPD (maintenance) levels remained high for Ms. Susanne's students, 90.22% (*SD* = 6.93). Ms. Stewart and Ms. Susanne demonstrated a low-to- moderate percentage of nonoverlapping data, with 60% and 35% respectively. The nonoverlap average for Group One was 31.58%.

Figure 4.3 Target Student Engagement by Teacher



Group 2 (Ms. Berger and Ms. Snead) Student Engagement

During the Standard Condition (A), Ms. Berger students had a mean level of engagement of 74.32% (*SD* = 12.04), and Ms. Snead's students had a mean level of 51.88% (*SD* = 15.59). The mean for Group Two in the Standard Condition was 62.92% (*SD* = 9.38) with a slight increasing trend (Slope +0.10). After attending the EBCM PBPD, both teachers' students

increased their engagement (*M* = 83.39%, *SD* = 6.72). Specifically, Ms. Berger's students demonstrated increased levels of engagement as evidenced by the increasing trend, level, and slope, with a mean of 89.43% (*SD* = 6.98). This rate continued to rise during maintenance with an average of 94.64% (*SD* = 0.61). According to visual analysis (level and trend), Ms. Snead's students also increased the rate of engagement to 76.13% (*SD* = 14.92). However during maintenance data collection Ms. Snead's students decreased their average engagement to 60.94% (*SD* = 20.66) which continued to exceed baseline however it was lower than the PBPD phase. The average for Group Two during the maintenance phases was 77.79% (*SD* = 9.23). Ms. Berger and Ms. Snead demonstrated a small percentage of nonoverlapping data, with 11.11% and 35.29% respectively. The nonoverlap average for Group Two was 42.11%.

Group 3 (Ms. Anelli and Mr. Taylor) Student Engagement

During the Standard Condition (A), Ms. Anelli's students engagement averaged 90.86% (*SD* = 6.53), and Mr. Taylor's students averaged 67.86% (*SD* = 13.82). The mean for Group Three in the Standard Condition was 80.68% (*SD* = 9.21) with a slight increasing trend (Slope +0.19). After attending the teachers attended the EBCM PBPD, the Group Three target students increased their engagement (*M* = 89.09, *SD* = 7.27). Specifically, Ms. Anelli's students demonstrated increased levels of engagement as evidenced by the increasing trend, level, and slope with a mean of 93.23% (*SD* = 6.07) and Mr. Taylor's students also increased their engagement to 83.94% (*SD* = 8.71). Ms. Anelli and Mr. Taylor's student engagement remained high during maintenance, 92.13% (*SD* = 5.66) and 87.17% (*SD* = 14.89), respectively for an average of 89.15% (*SD* = 9.93). Ms. Anelli and Mr. Taylor demonstrated a small percentage of nonoverlapping data, with 21.05% and 40%, respectively. The nonoverlap average for Group Three was 20%.

Table 4.5. *Student Engagement Descriptive Statistics by Teacher*

	Standard Condition			PBPD			Maintenance			Effect Size
Teacher	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	N-ODP
Ms. Stewart	57.94 (20.70)	47.50 (32.69-92.62)	-0.92	92.65 (6.62)	94.19 (77.95-100)	+0.13	NAO	NAO	NAO	60.00
Ms. Susanne	67.07 (26.39)	62.86 (58.95-88.28)	+1.13	79.10 (10.86)	79.29 (60.15-99.25)	+0.25	90.22 (6.93)	94.46 (80.45-95.76)	-0.10	35.71
Ms. Berger	74.32 (12.04)	69.31 (61.15-97.42)	+0.43	89.43 (6.98)	90.81 (71.59-99.38)	+0.06	94.64 (0.61)	93.48 (92.25-98.17)	-0.24	11.11
Ms. Snead	51.88 (15.59)	52.64 (20.98-82.60)	+0.62	76.13 (14.92)	75.71 (44.71 -97.23)	-0.17	60.94 (20.66)	55.94 (38.50-88.37)	+0.01	35.29
Ms. Anelli	90.86 (6.53)	92.31 (70.25-100)	-0.11	93.23 (6.07)	93.57 (81.30-100)	-0.01	91.13 (5.66)	88.93 (85.58-92.74)	+0.14	21.05
Mr. Taylor	67.86 (13.82)	68.23 (42.16-88.01)	+0.07	83.94 (8.71)	86.32 (64.49-94.63)	+0.05	87.17 (14.89)	95.21 (66.29-100)	-0.01	40.00

Notes. Notes. NAO = Not Available or Observed; N-ODP = Nonoverlapping Data Percentage; Slope = Slope Coefficient.

Table 4.6. Student Engagement Descriptive Statistics by Group

	Standard Condition			PBPD			Maintenance			Effect Size
Group	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	N-ODP
1	62.38 (16.79)	61.16 (39.30-92.62)	+0.01	85.46 (10.21)	88.16 (60.15-100)	+0.34	90.22* (6.93)	94.46* (80.46-95.76)	-0.10*	31.58
2	62.92 (9.38)	60.31 (45.76-84.26)	+0.10	83.39 (6.72)	83.70 (68.69-94.31)	-0.46	77.79 (9.23)	74.72 (68.34-90.31)	+0.02	42.11
3	80.68 (9.21)	81.96 (59.36-97.58)	+0.19	89.09 (7.27)	88.74 (69.86-100)	+0.29	89.15 (9.93)	92.07 (66.29-100)	+0.04	20.00

Notes. Notes. NAO = Not Available or Observed; N-ODP = Nonoverlapping Data Percentage; Slope = Slope Coefficient. *Scores only reflect Ms. Susanne

Teacher Practices and Student Engagement

I calculated pearson's product-moment correlations to assess the relation between teacher practices and student engagement, correlations are presented in Table 4.7. Six teacher behaviors were significantly related to student engagement, including opportunities to respond (r = .375, p < .01), specific praise (r = .353, p < . 01), precorrections (r = .212, p < . 01) and explicit commands (r = .212, p < . 01). There was a small positive correlation between average student engagement and general praise (r = .178, p < .05). In addition, there was a large correlation between teacher delivered reprimands and student engagement (r = -.478, p < . 01). All correlations are in the expected direction.

Table 4.7. *Pearson Correlations for Teacher Practices and Student Engagement*

	Student Engagement
Opportunities to Respond	.375**
General Praise	.178*
Specific Praise	.353**
Command*	.206**
Precorrections	.212**
Reprimands	-.478**

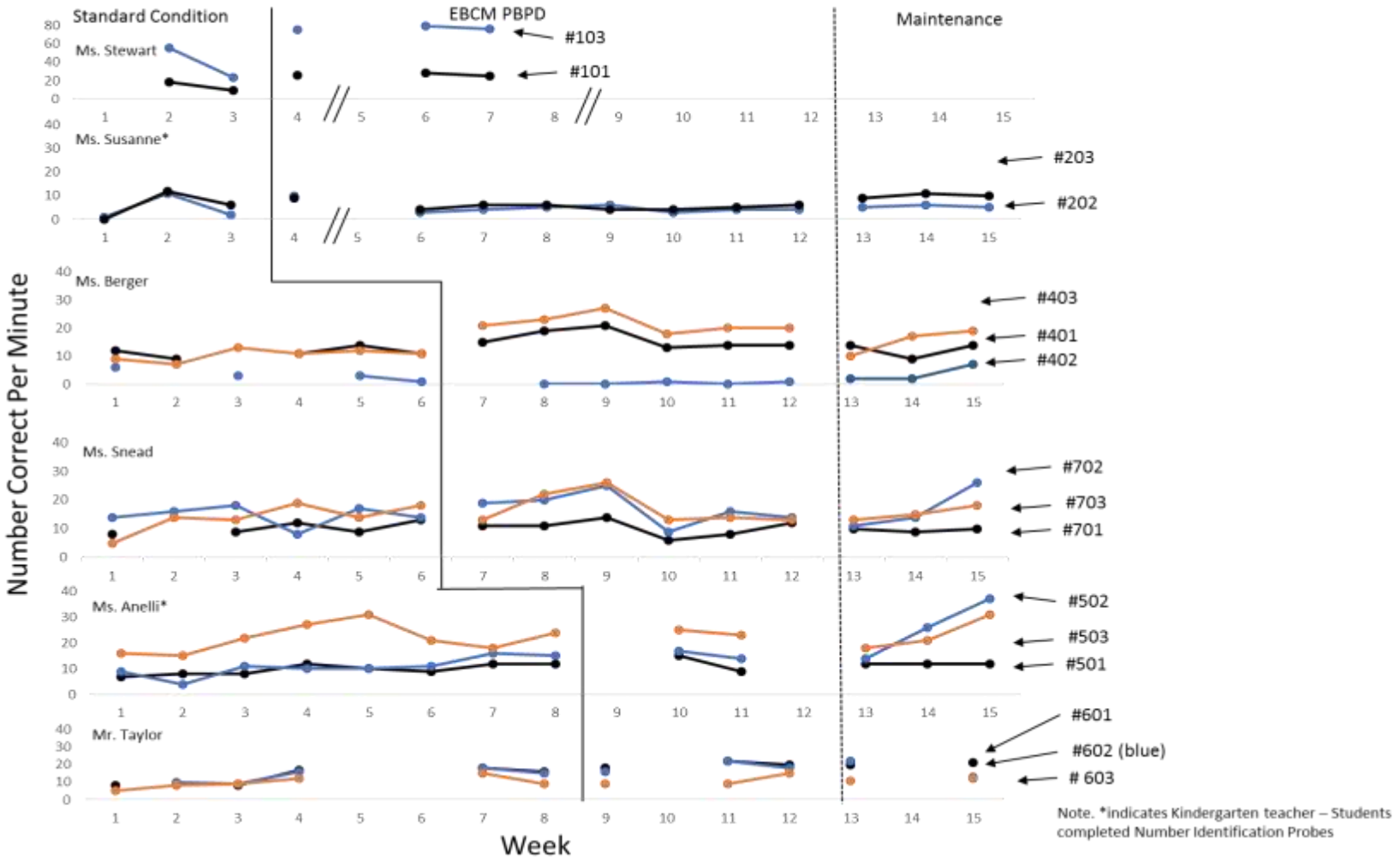
Note. * = Statistically significant at the p < 0.05 level; **Statistically significant at the p <0.01 level.

Curriculum-based measures (CBM)

Teachers administered a math curriculum-based measure (CBM) weekly. Students had one minute to identify numbers (kindergarten) or solve basic computation problems (1^{st}-6^{th} grade) using individual worksheets as probes. At the end of the week, a data collector gathered and scored the probes. Figure 4.4 and Table 4.8 present the CBM data for each of the teacher's target students. Student data are presented for each teacher plus the mean, median, slope

coefficients, and percentage of nonoverlapping data across the phases. Across students, visual analysis and statistics indicate that the number of problems (or digits) correct was variable within or between phases for most participants.

Figure 4.4. Weekly Curriculum Based Measurement



Group 1 (Ms. Stewart and Ms. Susanne) CBM Data

Ms. Stewart administered basic fact probes that contained addition and subtraction problems. During the Standard Condition (A) Ms. Stewart's student #101 had a mean CBM score of 13.50 (*SD* = 4.50), and student #103 had an average score of 39 (*SD* = 16). According to visual analysis Students #101 (*M* = 26.33, *SD* = 1.25) and #103 (*M* = 76.67, *SD* = 1.70) demonstrated improved scores after their teachers attended the EBCM PBPD (Condition B). Additionally, when comparing nonoverlap between the standard condition and PBPD, 100% of data were nonoverlapping However Ms. Stewart conducted two CBM probes before attending the EBCM PDPD and three data points after attending the EBCM PBPD, thus, we must interpret the results with caution. Further, maintenance data were not available.

Ms. Susanne's administered number identification probes weekly to students #202 and #203. During the Standard Condition (A) had a mean CBM score of 4.67 (*SD* = 4.50) and 6 (SD = 4.90, respectively. Students #202 and #203 had an upward trend in the number of digits correct (0.02, 0.08, respectively). Mean CBM scores slightly changed for both students. Student #202 (*M* = 4.88, *SD* = 2.15) increased slightly from standard condition levels whereas Student #203 (M = 5.50, SD =1.58) demonstrated a slight decrease in their score from the standard condition. Maintenance levels of CBM data increased for both students, 5.33 (*SD* = 0.47) and 10 (*SD* = 0.82). Despite the increase there is low level of non-overlap for both students.

Group 2 (Ms. Berger and Ms. Snead) CBM Data

Ms. Berger and Ms. Snead administered the CBM probes consistently across the three phases. Ms. Berger administered basic fact probes that contained addition and subtraction problems to students #401, #402, and #403. During the Standard Condition (A) Students #401

and #403 had mean CBM score of 11.40 (*SD* = 1.62) and 10.50 (*SD* = 1.98), respectively. According to visual analysis student #401 (*M* = 16, *SD* = 2.94) and student #403 (*M* = 21.50, *SD* = 2.87) demonstrated improved scores after their teachers attended the EBCM PBPD (Condition B). Student #402 decreased from the mean level of 3.25 (*SD* = 1.79), during Standard Condition (A) to 0.40 (*SD* = 0.49) after his teacher attended the EBCM PBPD. The post-PBPD CBM levels decreased for two students, #401 (*M* = 12.33, *SD* = 2.36) and #403 (*M* = 15.33, *SD* = 3.86). Student #402's mean CBM scores increased slightly (*M* = 3.67, *SD* = 3.56). Additionally, when comparing nonoverlap between the Standard Condition and PBPD, students #401 and #403 had a high percentage of nonoverlapping data, 78% and 89%, respectively. A low percentage of data were nonoverlapping (13%) for Student #402.

During the Standard Condition (A) Ms. Snead administer basic fact probes (addition, subtraction, multiplication, and division) to her three target students, #701, #702, and #703. Students #701, #702, #703 had mean CBM score of 10.20 (*SD* = 1.94), 14.50 (*SD* = 3.25), and 13.83 (*SD* = 4.52) respectively. The mean number of problems correct increased from the Standard Conditions for each Ms. Snead's students to 10.33 (*SD* = 2.64), 17.17 (*SD* = 5.01), and 16.83 (*SD* = 5.21). EBCM PBPD levels of CBM demonstrate a high rate of variability for two of the students with standard deviations of 5.01 (student #702) and 5.21 (student #703). Although the three students increased their mean CBM scores during EBCM PBPD, during maintenance their scores dropped to 9.67 (*SD* = 2.64), 17 (*SD* = 6.58), and 15.33 (*SD* = 2.05). A low percentage of data were nonoverlapping for Student #701 (0%), Student #702 (44%), and Student #703 (22%).

Group 3 (Ms. Anelli and Mr. Taylor) CBM Data

Ms. Anelli administered the number identification CBM probes consistently during the Standard Condition and Maintenance phases. During the Standard Condition (A) Ms. Anelli's students, #501, #502, and #503 had mean CBM score of 9.75 (*SD* = 1.92), 10.75 (*SD* = 3.46), and 21.75 (*SD* = 5.14), respectively. According to visual analysis the students #501, #502, and #503 increased their mean score after their teachers attended the EBCM PBPD (Condition B), 12 (*SD* = 3.00), 15.50 (*SD* = 1.50), and 24.00 (*SD* = 1.), respectively. At maintenance, Student #501's mean score did not shift (*M* = 12, *SD* = 0). Student #503 slightly decreased to a mean level of 23.33 with a moderate level of variability (*SD* = 5.56). When comparing nonoverlap between the Standard Condition and PBPD, students #501 and #502 had a moderate percentage of nonoverlapping data, 80% and 60%, respectively. A low percentage of data were nonoverlapping (20%) for Student #503.

Mr. Taylor administered the basic fact (addition and subtraction) CBM probes during each phase however four weeks were missing. During the Standard Condition (A) Mr. Taylor's students, #601, #602, #603 had mean CBM score of 13.40 (*SD* = 4.45), 13.60 (*SD* = 3.50), and 9.67 (*SD* = 3.14) respectively. The mean number of problems correct increased from the Standard Conditions for each student to 20 (*SD* =1.63), 18.67 (*SD* = 2.49), and 11 (*SD* = 2.83). Although the three students increased their mean CBM scores during EBCM PBPD, during maintenance students #601, #602, #603 mean scores stayed remained relatively stable to 20.50 (*SD* = 0.50), 17.50 (*SD* = 4.50), and 11.50 (*SD* = 0.50). When comparing nonoverlap between the Standard Condition and PBPD, student #601 had no overlapping data (100%). Lower percentages of data were nonoverlapping for student# 601 (60%) and student #603 (20%).

Table 4.8. *CBM Statistics - Student Level Means and Ranges*

		Standard Condition			PBPD			Maintenance			Effect Size
Teacher	S-ID	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	N-ODP
Ms. Stewart	101	13.50 (4.5)	13.50 (9-18)	-0.11	26.33 (1.25)	26 (25-28)	-0.14	NAO	NAO	NAO	100%
Ms. Stewart	103	39 (16)	39 (23-55)	0.03	76.67 (1.70)	76 (75-79)	+0.31	NAO	NAO	NAO	100%
Ms. Susanne	202	4.67 (4.50)	2 (1-11)	+0.02	4.88 (2.15)	4 (3-10)	-0.67	5.33 (0.47)	5 (5-6)	0.00	0%
Ms. Susanne	203	6 (4.90)	6 (0-12)	+0.08	5.50 (1.58)	5.50 (4-9)	-0.78	10 (0.82)	10 (9-11)	+0.50	0%
Ms. Berger	401	11.40 (1.62)	11 (9-14)	+0.36	16 (2.94)	14.50 (13-21)	-0.27	12.33 (2.36)	14 (9-14)	0.00	78%
Ms. Berger	402	3.25 (1.79)	3 (1-6)	-1.00	0.40 (0.49)	0 (0-1)	1.67	3.67 (2.36)	2 (2-7)	+0.30	13%
Ms. Berger	403	10.50 (1.98)	11 (7-13)	+0.49	21.50 (2.87)	20.50 (18-27)	-0.23	15.33 (3.86)	17 (10-19)	+0.20	89%
Ms. Snead	701	10.20 (1.94)	9 (8-13)	+0.65	10.33 (2.62)	11 (6-14)	-0.15	9.67 (0.47)	10 (9-10)	0	0%
Ms. Snead	702	14.50 (3.25)	15 (8-18)	-0.06	17.17 (5.01)	17.50 (9-25)	-0.18	17 (6.58)	14 (11-26)	+0.12	44%

		Standard Condition			PBPD			Maintenance			Effect Size
Teacher	S-ID	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	M (*SD*)	Median (Range)	Slope	N-ODP
Ms. Snead	703	13.83 (4.52)	14 (5-19)	+0.29	16.83 (5.21)	13.50 (13-26)	-0.11	15.33 (2.05)	15 (13-18)	+0.39	22%
Ms. Anelli	501	9.75 (1.92)	9.50 (7-12)	+0.95	12 (3.00)	12 (9-15)	-0.17	12 (0)	12 (12-12)	0.0	80%
Ms. Anelli	502	10.75 (3.46)	10.50 (4-16)	+0.53	15.50 (1.50)	15.50 (14-17)	-0.33	25.67 (9.39)	26 (14-37)	+0.09	60%
Ms. Anelli	503	21.75 (5.14)	21.50 (15-31)	+0.17	24 (1)	24 (23-25)	-0.50	23.33 (5.56)	21 (18-31)	+0.14	20%
Mr. Taylor	601	13.40 (4.45)	16 (8-18)	+0.46	20 (1.63)	20 (18-22)	+0.50	20.50 (0.50)	20.50 (20-21)	+2.00	100%
Mr. Taylor	602	13.60 (3.50)	15 (9-18)	+0.50	18.67 (2.49)	18 (16-22)	+0.25	17.50 (4.50)	17.50 (13-22)	-0.22	60%
Mr. Taylor	603	9.67 (3.14)	9 (5-15)	+0.53	11 (2.83)	9 (9-15)	+0.33	11.50 (0.50)	11.50 (11-12)	+2.00	20%

Notes. S-ID = Student Identification Number; NAO = Not Available or Observed; N-ODP = Nonoverlapping Data Percentage; Slope = Slope Coefficient

Teacher Knowledge

Prior to commencing baseline data collection and attending the PBPD each teacher completed a knowledge measure. This 26-item researcher-created tool consisted of multiple choice, open response, and application questions. The same measure was administered again at the conclusion of the PBPD (Session 4). The mean score at baseline was 72.44 % (range = 65.39% - 92.3%). Teachers completed the same measure as a posttest. The mean score after the intervention was 91.68% (range = 84.6% - 100%). A paired-samples t-test was used to determine whether there was a statistically significant mean change between the baseline and post-post. On average, participants significantly increased knowledge at post-PBPD (M = 92.68%, SE = 5.39) compared to baseline (M = 72.44%, SE = 2.31), $t(5) = 5.01$, $p=.004$, d = 2.07.

Table 4.9. *Teacher Knowledge by Phase*

	Baseline (M = 72.44%)	**Post-PBPD (M = 91.68%)**
Ms. Stewart	65.39%	88.5%
Ms. Susanne	57.69%	92.3%
Ms. Berger	92.3%	100%
Ms. Snead	69.24%	88.5%
Ms. Anelli	84.6%	96.15%
Mr. Taylor	65.39%	84.6%

Teacher Survey of Practices (TSP)

Each teacher participant was asked to complete the *Teacher Survey of Practices* (*TSP*) at baseline and at the conclusion of the PBPD sessions (Session 4). The researcher-created 12-

question measure prompted teachers to indicate the percentage of lessons (or time) that they engaged in an EBCM practice in the past week or five-day period. The 3-point fixed-scale ranged from less than 50%, 51-79%, 80-100%. The results indicate that all teachers reported that they gained knowledge of EBCM practices. Table 4.10 illustrates the mean pre-test (baseline) and post-test (post PBPD) scores for all of the participants, groups, and individual teachers. As shown in Table 4.10, the mean baseline TSP score was 63.80% with a majority of the teachers reporting that they implement EBCM practices in 51-79% of their lessons. Following the PBPD the mean score increased to 80.55% with most teachers indicating they use EBCM practices between 80-100% of their lessons. A paired-samples t-test was used to determine whether there was a statistically significant mean change between the baseline and post-post. On average, participants reported a significant increase in use of EBCM practices at post-PBPD (M = 80.55%, SE =7.65) compared to baseline (M = 63.81%, SE = 5.15), t (5) = 2.21, p = .078, d = 0.91.

Table 4.10. *Teachers Survey of Practices by Phase*

	Baseline (M = 63.81%)	**Post-PBPD (M = 80.55%)**
Ms. Stewart	50%	62.50%
Ms. Susanne	87.50%	95.83%
Ms. Berger	58.33%	100%
Ms. Snead	66.66%	91.66%
Ms. Anelli	58.33%	79.16%
Mr. Taylor	50.00%	54.16%

Teacher's Sense of Efficacy Scale (TSES)

Teachers completed the *Teacher Sense of Efficacy Scale* (*TSES*; Tschannen-Moran & Hoy, 2001) at baseline, the final PBPD sessions, and during maintenance. At baseline the teachers' completed the 8-item measure which uses a 9-point likert-type scale. As shown in Table 4.11, baseline the average score across the six teachers was 44.83 (out of 72 possible points). Following the PBPD teachers rated themselves again. The average score was 55.67 (out of 72 possible points). All teachers reported feeling more in control of their classrooms. All of the six teachers rated themselves again four to nine weeks after the last PBPD session to determine whether their scores changed. The average score was 56.83 (out of 72 possible points) indicating that teachers self-efficacy remained the same or slightly decreased. A one-way repeated measures ANOVA was conducted to determine whether there were statistically significant differences in TSES over time. The PBPD elicited statistically significant changes in *TSES* scores between baseline and post-PBPD, $F(1, 5) = 9.149$, $p = .029$, $d = 2.707$.

Table 4.11. *Sense of Efficacy Scale Results*

	Baseline (*M* = 44.83)	**Post-PBPD (*M* = 55)**	**Maintenance (*M* = 56.83)**
Ms. Stewart	54	64	68
Ms. Susanne	46	60	59
Ms. Berger	34	60	59
Ms. Snead	33	39	36
Ms. Anelli	46	55	57
Mr. Taylor	56	56	62

Maslach Burnout Inventory

Similar results were found on the *Maslach Burnout Inventory* (*MBI*; Maslach, Jackson, & Leiter, 1997). The *MBI* is a 4-item measure which uses a 4-point scale. Teachers rate the degree of burnout (1 = Strongly Agree, 4 = Strongly Disagree). As shown in Table 4.12, participants rated their level of burnout at baseline (M = 9.19). Following the PBPD teachers rated themselves again. The average score was 12.00 indicating a decrease in feeling burnout for all of the participants. Five teachers increased their rating on the burnout inventory while one teacher remained the same. All of the six teachers rated themselves during maintenance. Their reports indicate that feeling less burnout compared to baseline. Ms. Snead increased her score from baseline to maintenance from 9 to 12 respectively. Although the teachers scores vary across the three time-points, the individual teacher score at post-PBPD and Maintenance remained the same or slightly changed. A one-way repeated measures ANOVA was conducted to determine whether there were statistically significant differences in *MBI* scores over time. The PBPD did not lead to statistically significant changes in *MBI* scores over time, $F(1, 5) = 2.774$, $p = .157$, $d = 1.492$

Table 4.12. *Maslach Burnout Inventory Results*

	Baseline (M = 9.16)	**Post-PBPD (M = 12)**	**Maintenance (M = 11.50)**
Ms. Stewart	7	15	11
Ms. Susanne	11	14	14
Ms. Berger	4	11	8
Ms. Snead	9	9	12
Ms. Anelli	11	13	12
Mr. Taylor	13	10	12

Systematic Risk Screening Scale: Internalizing and Externalizing (SRSS-IE)

The *SRSS-IE* (Drummond, 1994; Lane et al., 2015b) was completed by teachers on their entire class prior to collecting baseline data. The SRSS-IE was intended to screen every student in a teacher's classroom allowing each student to receive an individual score that can be monitored overtime. The initial rating was used to identify target students and overall class risk levels. The *SRSS-IE* data were also used to determine whether student risk levels shifted overtime. The scores are totaled to determine student placement one of three risk categories. The Externalizing Scores are: *low* (0-3), *moderate* (4-8), and *high* (9-21). The internalizing cut scores are: *low* (0-1), *moderate* (2-3), and *high* (4-15).

A t-test was conducted to determine whether the class SRSS-IE scores shifted between the start and conclusion of attending the PBPD. Table 4.13 shows the mean classroom risk scores across the two-time points. As hypothesized, the SRSS-IE showed that student risk scores shifted across the two rating time points. There was a statistically significant effect on all of the students' risk levels (externalizing and internalizing), $t(110) = 3.920$, $p < .001$.

Table 4.13. *Student Risk Screening Scale: Internalizing and Externalizing Scores –Group and Teacher*

	Baseline (*M* = 7.77, *SD* = 8.19)	**Post-PBPD (*M* = 5.76, *SD* = 6.95)**
Ms. Stewart	4.94 (*SD* = 6.88)	0.56 (*SD* = 1.78)
Ms. Susanne	3.19 (*SD* = 5.22)	2.66 (*SD* = 4.78)
Ms. Berger	14.86 (*SD* = 6.82)	7.73 (*SD* = 5.76)
Ms. Snead	14.90 (*SD* = 10.53)	13.6 (*SD* = 9.10)
Ms. Anelli	3.60 (*SD* = 3.75)	2.00 (*SD* = 2.87)
Mr. Taylor	6.38 (*SD* = 4.68)	7.94 (*SD* = 4.29)

Table 4.14 shows the target student risk scores across the two-time points. Although there were only 16 target students, there was a significant shift in their risk levels $t(15) = 2.65$, $p = .019$. On the externalizing items, 12 target students-risk scores shifted to lower their overall externalizing score, additionally, seven students shifted into a lower externalizing risk category. There were also decreases for students on the internalizing measure. Specifically, seven target students decreased their internalizing score and shifted into a lower internalizing risk category.

Table 4.14. *Student Risk Screening Scale: Internalizing and Externalizing Scores - Target Students*

Student Number	**Teacher**	**SRSS-Externalizing (Max Score 21)**		**SRSS-Internalizing (Max Score 15)**		**SRSS-Internalizing & Externalizing Items (Max Score 36)**	
		Baseline	Post-PBPD	Baseline	Post-PBPD	Baseline	Post-PBPD
101	Ms. Stewart	17 - High	2 - Low	4 - Moderate	0 - Low	21	2
103	Ms. Stewart	15 - High	6 - Moderate	3 - Moderate	1 - Low	18	7
202	Ms. Susanne	9 - High	11 - High	1 - Low	2 - Moderate	10	13
203	Ms. Susanne	9 - High	13 - High	2 - Moderate	1 - Low	11	14
401	Ms. Berger	11 - High	10 - High	8 - High	0 - Low	19	10
402	Ms. Berger	14 - High	10 - High	6 - High	3 - Moderate	20	13
403	Ms. Berger	17 - High	5 - Moderate	8 - High	1 - Low	25	6
701	Ms. Snead	16 - High	14- High	13 - High	11 - High	29	25
702	Ms. Snead	19- High	18 - High	4 - High	5 - High	23	23
703	Ms. Snead	16- High	16- High	2 - Moderate	3 - Moderate	18	19
501	Ms. Anelli	9- High	5-Moderate	0 - Low	0 - Low	9	5
502	Ms. Anelli	9- High	7-Moderate	0 - Low	3 - Moderate	9	10
503	Ms. Anelli	8-Moderate	3-Low	1 - Low	1 - Low	9	4
601	Mr. Taylor	11-High	9-High	1 - Low	1 - Low	12	10
602	Mr. Taylor	14-High	14-High	2 - Moderate	5 - High	16	19
603	Mr. Taylor	12-High	6-Low	2 - Moderate	3 - High	14	9

Social Validity

Overall, teachers rated the PBPD favorable according to the satisfaction survey and social validity interviews. Each teacher completed The *Teacher Satisfaction Survey* during the final PBPD meeting (Session 4). This 13-item researcher-created social validity survey assessed the teachers views on the: (a) familiarity with the Action Plan (prior to and after the training), (b) training satisfaction, (c) ease of implementation, (d) time required, and (e) effectiveness of the Action Plan (see Appendix N for a copy) using a 5-point scale. One question (i.e., Item 1: How familiar were you with the components of the Action Plan before the training?) was removed from the analysis since the question reflects, prior knowledge instead of satisfaction (See Table for item level results). Nonetheless, all teachers indicated that they were unfamiliar or familiar with the Action Plan prior to attending the PBPD (Item 1) and then responded that they were familiar or very familiar with the Action Plan components after the training (Item 2). All teachers increased their familiarity score by 2 or 3 points.

After removing Item 1 the analysis of Teacher Satisfaction Survey contained 12-items. As shown in Table 4.15, teachers rated their satisfaction with the PBPD and Action Plan favorably, with scores ranging from 86.66% to 95% with an average score of 91.66% (*SD* = 3.04). Group 1 rated the PBPD the highest at 93.33%, followed by Groups 2 and 3. All of the teachers reported: (a) satisfaction with the training, (b) the likelihood that they will use the components of Action Plan, and (c) recommend the consultation to develop an Action Plan to a colleague. All of the teachers stated that the elements of the Action Plan were easy or very to learn and that they found them effective or very effective. Four of the six teachers indicated that implementing the Action Plan required a moderate amount of class time (preparation,

implementation, and after instruction). For social validity item level scores (means and ranges) see Table 4.16.

Table 4.15. *Satisfaction Survey Results by Teacher*

	Total Score ***M*** **= 91.66,** ***SD*** **= 3.04**
Group 1	**93.33%**
Ms. Stewart	93.33%
Ms. Susanne	93.33%
Group 2	**90.83%**
Ms. Berger	95%
Ms. Snead	86.66%
Group 3	**90.83%**
Ms. Anelli	88.33%
Mr. Taylor	93.33%

Table 4.16. *Satisfaction Survey Results by Item (Means & Ranges)*

Survey Item	Mean	Range
1) How familiar were you with the components of the Action Plan before the training?*	1.83	1-3
2) How familiar are you now with the components of the Action Plan?	4.83	4-5
3) How satisfied are you with the training you received?	5	5-5
4) How satisfied are you with training support you received from the project staff?	5	5-5
5) To what extent do you think the components of the Action Plan are easy to learn?	4.67	4-5
6) To what extent do you think the components of the Action Plan are easy to implement?	4.33	4-5
7) How much time did you think was required to implement the Action Plan: Amount of preparation time?	3.33	3-4
8) How much time do you think it required to implement the Action Plan: Amount of time during instruction?	4.33	3-5
9) How much time do you think it required to implement the Action Plan: Amount of time after instruction (e.g., rewards, recording data)?	4	3-5
10) How effective do you think the Action Plan will be for your students?	4.83	4-5
11) To what extent did you like the Action Plan you created?	4.83	4-5
12) How likely are you to use the Action Plan?	5	5-5
13) How likely are you to recommend the consultation to develop an Action Plan to a colleague?	4.83	4-5

*Note. *Item 1 was removed from the total score analysis.*

I interviewed the teacher within five days of their final PBPD meetings. The interviews were conducted during school hours and lasted approximately 20 minutes. The teachers' narrative feedback on the EBCM PBPD was also favorable as indicated by the responses in the interview. When asked about the components of the Action Plan, teacher responses included "It was daunting initially because I had to do it before [plan-ahead], but now it is part of my planning," "I didn't realize how vague my instructions were before," "it transformed instruction," and "my instruction [became] intentional. I implemented visual activity schedule [advance organizer] which gave me accountability."

All of the teachers reported that they noticed changes in their teaching practices in other settings. For example, Ms. Snead said, "It definitely carries over." Mr. Taylor reported that "the Action Plan has been transferred to all instructional areas," "the strategies were all inclusive," and "even though we did [targeted] math we still discussed ways to transfer the skills to literacy." Ms. Berger said "I don't think I would have made the changes that I made to reading unless I had such success in math," "I tried to think about ways to transfer it throughout the day, and it was really transferable," and "I feel like I am a better educator at the end of the day." Ms. Stewart shared that "explicit instructions helped transitions across other subject areas" and the training helped her "understand now how important explicit instructions are essential, if you are doing small groups or stations."

When asked whether they have noticed changes in their student behavior, teachers reported that "it was amazing to see how some kids responded extremely well," "I know planning ahead with a [schedule] helps me and helps the kids," "I noticed that my three target students longed for behavior-specific praise," and "Math is my favorite time of the day, I love working with a clear goal and seeing the changes in my students." Ms. Anelli said "It's hard for

me to tell but yes for sure." and "I have definitely seen a difference with the attention which probably affected how much they learn." One teacher, Ms. Susanne said she noticed changes in her class but "my target kids didn't respond well."

Throughout the interview, teachers also expressed their views on their professional and personal life. For example, Ms. Stewart shared "Talking with you and Ms. Susanne helped me find my inner teacher. Other teachers are noticing." Ms. Berger said "I am no longer frustrated with my job. I feel like the things that make my job stressful have changed. Since starting this I haven't sent a kid to the office." Ms. Snead said she liked using behavior specific praise because prior to the PBPD "I was thinking of ways to punish students".

To reiterated, teachers rated the EBCM PBPD (Action Plan) favorably on the Teacher Satisfaction Survey. Teachers also expressed positive changes in the teaching, student behavior, and job satisfaction at the conclusion of the EBCM PBPD.

CHAPTER V: DISCUSSION

Evidence-based classroom management (EBCM) practices are essential skills that educators must be able to embed directly into their instruction (Evertson & Weinstein, 2006; Oliver & Reschly, 2007; Oliver et al., 2011). Researchers suggest that when teachers use the EBCM practices (e.g., opportunities to respond, behavior-specific praise, explicit instruction) students are more likely to be engaged (e.g., Simonsen et al., 2014). Further, teachers report higher levels of efficacy about themselves, their instruction, and their students (Kelm & McIntosh, 2012). However, teaching is complex, and novice teachers report minimal knowledge of EBCM practices (Stough & Montague, 2015). Additionally, novice teachers are overwhelmed (Darling-Hammond & Bradsford, 2005). Often challenges related to classroom management and student behavior drive novice teachers to leave the field after a [short period] (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Harris, 1991; Ingersoll & Smith, 2001). Thus, there is a critical need to develop efficient and effective professional development tools to support novice teachers in the area of classroom management (Ingersoll & Merrill, 2010).

Sadly, the majority of novice teachers are provided poor-quality school-based professional development in which they receive one-time workshops delivered on topics that might be relevant to their instruction (Ball & Cohen, 1999; Loucks-Horsley et al., 1999; Stokes & Baer, 1977). This form of professional development is not typically aligned with teacher practice or need and they rarely provide teachers with the opportunity to sharpen their new skills or receive feedback (Allen & Forman, 1984; Fixsen et al., 2005).

Oliver and Reschly (2007) stated that educators must improve professional development for novice teachers in the area of classroom management. Unfortunately, only five empirical

investigations have been conducted to date evaluating the effects of classroom management professional development with novice teachers. The format for the studies varied from in-service (n = 3), coaching (n = 3), and teacher consultation (n = 1). The lack of follow-up support is a concern, as only two studies (i.e., Briere et al., 2015; Evertson & Smithey, 2000) met with the teachers after the initial training. None of the studies reported the use of technology as part of the professional development. Four studies reported the direct observation of teacher behaviors (i.e., Briere et al., 2015; Evertson & Smithey, 2000; Funk, 2013; Stallion & Zimpher, 1991). Furthermore, three of the studies report the direct observation of student behavior (i.e., Evertson & Smithey, 2000; Funk, 2013; Stallion & Zimpher, 1991) and none of the studies assessed student academic outcomes. One study assessed teacher-report of knowledge and efficacy (i.e., Dicke et al., 2015). Only two studies reported social validity and fidelity (Briere et al., 2015; Funk, 2013). Thus, there is a need to validate classroom management professional development for novice teachers.

I investigated the effects of practice-based professional development (PBPD) in the area of EBCM practices with novice teachers. In this study, I combined instructional design principles with the PBPD framework to teach novice teachers EBCM practices. I evaluated the effects of PBPD on teachers' use of EBCM as well as their knowledge about practice, along with their self-efficacy, while also monitoring student behavior and academic outcomes. I used an experimental design (multiple baseline across three pairs of teachers) to investigate the efficacy of a PBPD. This design compared the effects of the PBPD within and across groups of teachers. The staggered implementation of the professional development demonstrated experimental control while it controls for history and maturation (Kennedy, 2005).

The primary research question sought to determine if novice teachers who attend an EBCM PBPD increased their knowledge and rate of implementation of selected teaching behaviors. All participating teachers increased their knowledge and EBCM practice rate. These findings are similar to previous studies (e.g., Briere et al., 2015; Funk, 2013). However, this study also observed increases in student engagement. This study also adds to the limited literature on novice professional development in the area of classroom management by reporting teacher self-efficacy, burnout, social validity, and treatment integrity. Further, this project aimed to link teachers' use of EBCM practices with student academic performance. Weekly curriculum-based measures recorded students' academic progress (i.e., number identification or fact calculation). In this chapter, I discuss the findings related to each research questions. I then present the implications for future professional development and classroom management specific training. I conclude with limitations and future research.

Results in Context

This section provides a description of the results of a multiple-baseline across three pairs of novice teachers, detailing the effect of an EBCM PBPD. Specifically, I sought to determine whether teachers who attend an EBCM increased their knowledge and rate of specific classroom management practices. In addition, we studied whether there were corresponding changes in student behavior and academic performance.

Teachers' Knowledge and Use of EBCM

With respect to the first research question (i.e., whether PBPD increases teachers' use of EBCM practices. To what extent can PBPD help teachers gain knowledge and implement EBCM practices?), all teachers in this study were able to demonstrate increased knowledge of EBCM practices. However, direct observation of teachers' use of EBCM was variable. The mean scores

changed for five of the six teachers between however there was a great deal of overlaps between the Standard Condition and EBCM PBPD phase. Despite variability within their data, Ms. Stewart, Ms. Berger, Ms. Snead, Ms. Anelli, and Mr. Taylor all demonstrated increases in mean rates of EBCM during the PBPD phase. These rates maintained for Ms. Berger, Ms. Anelli, and Mr. Taylor. Although the effects obtained here are not overwhelmingly compelling, these findings are consistent with other investigations of professional development for classroom management with novice teachers (e.g., Briere et al., 2015).

In addition, I observed decreases in reprimands with the induction of the PBPD for all teachers. Data indicate that teachers' use of reprimands decreased as they increased their use of positive teaching behaviors such as opportunities to respond, behavior-specific praise, and precorrections. Maintenance data indicate that four of the five teachers maintained a lower reprimand rate compared to the standard condition.

This study demonstrated moderate effects for novice teacher professional development in the area of classroom management. Although these findings are not as strong as some other PBPD research (i.e., SRSD, Harris et al., 2012; McKeown, FitzPatrick, & Sandmel, 2014) this is the first study in the area of classroom management for new teachers. Taken together, these findings suggest that EBCM PBPD may be a means for increasing teachers' use of EBCM while decreasing the rate of reprimands, further, this behavior maintains after the PBPD ended.

Student Engagement and Academic Performance

With respect to the second research question (i.e., Whether teachers' use of EBCM practices increases student engagement and academic performance. To what extent does student engagement increase after a teacher attended EBCM PBPD?) mean data from all of student participants indicate a significant change in engagement following the teachers attending the

EBPB PBPD. This is perhaps the most pronounced functional relation between EBCM PBPD. All of the groups of students in the study improved their mean engagement levels as indicated by improvements for Groups One, Two, and Three, 85.46% (up from 62.38%), 83.39% (up from 62.92%), 89.09 (up from 80.69%), respectively. In addition, this high level of engagement maintained as indicated by similar mean levels of engagement on maintenance probes for all groups teachers (except for Group Two, Ms. Snead). It appeared that her mean student engagement, 60.94% (down from 76.13%) whereas Ms. Berger's continued to rise, 94.64%. These findings echo research findings showing that some teachers may need additional support based on their individual performance to meet optimal levels of implementation and student engagement. For example, Simonsen and colleagues (2014) found that two teachers demonstrated increased behavior specific praise after attending a professional development session (Tier 1). Two other teachers were unresponsive to the professional development and were invited to participate in targeted (Tier 2) professional development to additional assistance. Findings revealed that teachers were able to increase the rate of praise and strengthen the need to provide a range of supports that vary from brief to intensive professional development.

A secondary component of research question two is whether students improve academic performance as measured by curriculum-based measures (math probes). Although a functional relation was observed between the student engagement levels and induction EBCM PBPD, CBM data do not suggest that a meaningful change in student academic performance occurred for the target students. Data from Ms. Stewart's students indicate an increased score on CBM probes occurred following the beginning of the EBCM PBPD; however, a functional relation was not documented because there were only two standard condition and three EBCM PBPD data points. Visual analysis and statistics indicate that the EBCM PBPD intervention was not effective for

Ms. Susanne, Ms. Berger, Ms. Snead, Ms. Anelli, and Mr. Taylor's students. These findings fit with prior research suggesting that teachers must use the CBM data to make instructional decisions rather than simply measuring academic performance (e.g., Stecker, Fuchs, & Fuchs, 2004). Deno (2003) asserted that CBM measures should be aligned to the curriculum and represent the skills being taught in the year's curriculum (rather than basic facts).

It is important to note that no studies have been published to date evaluating the collateral effects of classroom management professional development on the academic performance of students with or at risk for emotional, behavioral disorders. Thus, the study results lend support for further research on teaching novice teachers how monitor student outcomes using measures that are alighted to skills taught across the year while adjusting their academic instruction.

Teaching and Student Behavior Correlations

With respect to research question three (i.e., To what extent do specific behavioral practices correlate with positive student outcomes?), results from a Pearson correlation analysis indicates a relationship between the teacher behaviors and student engagement. Specifically, general praise, specific praise, opportunities to respond, precorrections and commands were all positively correlated with student engagement. Additionally, reprimands were negatively correlated with student engagement, meaning the lower the reprimand, the higher the student engagement levels. This finding aligns with previous work in this area by Wendy Reinke and colleagues (2015). Reinke et al. reported moderate to high correlations between similar variables (e.g., general praise, opportunities to respond, precorrections, harsh reprimands) on the Brief Classroom Interaction Observation-Revised (2015).

Student Risk Scores

With respect to research question number four (i.e., To what extent does student risk status changes following EBCM PBPD?), data from the Systematic Risk Screening Scale-Internalizing and Externalizing (Drummond, 1994; Lane et al., 2015b) suggest decreases in risk levels for the entire class and target students; however these are descriptive data because they were were recorded at two time points and there are multiple threats to internal validity (e.g., history, maturation; Campbell & Stanley, 1963). Despite the lack of experimental control, the results support the hypothesis that after the teachers attended the EBCM PBPD, overall student risk levels decreased. Similar effects of positive behavior support have been found in other studies (e.g., Lane, Oakes, & Menzies, 2010). In this study, the mean risk rating decreased from the standard condition M = 7.77 (SD = 8.19) to M = 5.76 (SD = 6.95) at the end of the EBCM PBPD. This was a significant decrease in risk levels, $F(1, 109) = 15.369$, $p < .001$. Although the total mean score decreased, Mr. Taylor's classroom score increased slightly from the standard condition (M = 6.38, SD = 4.68) to the end of the EBCM PBPD (M = 7.94, SD = 4.29).

In addition, to evaluating overall classroom risk levels, I also analyzed the target students' risk status over time. Results indicate a statistically significant decrease in risk status for the target students, $F(1, 15) = 6.884$, $p = .019$. Specifically, 12 target students decreased their overall externalizing score and seven students decreased their internalizing score. This result suggests that as teachers' increased their implementation of EBCM practices, student engagement increased while decreasing disruptive or challenging behaviors. Future studies should attempt to measure student risk on an on-going basis. For example, teachers could complete a daily behavior progress monitoring probe.

Maintenance Observations

As described in Chapter Two, it is important to determine whether there were durable changes in teacher behaviors after attending the PBPD, specifically, I sought to determine the extent that teachers' use of EBCM practices maintains after the PBPD? Five teachers were observed between one month and two months after the conclusion of attending the EBCM PBPD. Each of the five teachers was observed on three separate dates. Visual analysis of teacher data suggested that four of five teachers sustained their use of EBCM at similar levels to the EBCM PBPD condition. Specifically, Ms. Susanne (M = 3.37) improved rates of EBCM with some variability (range = 2.21 - 4.32 practices per minute). Similarly, visual analysis reveals an increased level of increasing trend for Ms. Berger (M = 4.23) with some variability (range = 3.32 - 4.94) with a slight decreasing trend. Ms. Snead's data reveal a decrease in level and mean rate per minute (2.70) compared to the PBPD phase. Visual analysis indicate little variability (range = 2.51 - 2.88). Ms. Anelli's data continued to show improvements during the maintenance observations (M = 5.13). However, the rate of EBCM practices decreased during the final two observations (range = 4.32 - 6.19). One explanation for the variability is the introduction of a new student in her classroom who exhibited a wide range of behavioral concerns. Finally, Mr. Taylor's data continue to show improvements in the rate of EBCM practices per minute (M = 4.373). However visual analysis reveals a decreasing trend with some variability (range = 3.43 – 5.43). These findings fit with previous novice teacher classroom management professional development, suggesting that teachers sustain their use of specific teaching behaviors at similar levels to the intervention condition (Briere et al., 2015).

Social Validity

Research question six, sought to gather teacher social validity information (i.e., What are the teacher's views of the goals, procedures, and outcomes of the PBPD program of EBCM?). At the conclusion of the PBPD sessions, the teacher participants completed a 13-item social validity survey about their experiences and participated in a 30-min semi-structured interview with the principal investigator. Overall, social validity results were positive indicating that the teachers were satisfied with the training.

A brief survey required teachers to rate their satisfaction with the training, their teaching, and corresponding student behaviors on a five-point, forced-choice Likert style scale. Mean item-level scores for each item fell between four and five indicating high levels of satisfaction. Table 4.16 presents each item and reports the means and ranges. Total scores indicate the EBCM PBPD as an acceptable method of supporting novice teachers with classroom management. Teachers also indicated that they were somewhat familiar with the components of the action plan (containing five to six EBCM practices) prior to attending the EBCM PBPD. At the end of the EBCM PBPD all teachers rated being very familiar with the specific practices. Although this study did not measure perceived knowledge, these questions help us examine the impact of the EBCM on teachers.

In the exit-interview, the teachers' also reported being highly satisfied with the training. Anecdotally, they shared that they would recommend the training to a colleague, noticed differences in their teaching across the school day, and coincidently saw changes in their students' behavior. Two teachers noted that it would been helpful to participate in the training with a colleague in their school (rather than across the district). Additionally, two teachers requested to participate in a training that targets reading instruction. Although this study only

observed teachers during math, we did not discuss math specific strategies. However the CAP plus videos provided teachers with math examples. Thus the question of universal EBCM practices should be explored in further research. Perhaps providing specific math and reading strategies would be helpful.

Self-Efficacy and Burnout

With respect to research question seven (i.e., what extent do self-reports of novice teacher efficacy and burnout change after completing EBCM PBPD?) data from all of the teachers indicate increased feelings of efficacy and decreased burnout. Although these findings are promising they must be interpreted with caution as they are descriptive (non-experimental) measures administered at three time-points. As predicted, teacher-reported efficacy in the area of classroom management (Tschannen-Moran & Hoy, 2001) was positively increased following the PBPD for all teachers. These results decreased lightly for four of the six teachers. Two teachers (Ms. Anelli and Mr. Taylor) noted increases in their efficacy. This could be due to the close proximity to the training, since the training ended one month prior to the maintenance rating, compared to Ms. Stewart and Ms. Susanne, whose training ended two months prior to the rating. Similar results were found on the Maslach Burnout Inventory (Maslach et al., 1997). Overall, the teachers continued to demonstrate lower feelings of burnout compared to baseline ratings although this was not a significant finding. One teacher (Ms. Berger) noted an increase in burnout at maintenance. This aligns with previous research which has demonstrated that teachers with high levels of disruptive behavior note higher levels of burnout (Hastings & Bham, 2003) and lower levels of efficacy (Woolfolk, 2007). Similar when teachers report higher rates of efficacy about their teaching, there are desirable effects on student outcomes (Kelm & McIntosh, 2012).

Summary of Major Findings

In sum, effects were found for PBPD on the increased rate of EBCM practices and student engagement. Additionally, we observed significant decreases in the reprimand rate, which correspond to the induction of the EBCM PBPD. Additionally descriptive data revealed decreased student risk levels, increased teacher efficacy which correspond to decreases in teacher reported burnout. This study extends the current literature by offering a model that may help support early career teachers in the area of classroom management. However, the results across teachers varied across teachers. For example, Ms. Snead's EBCM practice rate decreased at the conclusion of the PBPD whereas Mr. Taylor's EBCM practice continued to increase overtime. Additionally, this study sought to formally assess student academic progress.

Limitations

Although functional relations between PBPD and improvements in some teachers EBCM rate and student engagement, these finding should be interpreted with caution as there are several limitations. First, though some teachers demonstrated increased rates of EBCM, data analysis indicated a high level of variability within the EBCM data within and across phases. Second, the academic measure, curriculum-based measures, did not detect changes in student academic performance. Third, EBCM PBPD was a packaged curriculum making it difficult to determine the active ingredients (including CAPs plus video). Fourth, generalizations of the PBPD to other settings or people were not measured. Fifth, descriptive measures were collected which limit experimental control. Finally, the principal investigator was heavily involved in the research and data collection.

Dependent Variable

One explanation for the variable teacher response (as measured by the EBCM dependent variable) is that my measure may not have been sensitive enough to detect all of the content covered in the EBCM PBPD. For example, all of the groups included components of explicit instruction in their Action Plans. This highly structured, teacher-directed, structure prompts teachers to plan instruction carefully. Examples include teachers providing students with (a) an introduction (advance organizer), (b) modeling of a skill, (c) opportunities for guided practice, and (d) structured independent practice (Lane, Menzies, Bruhn, & Crnobori, 2011). Although the direct observation measure recorded teacher directed opportunities to respond it did not detect other elements of explicit instruction or classroom management practices. Future novice teacher classroom management studies should consider methods to detect teacher directed teaching actions, as do systems such as those developed by Greenwood and colleagues (e.g., Greenwood, Arreaga-Mayer, & Carta, 1994; Greenwood, Carta, Kamps, Terry, & Delquadri, 1994). Simonsen and colleagues (2014) call for psychometrically sound classroom management tools that capture all of the critical classroom management skills which will allow researchers and administrators to monitor implementation.

Curriculum Based Measure

I evaluated the collateral effects of classroom management professional development for novice teachers on student academic performance, however, the CBM measure may not have been sensitive to changes in student academic performance. The students did not demonstrate a clear effect of the introduction of the EBCM PBPD on CBM probes. An explanation for the failure to deterct actual changes is that the CBM measure is more appropriate for an extended period of time (i.e., one year), when teachers can use the data to make instructional decisions

(Deno, 2003), Furthermore, CBMs which are aligned closer to classroom content could demonstrate a greater effect on student learning (Stecker et al., 2005). Identifying sensitive and psychometrically sound tools to gauge student academic outcomes is essential for future work.

Fidelity

This study was designed to examine the effects of PBPD on novice teachers' implementation of EBCM practices. The primary independent variable was four EBCM PBPD sessions, a packaged intervention. In addition, to attending four professional development sessions, teachers received coaching, performance feedback, and access to a series of videos, (CAPs plus video). I expected that the teachers would watch the three CAPs plus videos, at least, two times a week; as it happened, they watched the videos much less often. Specifically, most teachers watched two videos in total. Additionally, one teacher (Mr. Taylor) never viewed the CAPs plus videos. It is important to consider that previous CAP research have only had one independent variable (e.g. ., Kennedy et al., 2011; Kennedy et al., 2012; Kennedy et al., 2013; Kennedy & Thomas, 2012) and all of the participants watched the videos during classroom period (rather than on the participant's own time).

In addition, to the concerns regarding the CAPs plus videos, future research is needed to assess EBCM PBPD using multiple method treatment integrity (Bruhn, Hirsch, & Lloyd, 2015). In this study, the principal investigator documented fidelity of EBCM PBPD on self-report checklists during each PBPD session (as described in Horner et al., 2005). This measure recorded the occurrence or nonoccurrence of a component of the EBCM. Although recording fidelity is important, self-report data may inflate scores compared to direct observation by an outside observer (Lane, Kalberg, Bruhn, Mahoney, & Driscoll, 2008). Future studies should

assess and report fidelity using multiple methods (e.g., self-report checklist and direct observation) which are markers of best practice (Roach & Elliott, 2008).

Generalization

This study only included six novice teachers. Although the participants and setting were described in detail (Horner et al., 2005), results can only be generalized to similar populations and settings. Further, I limited the grade level to kindergarten through sixth grade; there was a wide gap (2-3 grade levels) among all of the participants. For example, in Group Two, Ms. Berger taught fourth grade at the elementary school and Ms. Snead taught sixth grade at the upper elementary school. This violates one of the PBPD principles of engaging peers with similar needs (Ball & Cohen, 1999). Future research should evaluate EBCM PBPD with novice teachers across the K-12 grade span, including special areas such as physical education, art, music, and foreign language.

Another limitation of this study is related to the selection of student participants. Target students were nominated by their teachers through the SRSS-IE. Moderate and high-risk students were selected for observation. That is, we observed the teachers' most challenging students. A majority of the students' behaviors warrant Tier 2 or 3 supports. Although we observed positive changes in student engagement and decreases in overall risk, it is difficult to generalize the results of this study to the entire classroom. Assessing the effect of the EBCM PBPD on the entire classroom would provide a stronger test of whether increases in student engagement are related to teacher implementation of EBCM practices.

In addition, it is important to recognize that there was not an inclusion criteria related to teacher performance. Thus, our participants implemented a wide-range of EBCM practices. For example, Ms. Stewart's baseline EBCM practice rate (M = 1.45) was substantially lower than

Ms. Susanne's rate (M = 3.70). Other classroom management interventions (i.e., Briere et al., 2015; Simonsen et al., 2013) include a performance-based inclusion criteria. This begs one to consider implementing a Multi-Tiered Systems Support (MTSS) framework for EBCM professional development (Myers, Simonsen, & Sugai, 2011) to deliver professional development to address the various levels of need based on teacher performance. In Tier 1, all teachers participate in professional development on a skill and self-monitor their implementation after the training. Data are used to identify teachers not responsive to the Tier 1 professional development and additional augmented professional development is provided. In Tier 2, individualized professional development is provided for teachers with chronic or significant classroom management concerns through the use of a coach or consultant. Tier 3 supports include action planning, goal setting, and performance feedback (Simonsen et al., 2013).

Descriptive Measures

Several descriptive measures were collected periodically. For example, the teacher report of efficacy and burnout measures were only collected three times (prior to baseline, the conclusion of EBCM PBPD, and maintenance). Similar the *Student Risk Screening Scale: Internalizing and Externalizing* (Drummond, 1994; Lane et al., 2015b) was only administered at two time points (baseline and conclusion of the EBCM PBPD). Although all of the measures are psychometrically sound tools, the information only provides descriptive pre-post data since it lacks experimental control (Campbell & Stanley, 1963). Although it is not possible to assert causality from the EBCM PBPD alone, the results are promising and warrant future studies which implement experimental designs.

Data Collection

I was only able to observe and record a select set of teacher behaviors. I focused on those that previous research (e.g., Simonsen et al., 2008) indicated could be affected by work with teachers. However, it is possible that the PBPD package that I developed may have influenced other teacher behaviors that I simply did not measure. Teachers may have become more orderly or systematic in their presentations, for example. Perhaps this attributed to changes in their classrooms. In future research, I hope to employ a more comprehensive observation tool so that I can capture a broader array of teacher behaviors.

Finally, as a principal investigator, I was extensively involved in the data collection, which may present further limitations to this study. I functioned as a reliability data collector during IOA sessions, which may have introduced a source of bias. To prevent bias multiple observation trainings occurred both in person and online (observers coded a standardized video). However, it is possible that my presence influenced the teacher's behaviors since they were also attending professional development sessions. Future studies should investigate EBCM PBPD with naive primary and reliability data collectors (Kazdin, 2011).

Despite these limitations, the results of this study extend the research base for novice teacher professional development in the area of classroom management. In addition, the limitations provide additional directions for future research about professional development and work on promoting evidence-based classroom management.

Implications

Given the sparse number of experimental novice teacher professional development studies in the area of classroom management, the implications from this study will, I hope, inform and spur further research. The study framework based on Practice-Based Professional

Development (PBPD; Ball & Cohen, 1999) principles provided a clear structure that is often lacking in professional development (Hill, 2007). Additionally, as large numbers of teachers enter the classroom (Ingersoll & Merrill, 2010; Ingersoll & Perda, 2010), novice teacher professional development (in classroom management) is critical to helping them succeed and remain in the classroom (Darling-Hammond et al., 2009; Harris, 1991; Ingersoll & Smith, 2003; Sutton et al., 2009). Future research should closely replicate the independent variable (while addressing the previously mentioned limitations) to develop effective tools that support novice teachers.

When developing future studies, researchers could explore the use of novice teacher EBCM PBPD in several ways. First, to determine whether the EBCM PBPD is an effective tool there is a need to replicate this study. Replication will also aid generalization to other participants, settings, and subject areas (Horner et al., 2005). Additionally, it is important to subject EBCM PBPD to replication with various levels of research support and by research teams not associated with the development of the intervention (Pereira, Horwitz, & Ioannidis, 2012).

Second, it is unclear how much professional development is sufficient (Desimone, 2009). Therefore, this study incorporated a variety of professional development practices into a packaged curriculum. It would be worthwhile to conduct a component analysis to determine the most efficient and effective components. For example, the CAPs plus videos were not viewed by all participants. Additional qualitative participant feedback on the CAPs plus video would be helpful to determine how to best support outside of professional development workshops. Future research could explore email reminders and other forms of accountability tactics (e.g.,

interdependent group contingency, Cooper et al., 2007). A group contingency would potentially provide peer reminders (rather than research reminders) to prompt teachers to watch the video.

Third, examining the effect of various levels of professional development is an important next step. The novice teachers in this study demonstrated a wide range of prerequisite skills and knowledge. It would be valuable to determine whether a framework similar to the one proposed by Simonsen and colleagues (2013) would adequately support and address novice teachers' use of EBCM practices. In brief, Tier 1, all teachers participate in professional development on a skill and monitor their own implementation after the training. Data are used to identify teachers not responsive to the Tier 1 professional development and additional augmented professional development supports are provided to those who need help. In Tier 2, individualized supports are provided for teachers with chronic or significant classroom management concerns through the use of a coach or consultant. Tier 3 supports include action planning, goal setting, and performance feedback (Simonsen et al., 2013). To date, this model has been implemented in two published studies, but neither target novice teachers (e.g., Myers et al., 2011; Simsonsen et al., 2013). Although both studies demonstrated increases in teacher use of EBCM practices (i.e., praise, opportunities to respond), data have yet to be collected on the collateral effects on student behavior or academic performance.

Finally, and most importantly, with the calls for professional development to effect student academic learning and behavioral outcomes, it is critical to examine the effects of EBCM PBPD on student learning. For instance, future research should incorporate curriculum-based measures (CBMs) which adhere to the data-decision decision framework that includes closely monitoring data to make meaningful instructional decisions. In addition, teachers could benefit from support on how to use the data to make instructional decisions (Stecker et al., 2005).

Conclusion

There is an increasing need to identify methods to support novice teachers in the area of classroom management. Unfortunately, researchers assert that typical professional development is ineffective (Fixsen et al., 2005). Thus, there is a critical need to support novice teachers through well-designed and well-implemented professional development which measures the effect on teacher and student behaviors. Findings from this study provide support for the use of EBCM PBPD in improving teachers' use of EBCM practices and collateral effects on student engagement which maintained over time. Descriptive data indicate increases in teacher knowledge and efficacy while decreasing burnout. Finally, teachers reported the goals, procedures, and outcomes of the EBCM PBPD to be feasible. Based on the promising findings from this study, further research should evaluate EBCM PBPD with novice teachers across of variety of settings.

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Appendix A. Literature Review Variable Definitions

Variable	Definition
Table 2.2: Components of Professional Development	
Training Details	
Format	Format of the PD (e.g., coaching, in-service professional development)
Dosage	Duration of the PD practices
Training Topic	Specific information that was provided to participants
Follow-Up	Whether the maintenance was included in the PD program (Yes or No)
Technology	Whether technology was included in the PD (Yes or No)
Practice-Based Professional Development Features	
Actively Engage Faculty	Whether the PD actively engaged faculty with similar needs (Yes or No)
Contextualized PD	Whether the PD was based around the teachers' needs current needs (Yes or No)
Assess and Address Prerequisite Skills	Whether the PD assessed and addressed prerequisite knowledge/skills (Yes or No)
Model and Independent Practice	Whether the PD included models and opportunities for independent (Yes or No)
Use Similar Materials	Whether the PD encouraged teachers to use similar materials to those in the classroom (Yes or No)
Performance Feedback	Whether the teachers were given feedback on independent practice (Yes or No)
Table 2.3: Evaluation of Professional Development	
Participants	Years teachers and number of participants
Setting	Setting where the teachers taught (e.g., elementary school)
Research Design	Description (e.g., single-subject [ABAB, multiple baseline], group [experimental, quasi experimental, descriptive])
Teacher DV	If assessed, name and definition of DV
Student Behavior DV	If assessed, name and definition of DV
Student Academic DV	If assessed, name and definition of DV
Fidelity of Training	Reported or not reported
Social Validity of Training	Reported or not reported

Note. PD = professional development, DV = dependent variable

Appendix B. Pilot Study Direct Observation Recording Form

Sheet # 1 2 3 4 5 6 7 8 9 10

Initials:	IOA: Yes	Clssrm: _____	Start:______ End:______
Students	Beginning: _____	Plus: _____	Minus: _____

1. Teacher Not INSTR SB MAN	2 Student Active Disengaged Passive	3. Teacher Not INSTR SB MAN	4 Student Active Disengaged Passive	5. Teacher Not INSTR SB MAN	0-2-4-6-8 10-12-14 16-18-20
OTRs _____ G+Fdbk _____ S+Fdbk _____ Rep _____ Pre _____					
1. Teacher Not INSTR SB MAN	2 Student Active Disengaged Passive	3. Teacher Not INSTR SB MAN	4 Student Active Disengaged Passive	5. Teacher Not INSTR SB MAN	0-2-4-6-8 10-12-14 16-18-20
OTRs _____ G+Fdbk _____ S+Fdbk _____ Rep _____ Pre _____					
1. Teacher Not INSTR SB MAN	2 Student Active Disengaged Passive	3. Teacher Not INSTR SB MAN	4 Student Active Disengaged Passive	5. Teacher Not INSTR SB MAN	0-2-4-6-8 10-12-14 16-18-20
OTRs _____ G+Fdbk _____ S+Fdbk _____ Rep _____ Pre _____					
1. Teacher Not INSTR SB MAN	2 Student Active Disengaged Passive	3. Teacher Not INSTR SB MAN	4 Student Active Disengaged Passive	5. Teacher Not INSTR SB MAN	0-2-4-6-8 10-12-14 16-18-20
OTRs _____ G+Fdbk _____ S+Fdbk _____ Rep _____ Pre _____					
1. Teacher Not INSTR SB MAN	2 Student Active Disengaged Passive	3. Teacher Not INSTR SB MAN	4 Student Active Disengaged Passive	5. Teacher Not INSTR SB MAN	0-2-4-6-8 10-12-14 16-18-20
OTRs _____ G+Fdbk _____ S+Fdbk _____ Rep _____ Pre _____					
1. Teacher Not INSTR SB MAN	2 Student Active Disengaged Passive	3. Teacher Not INSTR SB MAN	4 Student Active Disengaged Passive	5. Teacher Not INSTR SB MAN	0-2-4-6-8 10-12-14 16-18-20
OTRs _____ G+Fdbk _____ S+Fdbk _____ Rep _____ Pre _____					
1. Teacher Not INSTR SB MAN	2 Student Active Disengaged Passive	3. Teacher Not INSTR SB MAN	4 Student Active Disengaged Passive	5. Teacher Not INSTR SB MAN	0-2-4-6-8 10-12-14 16-18-20
OTRs _____ G+Fdbk _____ S+Fdbk _____ Rep _____ Pre _____					
1. Teacher Not INSTR SB MAN	2 Student Active Disengaged Passive	3. Teacher Not INSTR SB MAN	4 Student Active Disengaged Passive	5. Teacher Not INSTR SB MAN	0-2-4-6-8 10-12-14 16-18-20
OTRs _____ G+Fdbk _____ S+Fdbk _____ Rep _____ Pre _____					

Page Totals	***TCHR**: Not__ Instr__ SB__ Man__ OTRs__ G+__ S+__ Rep__ Pre__* ***Stu #2:** Act__ Pass__ Dis__ **Stu #4:** Act__ Pass__ Dis__*

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Appendix C. Teacher and Student Observation Manual (Brief)

Section A: Overview

Our study requires direct observation to determine whether there are changes teacher and student behavior. This manual describes the procedures that we plan to employ to systematically collect data during each phase of the study. We hope to gather contextual factors as well as student and teacher behaviors in an effort to determine whether behavior changes based on different situations.

This is a live-observe system that requires an observer to assess teacher and behavior. In addition, the observer will also be listening for specific teacher behaviors. In the following section we describe the categories and codes that will be used to collect data.

Section B: Conducting Observations

As observers we must always be professional and courteous when interacting with school personnel. This section will highlight the expectations of observers, and discuss what to do in difficult situations that might arrive.

Any time you are stepping into a school for an observation you should be dressed professionally, at minimum to the standards of the teachers working at that school. On the first day you have an observation, make sure that you arrive at the school early. Greet whoever is working in the front office and tell her or him why you are at the school. You will need to check into the main office as a visitor every time you have an observation and receive a visitor badge.

Make sure you arrive at the assigned room for your scheduled observation at least five minutes before the start of the period. This should be in between classes, so you should take this time to introduce yourself to the teacher you will be observing and thank him or her for letting you sit in their classroom. Check to make sure that the teacher was aware that the observation was going to take place, we do not want to surprise teachers or put them on the spot. This will only undermine their trust and cooperation. When you first enter a classroom you should ask the teacher where she or he want you to sit during the observation. Remember in all your interactions with the faculty and staff of the school that you are a guest.

The first time you enter a classroom you should talk with the teacher about acknowledging and explaining your presence to the students. The teacher should say something along the lines of the following.

> Good morning class. Today we have a guest who will be observing me as I teach. S/he is a part of a team that is working with several teachers at this school to improve the school's academic and behavior environments. S/he will not interact with students and you are not to attempt to talk to him/her while s/he is in the classroom.

If a student does attempt to speak to you while in the classroom you are to say "sorry, I'm busy right now," and then avoid further interaction (including eye contact). Though there is no way to stop the change of student behavior caused by an observer's presence in the classroom, eliminating interaction with students will at least minimize the change in behavior.

If there is a substitute or if the teacher cancels the observation, make a note of this on the cover page of the observation sheet.

Always be on time—Remember that we are guests and are there at the convenience of staff. If you are going to be late, you should call Shanna to let her know (615 517 1147). Phone her at the earliest possible time (i.e. the night before) if you are unable to come to work due to illness or an emergency so I can try to find a replacement for your scheduled sessions

A note about confidentiality --- Remember that we have **GUARANTEED** confidentiality to all participants in the study. You should never discuss anything with anyone other than project staff. It is never appropriate to identify participants in the study to others, or to discuss what you have observed during the course of the study. It is also imperative that we remain prompt, courteous, and cooperative with the staff of the study.

Section C: Observation Procedures

1. Each time you collect data, you will need a **tablet computer and memo paper/post-it notes.** Always check your computer power supply before leaving the office. If it is necessary to use the adapter, ask the school staff quietly if you can access an outlet and still remain close to the target.

2. Refrain from using your cell phone at the school. Turn it off or put it on silent (not vibrate) mode.

3. Arrive early enough to the observation site to determine the most optimal place to sit. Sit in front, or to the side of the target student so you can see hands, feet, and face but remain inconspicuous. When observing, do not stare at the target student. Try to look around the room at others, all the while glancing back at the target student. When/if the target student leaves the room, press "Out of View*"* and continue to record teacher behaviors during the period. When the student returns, resume observation by hitting the appropriate state "active, passive, disengaged, or waiting"

4. If you are taking reliability with another coder, consider where to position both of you without affecting the flow of the classroom and regularly occurring activities. Try not to disturb the normal interactions of the environment. After the initial visit, you do not need talk to the staff upon entering the environment (unless you need specific information). It is okay to acknowledge staff; however, you should not engage him/her in a conversation or disturb the site flow. The same holds true for the target student and peers as well. You can expect peers to be curious about your presence, but DO NOT talk to them at length. If a peer tries to engage you, politely tell him/her that you cannot talk right then, that you have work to do.

5. Enter/exit the area as inconspicuously as possible. Avoid taking extra items (not required for data collection) with you, and make sure that you have all the necessary materials prior to entering the room. Never respond to student behavior (e.g. laughing). Similarly, you should not respond when negative things occur such as staff administered punishment or acts of aggression. We are strictly observing events as they happen, and do not want our actions in any way to resemble judgment or criticism. If you are disturbed by what you have observed, you may discuss it with us, but no one else.

6. Always keep a copy of all filenames for all target students in the study with you. This is in the event that if one target student is absent you can pick up another target in the class. Otherwise, you can go to a different class to attempt to observe another available student.

7. During reliability observations, the primary observer will count out, "*1-2-3, start,"* so that both observers can hit the "Start*"* button at the same time and thus begin coding at the exact time. During this time, keep conversation at an absolute minimum.

8. Do not observe when a substitute teacher is teaching the class. If possible, find a different class to observe in.

9. Do not observe a class during any extraordinary events, e.g. special art projects, Halloween party, or during a full block of testing.

10. Refer to the student random order sheet to determine the observation sequence. If a student is absent watch the other 2 students and give yourself a 5 min break between observations.

11. At the end of the observation (before starting a new observation or leaving the school), complete the observation checklist online or by hand. Note, if you complete the checklist by hand, you will need to enter the information on the google form as soon as possible. The form is available at: **http://tinyurl.com/fall2015schoolobs. See Section F for specific procedures and information.**

Section D: Sample Set Up

1. Turn on hand-held using power button.
2. Enter password: **Virginia (case sensitive)**
3. Then select **Lily Data Collector (Orange Button)**
4. Choose **File** (bottom left hand corner of screen) and **New File**
5. **Select the Teacher's Folder**
6. Using the document, *Following Codes* follow the steps to name the file name:
   a. School Letter (1 letter) B = Bavaro, C = Cabell, G = Gilmer, J = Jefferson, W = Walker
   b. Month (2 digit) 09 = Sept, 10 = Oct, 11 = November, 12 = December, 01 = January
   c. Day (2 digits)
   d. Student Number (2 digits – Same 1st digit as teacher)
   e. Primary/Reliability (1 letter) P = Primary, R = Reliability
   f. Observation Period (1 letter) A = 1st Obs, B = 2nd Obs
   g. Save file as a text.file

Examples: Code to "save as" for same student by primary observer and reliability observer.

School Letter	Month	Day	Primary/ Reliability	Student #	Observation Period
C	10	21	P	23	A

Clark/ Oct 21/Primary/Student 23 (Teacher 2)/First Obs.txt

5. A window titled *Header line for this session*….will appear. Select "ok". (example: header 10/21/15 2:09:12 AM)
6. Select "Start" in upper right corner of screen (this will start the timer)
7. If doing session by self, hit start when ready to begin session.
8. If doing reliability, set the timer to go off at a specific time.
9. After beginning the timer you will enter codes using stylus as they occur.
10. If session ends before timer runs out select "stop".
11. **Select File and Save and Close the session.**
12. Keep Post-it notes handy to write out any questions or coding errors that occur.
13. If you make an error in coding, select the "fix" button in the upper right corner and, then immediately enter the correct code. Try to note the second count at the bottom of the screen and make a notation on the post-it note (i.e., error = praise at 345 secs. - replace with OTR).

Section E: Categories and Codes

Our observation system features two types of observation categories (duration and event) for both teacher and student behaviors. The purpose of this method is to capture as much information in a systematic manner.

Duration-Recording: In duration recording, the observer assesses the teaching situation and determines what is occurring at that time.

The following definitions are used for each of the momentary observation codes.

1. **Teacher Behaviors/Actions Duration Codes**
    a. ACAD - ACADEMIC TEACHING
        i. Teacher is conveying content relevant to the class. Teacher is engaged in instruction by explaining a concept, demonstrating a principle, modeling a skill or activity, and providing academic performance feedback to class. The interaction or content must be academic and furthering the lesson/objective of class, teacher is circulating (in close proximity to students) the classroom as students read independently, periodically s/he is checking in with a student.
        ii. Examples include modeling an activity, providing instructions to a group, providing a rationale for an activity. Teacher is giving directions to a small group of individuals on what sequence of events need to be accomplished and presented on for the group project
        iii. Nonexamples include reprimanding students for not following the activity correctly (code as SB and REP)
    b. SB - SOCIAL BEHAVIORAL
        i. The teacher is describing, discussing, remarking on, etc. students' social behavior. *Descriptions of the behavior may be either positive or negative.*
        ii. Examples: "Students who follow directions listen to what I say then starting doing what I described very soon after I finish.", "Jennifer, stop talking".
        iii. Nonexamples: "I need everyone to line up now"
    c. MAN - MANAGEMENT
        i. Teacher is engaging in non-behavior classroom management issues (e.g., lining up). Teacher continues to interact with students but is not conveying academic or social behavioral information.
        ii. Examples: Teacher is passing out materials, teacher is observed writing directions on boards.
    d. NOT -NOT TEACHING
        i. Teacher is NOT actively delivering instruction, is NOT academically engaging students or is involved in independent task with NO interactions with student (No adult is engaged with students). Use "not teaching" when teacher is talking off- topic.
        ii. Examples include: Teacher is standing by the door, talking with someone outside of class.

iii. Nonexamples include: Teacher is walking around the room, watching students as they complete tasks, although he is not actively engaging students, he is monitoring them (Code as Teach)
iv. Nonexamples: Teacher is conveying instruction about a game or says "Sandra, I need you to stop talking" (this could be social-behavioral).

e. OUTT –OUT OF VIEW (TEACHER)
i. Unable to observe the teacher because they left the room or in the room but not in view.
ii. Examples: Teacher escorted a student to the office, teacher talking to a student in the hallway, if the teacher is the room but not of view (without getting up and moving)
iii. Nonexamples: Students are completing a hands on activity and the teacher is opened a cabinet to retrieve materials.

2. Target Student Duration Codes

a. ACT - ACTIVE ENGAGEMENT
i. Student is actively engaging with instructional content via choral response, raising hand, responding to teacher instruction, writing, reading, or otherwise completing assigned task.
ii. Examples: Reading to the group, writing a response, creating a visual, completing an experiment, solving a problem with manipulatives.
iii. Nonexamples: student is working on another subject (this would be disengaged), student is turned away from task and reading a novel (this would be disengaged)

b. PASS - PASSIVE ENGAGEMENT
i. Student is passively attending to instruction by orientation to teacher or peer if appropriate.
ii. Examples: Eyes following the teacher, reading an assignment, watching a demonstration
iii. Nonexamples: Student is staring out the window (this would be disengaged), student is writing (this would be active)

c. DISE - DISENGAGED
i. Student(s) are not participating in an approved/assigned activity.
ii. Examples. Student(s) are *not* participating in an approved/assigned activity. They are *not* attending to the material or task, making appropriate motor responses, asking for assistance in an acceptable manner, or waiting appropriately for the teacher to begin or continue with instruction. They could be verbally off task/disruptive, physically off-task/disruptive, or out of the area.
iii. Nonexamples. Student is doodling on a paper while listening to the teacher's lecture as indicated by regular eye contact (code as passive engagement). Student is sitting quietly at desk, apparently looking at his book or worksheet (code as passive engagement.

d. WAIT - WAITING
i. No task expectations are present for the student to engage in.

ii. Examples: Student has completed assigned before end of work time and spends the remainder of time drawing.

iii. Nonexamples: Student is texting while class is watching a movie (code as off task). Student is sleeping while class is working on assigned task (code as off task).

e. OUTS - OUT OF VIEW (STUDENT)

i. Unable to observe the student because they left the room or in the room but not in view.

ii. Examples: Student went to the bathroom, sent to another teacher's room, sent to the principal's office (make notes in the observation room if these events occurred and continue to record teacher behavior), if the student is the room but not of view (without getting up and moving)

iii. Nonexamples: Students are completing a hands-on activity and the student dropped materials.

Event Codes: Event codes are different from duration codes, as noted previously. Events occur only for a brief time and cannot be assessed in the same way as on-going behaviors such as those observed with the duration system. Observers must be monitoring for events throughout the duration observation time and noting them as they occur.

The observer will record these discrete events using a frequency count. When these events occur, the observer will select the appropriate code. Multiple events can occur during an observation.

Teacher Event Codes

A. PR - PRECORRECT

i. Precorrections are specific cues that provide students with information about the behavior desired in specific situations. For a teacher-delivered cue to serve as a prompt for social behavior, **it must be presented before the behavior is expected (rather than after), and it must specify the desired social behavior.**

ii. A "precorrection" is defined as an antecedent instructional event designed to prevent the occurrence of predictable problem behavior and to facilitate the occurrence of more appropriate replacement behavior. Precorrections consist of verbal reminders, behavioral rehearsals, or demonstrations of rule-following or socially appropriate behaviors that are presented in or before settings where problem behavior is likely.

iii. Examples: If students predictably enter the classroom from recess shouting at each other and running into the classroom, a precorrection might consist of a brief role play of walking into class and using a quiet voice before the students begin recess. Other examples include: "remember, we raise our hands when we have a question" or "Ok, before we begin, lets all get anchored"

iv. Nonexamples: "Raise your hand next time" "Sit down" (Both would be coded as reprimands)

B. OTR - OPPORTUNITY TO RESPOND (ACADEMIC - RESPONSE)

i. Teacher provides an opportunity to respond that is directed to a student, small group, or entire class. **OTR must be instruction related and not a social question.** They are used to engage students in academic learning. Using response cards, choral responding (whole class repetition) is acceptable.
ii. Examples: "Who can tell me…?", "What are reasons for the…?", "Thomas, describe your idea for the project." If a teacher provides multiple questions without pausing in between questions for a student response, code as one OTR (e.g., Who can tell me the main character in the book? And where did s/he live?). If a teacher asks five students the same question (e.g., "Who can share a detail about the main character?") then code this as five separate OTRs.

C. MAND - MAND
i. Teacher requesting a **student action** within 5 seconds of the statement.
ii. Examples: "I need everybody to get out their textbook and turn to page 193.", "Give me your work now"
iii. Nonexamples: "Noah, sit down!" (Code as Reprimand), "Okay students have a nice weekend!" "Tonight you need to complete pages 5-10 for homework" (Does not count since the task will be complete after the 5 second period).

D. GPF - GENERAL POSITIVE FEEDBACK
i. Teacher affirmation of a student behavior that does not include a reason the student is being reinforced, includes restating the correct student answer without incorporating praise.
ii. Examples: "Good job", "Correct", "Okay", "Yes", "Thanks!"
iii. Nonexamples: "I like the way you moved carefully through the obstacle". "Good job using your right arm to reach the ball"

E. SPF - SPECIFC POSITIVE FEEDBACK
i. The teacher responds to the group or individual student behavior that is correct, they use a description of the desired behavior, state the specific students or groups name, and make it a positive praise statement
ii. Examples: "Thank you for keeping your hands to yourself, Ana!", "Great job taking turns, Blue group"
iii. Nonexamples: "Terrific!", "Good job, Orange team"

F. REP- REPRIMAND
i. The teacher responds to a student behavior in a manner that is **meant to stop or reduce an observed student** or group of students' behavior. The purpose of a reprimand is to decrease behavior such as talking, lecturing, pleading, yelling, reasoning, or threatening.
ii. Examples: "No!", "Stop!", "That is wrong", "Shhh!"
iii. Nonexamples: "Make a better choice"

Student Event Codes

1. PHYS - PHYSICAL –PHYSICAL/MOTOR OFF-TASK/DISRUPTIVE BEHAVIORS (frequency code): This is coded for deliberate physical or motor displays of inappropriate behavior. This includes posturing or gestures that are intended to provoke

others, drawing attention to self, using classroom materials inappropriately, or self-stimulating in a disruptive manner. A disruptive behavior is any action made by target student that interferes with target student participation and the productive classroom activity of target students' peers. Code each "PHYSICAL" as one occurrence unless topography (the appearance of the PHYSICAL) *changes or behavior ceased for at least 3 seconds.*

a. ***Examples:***
    i. [Sequence] Target student is rocking in his/her chair, begins tapping pencil, and falls out of the chair (Physical, Physical, Physical).
    ii. Target Student throws or tosses material at other students or around the classroom (Physical).
    iii. Target Student makes non-verbal noises (tapping an object, popping gum loudly, drumming on desk or stomping a foot all coded as "Physical").
    iv. Target Student destroys property, such as ripping up a worksheet, or snapping a pencil (Physical).
    v. Target Student colors or writes on desk, chair, clothes, etc. instead of paper (Physical).
    vi. Making obscene hand gestures at another person (physical)

b. ***Non-examples:***
    i. Kneeling on chair to reach table or desk that is difficult to reach when sitting (ignore).
    ii. During floor time when child is expected to be in a criss-cross seated position, the child is laying over on the floor for at least five or more seconds (code as "Diseng").

2. VERB- VERBAL – VERBALLY OFF-TASK/DISRUPTIVE BEHAVIORS (frequency code): Verbal statements that have the intent to provoke, annoy, pester, mock, whine, complain, tattle, or make fun of another, and are provocative in nature. Tone and volume of voice may be an indicator of a negative verbal statement, but must include content as described to be counted. This code also includes laughing at a peer when in trouble, chatting during work time if it is not task-related or teacher permitted, talking out when not called upon by the teacher, or making noises during instruction. This code also includes making noises such as excessive sighing, clicking the tongue, blowing air out through the lips, any other audible distractions, as well as any verbal refusal to comply with a directive. Code each "bv" *separately if at least 3 seconds pass between* the end of one incident and the beginning of the next, or if *teacher or student responds to separate the events.*

    a. ***Examples:***
        i. Target student answers a question without raising his or her hand if expected by the teacher (verbal).
        ii. During an assignment, target student sighs out loud when he or she does not know how to answer a question without getting teachers' attention appropriately (verbal).
        iii. Target student talks out after specifically being forbidden by teacher instructions (verbal).

iv. Target student refuses teacher direction, “No, I won’t do it,” or “make me!”(verbal)
v. target student challenges teacher saying “You can’t make me do this work!” or complains that “this is stupid” (verbal)
vi. Target student uses curse words (verbal).

b. ***Non-examples*:**
i. Teacher welcomes a whole class choral response and the target student responds appropriately without raising his/her hand (RESP, ACTIVE).
ii. Student mumbles to self about instruction, whispers to self (no code)
iii. Target student answers a question without hand raising as permitted by the teacher (OTR, RESP).
iv. target student quietly makes an obscene hand gestures at another person (code as “Physical”)

Appendix D. Teacher Survey of Practices

Name: _____ Date: _____
Directions: Complete the following questions based on the past week (or five day period).

Antecedent – Based Strategies: Before Instruction				
1. What percentage of time do you feel as though your classroom is easy to navigate (physically for students)?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
2. What percentage of time have your classroom expectations been positively stated, clearly defined, and visible?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
3. What percentage of lessons did you teach and review the positively stated classroom routines?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
4. What percentage of time did you post a schedule for the students to view?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
Behavior: During Lessons				
1. What percentage of lessons did you actively supervise your students (e.g., moving frequently around the room, scanning) during instruction?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
2. What percentage of lessons did you provide multiple opportunities for students to respond and participate during instruction (e.g., teacher directed opportunity to respond, class-wide peer tutoring)?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
3. What percentage of lessons did you engage your students in observable ways during instruction (e.g., used response cards)?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
4. What percentage of lessons did you use evidence-based method to deliver instruction (e.g., direct instruction)?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
Consequence-Based Strategies: During and After Lessons				
1. What percentage of lessons did you use behavior-specific/descriptive praise to encourage appropriate behavior?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
2. What percentage of lessons did you use systems to acknowledge appropriate behavior (e.g., group contingencies, token economies)?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
3. What percentage of lessons did you use a continuum of consequences to discourage rule violations (e.g., planned ignore, praising others, proximity, explicit reprimand)?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐
4. What percentage of lessons did you provide your students with performance feedback (e.g., graph for target behavior and criteria)?	Less than 50% ☐	51-79% ☐	80-100% ☐	N/A ☐

Created from on Epstein et al. (2008), Oliver and Reschly (2007), Reinke et al. (2011), and Simonsen et al. (2008).

Appendix E. Teacher Knowledge Measure

1. The prevention of problem behavior is most effectively managed by:
    a. Reprimanding students immediately
    b. Ignoring all inappropriate behavior
    c. Consistently implementing classroom management procedures
    d. Keeping all desks in rows

2. Identify strategies used to encourage expected behaviors:
    a. State classroom expectations
    b. Tell students what not to do
    c. Teach and review expectations frequently
    d. Allow the students to create the class rules

3. Classrooms should have ____ number of expectations.
    a. 1-2
    b. 3-5
    c. 6-7
    d. As many as the teacher feels are appropriate

Use the following scenario to answer questions 4-6
Mr. George's classroom is located at the end of the hallway. He posts student work outside his class and on the bulletin board in the classroom. When students enter the room, Mr. George greets them at the door every day. When they engage in appropriate behaviors, he states exactly what they did and pairs it with a compliment. During instruction he will frequently ask students questions. Sometimes he asks them to show him their work by using wipe-off boards or cards that they hold up.

4. Identify the example of non-contingent attention
5. Identify descriptive praise.
6. What is the purpose of calling on students frequently during class?

Use the following scenario to answer questions 7-9.
During the first week of school, Mrs. Jackson, a 3rd-grade general education teacher reviews her classroom rules (e.g., no hitting, swear words, clean up after yourself) and procedures (e.g., attention signal). She also tells her students about the classroom management program. During the 30 minute lesson, she describes the program. The program rewards students who do not talk out, hit, and forget their homework. She also implements a consequence-based system to reduce behavioral problems.

7. Identify the strengths of Mrs. Jackson's system
8. Identify the shortcomings of Mrs. Jackson's system
9. Identify the different ways that Mrs. Jackson can change her system.

10. Identify the effective error corrections (answer can be more than one):
    a. Telling students
    b. Showing students
    c. Demonstrating
    d. Saying incorrect, no, or wrong.

11. Why is active student responding important?
    It is correlated with:
    A. More accurate responding
    B. Improved test scores
    C. Faster acquisition of information
    D. Reduced disruptive behavior
    E. All of the above
    F. None of the above
    G. A and D

12. Which statement is not true?
    A. ASR reveals a student's level of understanding of content
    B. ASR is occurring when a student makes an observable response to ongoing instruction
    C. ASR requires that each student take turns responding
    D. Regularly incorporating ASR opportunities into instruction sets the expectation that all students need to engage in the lesson

13. Either whether the statement is true or false:
    a. By including opportunities for all students to engage simultaneously and actively in responding during lessons, problem behavior will likely *increase* - ***FALSE***
    b. It is important for a teacher to check for students' understanding of concepts during a lesson so they can modify instruction if needed - ***TRUE***
    c. Having a frequency count of a student's independent academic responses out of the total number of opportunities for responses per instructional period would be useful information – ***TRUE***

14. To create an opportunity for a student to display an original answer to an open-ended question, which of the following should ***not*** be used:
    a. Preprinted response card
    b. Think Pair Share
    c. Write-on Response Card
    d. Round Table

15. Cards, signs, or items that are held up simultaneously by all students to display their response to a question, item, or problem presented by the teacher are called:
    a. Guided Notes
    b. Show Me Cards
    c. Response Cards
    d. Stickies

16. Identify consequences that teachers can use to discourage rule violations.
    ignoring, praising others, proximity, explicit reprimand

17. Do you agree or disagree with this statement. Please explain your answer. Problems behaviors are expected in all classrooms and teachers should have systematic plan to address and document violations.

18. If a misbehavior occurs, how should the teacher respond?
    quick, calm, direct, and brief reprimands/corrections for misbehavior (or ignore the behavior, when appropriate

19. Review the scenario and identity a suggestion for Ms. Smith.

    Ms. Smith (fifth-grade teacher) has a handful of students in her afternoon reading block that engage in non-compliance. Sometimes she will respond by reprimanding the students. This continues to occur every afternoon.
    Teach and reinforcer the desirable behavior.

20. Praise is effective when it:
    a. Orients the students toward comparisons of others
    b. Attributes success to ability alone
    c. Uses student's prior accomplishments for describing present performance.
    d. Is stated immediately following the behavior and provides a brief description of the behavior.

Appendix F. Teachers' Sense of Efficacy Scale

Name: _____ Date: _____

Teacher Beliefs	How much can you do?								
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their classroom management. Please indicate your opinion about each of the statements below. Your answers are confidential.	**Nothing**		**Very Little**		**Some Influence**		**Quite A Bit**		**A Great Deal**
1. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. To what extent can you make your expectations clear about student behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How well can you keep a few problem students from ruining an entire lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education, 17,* 783-805

Appendix G. Teacher Burnout Survey

Name: _____ Date: _____

Burnout	Strongly Agree	Agree	Disagree	Strongly Disagree
a. I feel burned out from my work.	1	2	3	4
b. I feel like I'm at the end of my rope.	1	2	3	4
c. I feel emotionally drained from my work.	1	2	3	4
d. I feel used up at the end of the workday.	1	2	3	4

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). Maslach Burnout Inventory manual (3rd ed.). Palo Alto, CA: Consulting Psychologists Press, Inc.

Appendix H. Student Risk Screening Scale: Internalizing and Externalizing

Professional Development in Practice: An Evaluation of Classroom Management Training for Novice Teachers

Student Risk Screening Scale
(Drummond, 1994)

Teacher Name	Grade Level	Date

Directions: Use this scale to rate each item for each student
0= Never
1= Occasionally
2= Sometimes
3= Frequently

		Externalizing Behaviors							**Internalizing Behaviors**							
Student ID	Student Name	Steal	Lie, Cheat, Sneak	Behavior Problem	Peer Rejection	Low Academic Achievement	Negative Attitude	Aggressive Behavior	Emotionally Flat	Shy; Withdrawn	Sad: Depressed	Anxious	Lonely	SRSS Total (Externalizing)	SRSS-IE Total (Internalizing)	SRSS-IE Total

Appendix I. Sample Curriculum Based Measurement Probes

Kindergarten: Number ID Probe (Administered Individually)

Probe Type: Number Identification #1

Date:_____

3	7	1	14	11	8	2	13
16	5	12	20	18	4	9	6
10	15	19	17	0	18	6	3
15	0	2	7	10	13	14	11
4	20	17	16	1	5	8	9
19	12	7	12	18	1	15	16
11	20	0	5	14	2	4	6
10	9	3	17	8	19	13	3

NID Total Items Attempted: _____ NID Errors: _____ NID Correct Items: _____

Lower Elementary (Grades 1-3): Addition & Subtraction (Administered to Students in Groups)
Facts Probe 1

1 - 1 =	8 + 1 =	5 + 5 =	1 + 7 =
4 + 7 =	5 + 7 =	4 + 6 =	9 + 5 =
3 + 0 =	7 - 4 =	4-3 =	1 – 0 =
12 - 9 =	7 + 4 =	0 + 7 =	7 - 4 =
10 – 10 =	7 – 6 =	11 - 7 =	8 – 6 =
8 - 2 =	9 + 6 =	6 + 6 =	1 + 2 =
8 + 7 =	0 + 0 =	11 - 2 =	8 - 5 =
6 - 2 =	7 + 0 =	3 + 3 =	17 - 9 =
10 - 4 =	9 + 9 =	6 -3 =	9 – 3 =
5 – 2 =	2 -2 =	5 + 9 =	7 + 8 =
3 – 2 =	9 - 3 =	9 – 5 =	16 - 7 =
4 + 5 =	14 - 9 =	7 + 6 =	2 + 6 =
8 + 8 =	13 - 6 =	2 + 4 =	9 – 6 =
1 + 0 =	6 + 2 =	2 + 8 =	1 + 8 =
10 – 8 =	6 – 4 =	5 – 2 =	7 – 5 =
0 + 0 =	8 + 3 =	8 + 5 =	9 – 7 =
13 - 8 =	8 -1 =	2 + 2 =	2 - 0 =
9 + 1 =	6 - 3 =	0 + 7 =	3 + 5 =
10 – 5 =	4 + 9 =	9 - 7 =	4 -2 =

Upper Elementary (Grades 4-6): Addition, Subtraction, Multiplication, and Division (Administered to Groups of Students)

Facts Probe 1

1 - 1 =	8 x 1 =	5 x 5 =	1 x 7 =
4 x 7 =	5 x 7 =	4 + 6 =	9 x 5 =
3 + 0 =	$3\overline{)12}$ =	$2\overline{)14}$ –	$6\overline{)6}$ –
12 - 9 =	7 + 4 =	0 x 7 =	7 - 4 =
$5\overline{)10}$ –	$8\overline{)48}$ –	11 - 7 =	$4\overline{)12}$ –
8 - 2 =	9 + 6 =	6 + 6 =	1 x 2 =
8 + 7 =	0 x 0 =	11 - 2 =	8 - 5 =
6 - 2 =	7 + 0 =	3 + 3 =	17 - 9 =
10 - 4 =	9 x 9 =	$4\overline{)4}$ –	$1\overline{)5}$ –
$1\overline{)1}$ –	2 -2 =	5 + 9 =	7 x 8 =
$6\overline{)54}$ –	9 - 3 =	$4\overline{)32}$ –	16 - 7 =
4 + 5 =	14 - 9 =	7 + 6 =	2 x 6 =
8 + 8 =	13 - 6 =	2 x 4 =	$5\overline{)0}$ –
1 + 0 =	6 x 2 =	2 + 8 =	1 + 8 =
$9\overline{)63}$ –	$3\overline{)27}$ –	$3\overline{)15}$ –	$9\overline{)36}$ =
0 + 0 =	8 x 3 =	8 + 5 =	$7\overline{)42}$ =
13 - 8 =	$6\overline{)24}$ –	2 x 2 =	2 - 0 =
9 + 1 =	6 - 3 =	0 + 7 =	3 x 5 =
$8\overline{)8}$ –	4 x 9 =	9 - 7 =	$5\overline{)40}$ –

Appendix J. Social Validity Measures: Teacher Satisfaction Survey and Post-Interview

Teacher Satisfaction Survey: Completed During Session #4

Previous Knowledge	Unfamiliar				Very Familiar
How familiar were you with the components of the Action Plan *before* the training?	1	**2**	**3**	**4**	**5**
How familiar are you *now* with the components of the Action Plan?	1	**2**	**3**	**4**	**5**

Training	Unacceptable				Acceptable
How satisfied are you with the training you received?	1	**2**	**3**	**4**	**5**
How satisfied are you with training support you received from the project staff?	1	**2**	**3**	**4**	**5**

Implementation:	Very Hard				Very Easy
To what extent do you think the components of the Action Plan are be easy to learn?	1	**2**	**3**	**4**	**5**
To what extent do you think the components of the Action Plan will be easy to implement?	1	**2**	**3**	**4**	**5**

How much time do you think it required to implement the Action Plan?	A Lot of Time				Very Little Time
Amount of preparation time:	1	**2**	**3**	**4**	**5**
Amount of time during instruction:	1	**2**	**3**	**4**	**5**
Amount of time after instruction (e.g., rewards, recording data):	1	**2**	**3**	**4**	**5**

Effectiveness	Not Effective				Very Effective
How effective do you think the Action Plan will be for your students?	1	**2**	**3**	**4**	**5**

Action Plan	Strongly Dislike				Like Very Much
To what extent did you like the Action Plan you created?	1	**2**	**3**	**4**	**5**
	Very Unlikely				Very Likely
How likely are you to use the Action Plan?	1	**2**	**3**	**4**	**5**
How likely are you to recommend the consultation to develop an Action Plan to a colleague?	1	**2**	**3**	**4**	**5**

Social Validity Interview

Did you notice changes in student behavior after attending the Practice-Based Professional Development Training and creating an Action Plan?

Did you notice changes in your teaching practices in other settings?

What did you think of the Action Plan Components?

Strategy	**Feedback**
Antecedent	
TBD	
Behavior	
TBD	
Consequence	
TBD	

Do you feel like you received a sufficient amount of support? Would have you preferred additional meetings? Emails?

Over the course of the past month you met with the other teachers and a consultant. What did you think about meeting with the other teachers and consultant?

Did you appreciate the feedback? Graphs?

How did you feel about the observations? Any recommendations for future observers?

Appendix K. Demographic Surveys: Teacher and Student

Teacher Last Name:	
Your position/role:	
Degree (or anticipated degree/year):	
Years Teaching:	
Years teaching in your current school:	
Years teaching at your current position:	
Have you taken a classroom management course?	
Describe previous classroom management professional development?	
Are you currently receiving any additional support (instructional coaching)? If yes, please describe (who is providing the support, how often, content, etc).	

Student Demographic Survey

Student Initials	Age	Gender	Race	SPED (Disability Acronym)	ELL Status

Appendix L. Observation Schedule

Sept/October Observations

Date	1st Observation	2nd Observation	3rd Observation
9/29	Student 3	Student 2	Student 1
9/30	Student 3	Student 1	Student 2
10/1	Student 2	Student 1	Student 3
10/2	Student 1	Student 3	Student 2
10/5	Student 2	Student 3	Student 1
10/6	Student 1	Student 3	Student 2
10/7	Student 1	Student 2	Student 3
10/8	Student 2	Student 3	Student 1
10/9	Student 1	Student 2	Student 3
10/12	Student 3	Student 2	Student 1
10/13	Student 1	Student 2	Student 3
10/14	Student 1	Student 3	Student 2
10/15	Student 1	Student 3	Student 2
10/16	Student 3	Student 1	Student 2
10/19	Student 2	Student 3	Student 1
10/20	Student 1	Student 2	Student 3
10/21	Student 2	Student 1	Student 3
10/22	Student 1	Student 3	Student 2
10/23	Student 3	Student 1	Student 2
10/26	Student 1	Student 3	Student 2
10/27	Student 1	Student 3	Student 2
10/28	Student 1	Student 3	Student 2
10/29	Student 3	Student 1	Student 2
10/30	Student 1	Student 3	Student 2

November Observations

Date	1st Observation	2nd Observation	3rd Observation
11/2 & 11/3 - no school			
11/4	Student 3	Student 1	Student 2
11/5	Student 1	Student 3	Student 2
11/6	Student 3	Student 1	Student 2
11/9	Student 3	Student 2	Student 1
11/10	Student 2	Student 1	Student 3
11/11	Student 2	Student 1	Student 3
11/12	Student 2	Student 3	Student 1
11/13	Student 3	Student 2	Student 1
11/16	Student 2	Student 1	Student 3
11/17	Student 1	Student 3	Student 2
11/18	Student 2	Student 1	Student 3
11/19	Student 3	Student 2	Student 1
11/20	Student 2	Student 3	Student 1
11/23	Student 2	Student 3	Student 1
11/24	Student 3	Student 1	Student 2
11/25	Student 1	Student 2	Student 3
11/26 & 11/27 - no school			
11/30	Student 1	Student 3	Student 2

December Observations

Date	1st Observation	2nd Observation	3rd Observation
12/1	Student 2	Student 1	Student 3
12/2	Student 1	Student 3	Student 2
12/3	Student 1	Student 2	Student 3
12/4	Student 1	Student 3	Student 2
12/7	Student 1	Student 2	Student 3
12/8	Student 2	Student 1	Student 3
12/9	Student 2	Student 1	Student 3
12/10	Student 1	Student 2	Student 3
12/11	Student 3	Student 2	Student 1
12/14	Student 1	Student 2	Student 3
12/15	Student 3	Student 1	Student 2
12/16	Student 2	Student 3	Student 1
12/17	Student 1	Student 2	Student 3
12/18	Student 1	Student 2	Student 3

January and February Observations

Date	1st Observation	2nd Observation	3rd Observation
1/4	Student 3	Student 2	Student 1
1/5	Student 3	Student 1	Student 2
1/6	Student 2	Student 3	Student 1
1/7	Student 2	Student 3	Student 1
1/8	Student 1	Student 3	Student 2
1/11	Student 1	Student 2	Student 3
1/12	Student 3	Student 1	Student 2
1/13	Student 1	Student 3	Student 2
1/14	Student 2	Student 1	Student 3
1/15	Student 1	Student 3	Student 2
1/18-1/19 No School			
1/20	Student 2	Student 1	Student 3
1/21	Student 2	Student 1	Student 3
1/22	Student 1	Student 2	Student 3
1/25	Student 3	Student 1	Student 2
1/26	Student 2	Student 3	Student 1
1/27	Student 2	Student 1	Student 3
2/1	Student 2	Student 1	Student 3
2/2	Student 1	Student 2	Student 3
2/3	Student 3	Student 2	Student 1

Appendix M. Classroom Feedback Form

Teacher: SAMPLE Date 09/24/15

Antecedent-Based Strategies

Physical Layout	X
Classroom Rules	X
Classroom Routines	X
Daily Schedule	X
Other: *Well Organized*	X

Area of Strength — Needs Attention

Behavior

Active Supervision	X
Opportunities to Respond	X
Student Engagement	X (60-70%)
Direct instruction	X
Other:	X

Area of Strength — Needs Attention

Consequence-Based Strategies

Use of Behavior Specific Praise	X
Acknowledge Appropriate Behaviors	X
Use a Continuum of Consequences	X
Provide Students with Performance Feedback	X
Other:	

Area of Strength — Needs Attention

Modified from Reinke, W. M., Herman, K. C., & Sprick, R. (2011). *Motivational interviewing for effective classroom management: The classroom check-up.* Guilford Press: New York.

Group 1 Date 10/19/15

Antecedent-Based Strategies: Before Instruction

Physical Layout	X
Classroom Rules	X
Classroom Routines	X
Daily Schedule	X
Other: *Well Organized*	X

Behavior: During Lesson

Active Supervision	X
Opportunities to Respond	X
Student Engagement	X (4-50%)*
Direct instruction	X
Other:	

*Target Students

Consequence-Based Strategies: During and After Lessons

Use of Behavior Specific Praise	X
Acknowledge Appropriate Behaviors	X
Use a Continuum of Consequences	X
Provide Students with Performance Feedback	X
Other:	

Modified from Reinke, W. M., Herman, K. C., & Sprick, R. (2011). *Motivational interviewing for effective classroom management: The classroom check-up.* Guilford Press: New York.

Group 2 Date 11/8/15

Antecedent-Based Strategies: Before Instruction

Physical Layout	X
Classroom Rules	X
Classroom Routines	X
Daily Schedule	X
Other: *Well Organized*	X

Area of Strength — Needs Attention

Behavior: During Lesson

Active Supervision	X
Opportunities to Respond	X
Student Engagement	X (Active 0- 70%)*
Direct instruction	X
Other:	

*Target Students

Area of Strength — Needs Attention

Consequence-Based Strategies: During and After Lessons

Use of Behavior Specific Praise	X
Acknowledge Appropriate Behaviors	X
Use a Continuum of Consequences	X
Provide Students with Performance Feedback	X
Other:	

Area of Strength — Needs Attention

Modified from Reinke, W. M., Herman, K. C., & Sprick, R. (2011). *Motivational interviewing for effective classroom management: The classroom check-up.* Guilford Press: New York.

Group 2 Date 11/8/15

Antecedent-Based Strategies: Before Instruction

Physical Layout	X
Classroom Rules	X
Classroom Routines	X
Daily Schedule	X
Other: *Well Organized*	X

Behavior: During Lesson

Active Supervision	X
Opportunities to Respond	X
Student Engagement	X (Active 0- 70%)*
Direct instruction	X
Other:	

*Target Students

Consequence-Based Strategies: During and After Lessons

Use of Behavior Specific Praise	X
Acknowledge Appropriate Behaviors	X
Use a Continuum of Consequences	X
Provide Students with Performance Feedback	X
Other:	

Modified from Reinke, W. M., Herman, K. C., & Sprick, R. (2011). *Motivational interviewing for effective classroom management: The classroom check-up.* Guilford Press: New York.

Appendix N. Classroom Action Planning Form

Teacher: _____ Date: _____

Things going well in my classroom:	**Areas I would like to focus on improving in my classroom:**

What actions will I take to meet this goal?			
Task: What needs to be done?	**Description of Plan**	**Resources: What is needed to get it done?**	**Timeline**
Antecedent Adjustments			
Behavior			
Consequences			

Modified from Reinke, W. M., Herman, K. C., & Sprick, R. (2011). *Motivational interviewing for effective classroom management: The classroom check-up.* Guilford Press: New York.

How **important** is it for you to meet this goal in your classroom? 0 1 2 3 4 5 6 7 8 9 10 Not Important at All Very Important	The **most important** reasons for making this change and meeting this goal is:
How **confident** is it for you to meet this goal in your classroom? 0 1 2 3 4 5 6 7 8 9 10 Not confident at All Very Confident	Some reasons that **I am confident:**
Is there anything that could get in the way of meeting this goal?	**What can I do to help make sure this doesn't get in the way?**

Modified from Reinke, W. M., Herman, K. C., & Sprick, R. (2011). *Motivational interviewing for effective classroom management: The classroom check-up.* Guilford Press: New York.

Group: 1 Date: October 19, 2015

Things going well in my classroom:	**Areas I would like to focus on improving in my classroom:**
Layout, Routines	Transitions, Reinforcement, Engagement

What actions will I take to meet this goal?			
Task: What needs to be done?	**Description of Plan**	**Resources: What is needed to get it done?**	**Timeline**
Antecedent Adjustments 1. Reteach and Provide Precorrects 2. Advance organizer	1. Provide students with a verbal reminder about transitions to stations. Reteach and reinforce the stations. 2. Provide the students with an activity schedule prior to starting the activity. Write 3-4 tasks in student friendly language	1. Preteach the transitions (deliver tickets with behavior specific praise when students transitions quickly and efficiently). Watch Video 3 for Example of a Transition Graph 2. Wipe board and the markers for the schedule	Start on Wednesday
Behavior 1. Use explicit instruction and check for student understanding 2. Increase student engagement – Increase the number of Opportunities to Respond	1. Use explicit instruction to deliver lessons (Model, Guide, Independent) with frequent checks for student understanding. 2. Create a set list of questions ahead of time for students.	1. Create lesson plans that include each of the elements of explicit instruction. 2. Add questions to lesson plan and use response cards (e.g., plates, clothes pins).	Start on Wednesday
Consequences 1) Implement an individual token system 2) Behavior Specific Praise	1. Provide students with tickets when they engage in desirable social or academic behaviors. Pair the ticket with behavior specific praise. 2. When recognizing students for engaging in desirable behaviors (academic or social/behavior) – state the behavior and pair it with a brief praise statement	1. Tickets, bucket, ideas for tangible and nontangible rewards 2. None	Start on Wednesday

Group: 2 Date: 11/8/15

Things going well in my classroom:	**Areas I would like to focus on improving in my classroom:**
Power of relationship, ignoring problem behavior, proximity, active supervision	1) Daily schedule, 2) Regroup students, 3) opportunities to respond, 4) Reward system

What actions will I take to meet this goal?			
Task: What needs to be done?	**Description of Plan**	**Resources: What is needed to get it done?**	**Timeline**
Antecedent Adjustments 1) Activity Schedule 2) Behavior Expectations	1) Provide the students with an activity schedule prior to starting the activity. Write 3-4 tasks in student friendly language Write the reward at the end of the schedule 2) Post, teach, and reinforce behavior expectations.	1) Small board or wipe off board and markers 2) Expectation posters	1) Start on Monday 2) Asap – Shanna will provide
Behavior 1) Use explicit instruction and check for student understanding 2) Increase student engagement – Increase the number of Opportunities to Respond	1) Use explicit instruction to deliver lessons (Model, Guide, Independent) with frequent checks for student understanding. 2) Create a set list of questions ahead of time for students.	1) Create lesson plans that include each of the elements of explicit instruction. 2) Wipe off board, markers, gloves, small labels for tables	1) Start on Tuesday
Consequences 3) Revamp or Implement a ticket system 4) Consequence-based strategies	1) Provide students with tickets when they engage in desirable social or academic behaviors. Pair the ticket with behavior specific praise. 2) Praise other students, explicit reprimands (stating what to do).	1) Tickets, bucket, ideas for tangible and nontangible rewards. Reminder picture for Dojo. 2) Watch EdPuzzle videos for strategies and suggestions	1) Start ASAP

Group: 3 Date: 11/17/15

Things going well in my classroom:	**Areas I would like to focus on improving in my classroom:**
Delivery of content, students know the procedures, positive teacher-student relationships	Consequences (positive), Opportunities to Respond, direct instruction, schedule, teaching expectations

What actions will I take to meet this goal?			
Task: What needs to be done?	**Description of Plan**	**Resources: What is needed to get it done?**	**Timeline**
Antecedent Adjustments 3) Activity Schedule	3) Provide the students with an activity schedule prior to starting the activity. Write 3-4 tasks in student friendly language Write the reward at the end of the schedule	3) Small board or wipe off board and markers	3) Start on Thursday
4) Behavior Expectations	4) Post, teach, and reinforce behavior expectations.	4) Expectation posters	4) Asap – Shanna will provide
Behavior 3) Use explicit instruction and check for student understanding	3) Use explicit instruction to deliver lessons (Model, Guide, Independent) with frequent checks for student understanding.	3) Create lesson plans that include each of the elements of explicit instruction. Watch EdPuzzle videos for strategies and suggestions	2) Start on Wednesday
4) Increase student engagement – Increase the number of Opportunities to Respond	4) Create a set list of questions ahead of time for students.	4) Wipe off board, markers, gloves, small labels for tables	3) Start on Thursday (Shanna will drop off supplies asap)
Consequences 5) Revamp or Implement a token economy system	3) Provide students with tokens (pennies/straws) when they engage in desirable social or academic behaviors. Pair the ticket with behavior specific praise.	4) Tokens, bucket, ideas for tangible and nontangible rewards.	2) Start on Thursday

Appendix O. PBPD Training Agendas

Meeting 1 Agenda – 2 hour PD

1. Quick Check-In
    1.1. How are the observations going? Questions?
    1.2. How are the math probes? Questions?
2. Purpose of the PD
    2.1. Provide targeted PD on classroom management for novice teachers
    2.2. Share case study to see how it will work
3. Classroom Feedback Form (with target student data)
    3.1. Information gathered from September Survey & observations
4. Antecedent-Behavior-Consequence (ABC) Teaching Strategies
    4.1. Brief workshop
    4.2. Watch videos
5. Create an Action Plan
6. Create a Self-Monitoring Plan
7. Follow Up Videos – Available on EdPuzzle
    7.1. Go to edpuzzle.com and create a student account
    7.2. Click “Join Class” and enter: ejqx3R
    7.3. Goal: Watch the videos 2 or more times a week
8. Follow-Up Meetings – Troubleshoot, review skills, watch videos
    8.1. Set date and time each of the following weeks:
    8.2. Nov 23 or Nov 30
    8.3. December 7
    8.4. December 14

PD Meeting 2 Agenda – 1 hour PD

1. Quick Check-In
    1.1. How are the observations going? Questions?
    1.2. How are the math probes? Questions?
2. Review Action Plan
3. Review Weekly Performance
4. Review Self-Monitoring Data
5. Trouble Shooting
    5.1. Discuss areas that are challenging
    5.2. Brainstorm ideas
    5.3. If needed, update or modify Action Plan
6. Follow Up Videos – Available on EdPuzzle
    6.1. Go to edpuzzle.com and create a student account
    6.2. Click "Join Class" and enter ejqx3R
    6.3. Goal: **Watch the videos 2 or more times a week**
7. Follow-Up Meetings
    7.1. December 8 – 3:30pm at Jefferson Elementary
    7.2. December 15 – 3:30 at Jefferson Elementary

PD Meeting 3 Agenda – 1 hour PD

1. Quick Check-In
    1.1. How are the observations going? Questions?
    1.2. How are the math probes? Questions?
2. **What are your thoughts about how things are going in your classrooms?**
    2.1. Review Action Plan Components
    2.2. Review Weekly Performance
        2.2.1. Review Feedback Form
    2.3. Review Self-Monitoring Data
3. Trouble Shooting
    3.1. Discuss areas that are challenging
    3.2. Brainstorm ideas
    3.3. If needed, update or modify Action Plan
4. Follow Up Videos – Available on EdPuzzle
    4.1. Go to edpuzzle.com and create a student account
    4.2. Click "Join Class" and enter ejqx3R
    4.3. Goal: **Watch the videos 2 or more times a week**
5. Follow-up Meeting
    5.1. December 15 – 3:30 at Jefferson Elementary
    5.2. Set a date for the post-PD interview

PD Meeting 4 Agenda – 1 hour PD

1. Quick Check-In
    1.1. How are the observations going? Questions?
    1.2. How are the math probes? Questions?
2. What are your thoughts about how things are going in your classrooms?
    2.1. Review Action Plan Components
    2.2. Review Weekly Performance
    2.3. Review Self-Monitoring Data
3. Trouble Shooting
    3.1. Discuss areas that are challenging
    3.2. Brainstorm ideas
    3.3. If needed, update or modify Action Plan
4. Complete Post-PD Measures
    4.1. Self-efficacy and burn out measures
    4.2. Knowledge Measure
    4.3. Survey of Practices
    4.4. Feedback Survey (Social Validity)
    4.5. Student Risk Screening Scales
5. Follow-Up
    5.1. Videos – Available on EdPuzzle
        5.1.1. Go to edpuzzle.com and create a student account
        5.1.2. Click "Join Class" and enter ejqx3R
    5.2. Self-Monitor Action Plan
        5.2.1. Will you continue to have weekly check-ins with each other? Someone else in your building?
6. Follow-Up Observations
    6.1. January – 5 observations

Appendix P. Teacher Self-Monitoring Form

SAMPLE

Directions: Monitor the extent to which each component was put in place as planned. Provide comments about any challenges encountered.

0 = *not in place*, 1 = *partially in place*, or 2 = *completely in place*

Strategy	Date: 2/16	Date: 2/17	Date: 2/18	Date: 2/19	Date: 2/20
Antecedent Strategies					
I created predictable lesson for guided reading using the direct instruction format (model, guide, independent).	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
I provided students with an advanced organizer by writing 3-4 tasks in student friendly language on the board.	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
Teaching Behaviors					
I increased opportunities to respond (OTR) by creating a list of questions ahead of time.	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
I increased OTR by using response cards.	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
Immediately following the behavior I provided a praise statement that acknowledged the specific behavior.	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
Consequence Strategies					
I used a token board to reinforce students for engaging in desirable behaviors	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
Students accessed a reward when they met the predetermined goal.	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
Comments:					

Initials: Week of:

Directions: Check of the strategies that you use each day. At the bottom of the form, circle whether you watched a video and which video you watched.

Strategy	Monday			Tuesday			Wednesday			Thursday			Friday		
	Yes	Partial	No	Yes	Partial	No	Yes	Partial	No	Yes	Partial	No	Yes	Partial	No
Antecedent															
A1. I provided students with precorrects (reminders) before transitioning to centers.															
A2. I provided students with an advance organizer prior to starting the lessons.															
Behavior															
B1. I used explicit instruction and checked for student understanding throughout my math lesson.															
B2. I used a wide range of strategies to increase student engagement such as opportunities to respond.															
Consequences															
C1. I implemented a token system throughout math class. I provided students with tickets and conducted drawings.															
C2. I recognized students by using behavior specific praise.															
Did you watch a video(s)? If yes, circle the part of the video.	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3

Group 1

Initials: Week of:

Directions: Check of the strategies that you use each day. At the bottom of the form, circle whether you watched a video and which video you watched.

Strategy	Monday			Tuesday			Wednesday			Thursday			Friday		
	Yes	Partial	No	Yes	Partial	No	Yes	Partial	No	Yes	Partial	No	Yes	Partial	No
Antecedent															
A1. I provided students with an advance organizer prior to starting the lessons.															
A2. I posted, taught, and reinforced the behavioral expectations.															
Behavior															
B1. I used explicit instruction and checked for student understanding throughout my math lesson.															
B2. I used a wide range of strategies to increase student engagement such as opportunities to respond.															
Consequences															
C1. I implemented a token system throughout math class. I provided students with tickets and conducted drawings.															
C2. I used range of strategies to decrease problem behavior.															
Did you watch a video(s)? If yes, circle the part of the video.	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3

Group 2

Initials: Week of:

_Directions: Check of the strategies that you use each day. At the bottom of the form, circle whether you watched a video and which video you watched.

Strategy	Monday			Tuesday			Wednesday			Thursday			Friday		
	Yes	Partial	No	Yes	Partial	No	Yes	Partial	No	Yes	Partial	No	Yes	Partial	No
Antecedent															
A1. I provided students with an advance organizer prior to starting the lessons.															
A2. I posted, taught, and reinforced the behavioral expectations.															
Behavior															
B1. I used explicit instruction and checked for student understanding throughout my math lesson.															
B2. I used a wide range of strategies to increase student engagement such as opportunities to respond.															
Consequences															
C1. I implemented a token system throughout math class. I provided students with tokens (tickets/straws) and conducted drawings.															
Did you watch a video(s)? If yes, circle the part of the video.	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3

Group 3

Appendix Q. Sample Observation Log

School Code: _____ **Teacher Code:** _____ **Observer Code**: _____

Date: _____ **Observation Condition:** ☐Baseline ☐Intervention ☐Follow-up

Check any observed & approximate % (Must total 100%)	**Instructional Activities**	**General Observation Notes**
☐Large Group* _____% ☐Small Group _____% ☐Independent _____% ☐1 on 1 _____% ☐Transition _____% *Note: Large group must be led by teacher.		

Classroom management – student behavior:

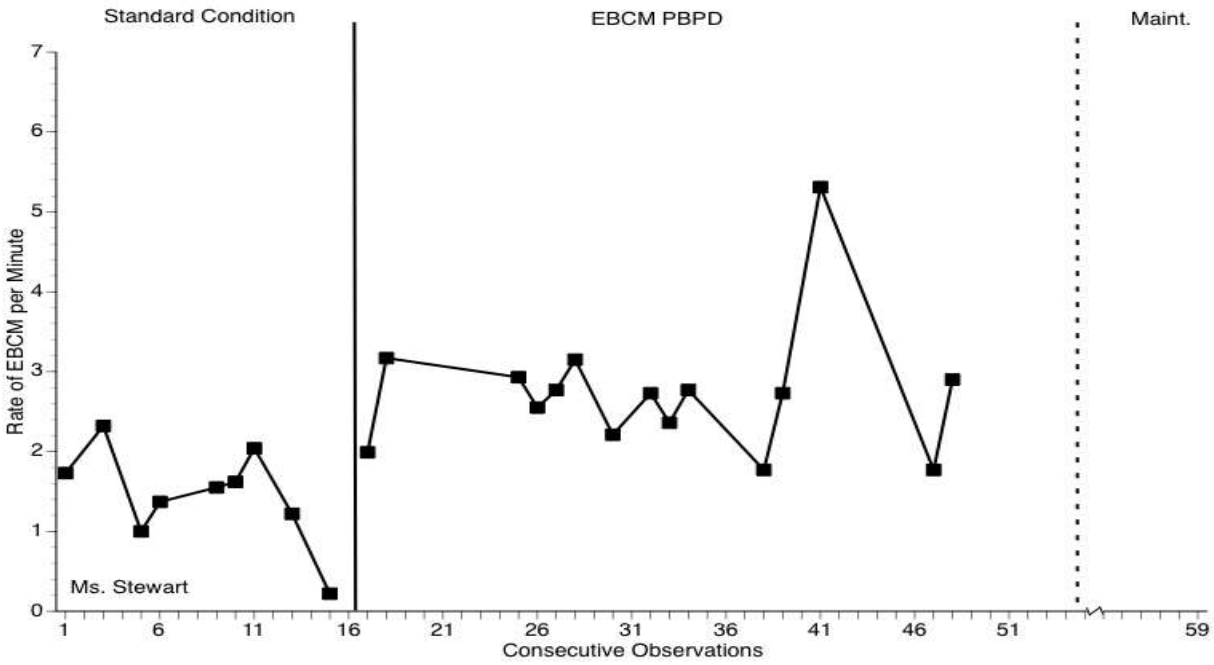
1 – Very Low = 40% of students or time, 2 – Moderately low = 60% of students or time,
3 – Average = 80% of students or time, 4 – Moderately high = 90% of students or time

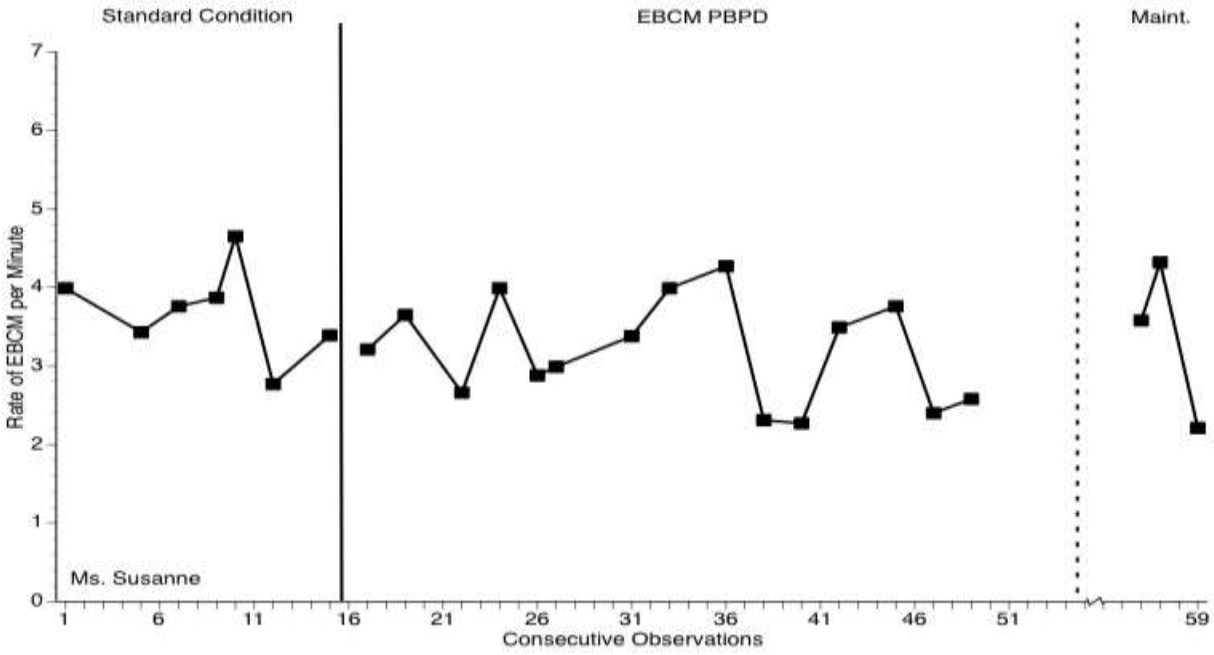
1.	Level of compliance during instruction		☐1	☐2	☐3	☐4
2.	Students follow rules appropriate to setting		☐1	☐2	☐3	☐4
3.	Transitions are short with only minor disruptions	☐0 – unable to code	☐1	☐2	☐3	☐4
4.	Students are focused and on task		☐1	☐2	☐3	☐4
5.	Level of lesson structure (organized clear directions, sufficient work to keep students busy)		☐1	☐2	☐3	☐4
6.	Teacher ignores minor inappropriate behaviors	☐0 – unable to code	☐1	☐2	☐3	☐4
7.	Frequent and specific praise given		☐1	☐2	☐3	☐4
8.	Praise ratio to reprimands approximately 4:1		☐1	☐2	☐3	☐4
9.	Three to five clearly and positively stated classroom expectations/rules are visibly posted		☐1	☐2	☐3	☐4
10.	System of rewards observed: ☐Yes ☐No					

Skills	**Consult**	**Modeling**	**SR+**	**Notes**
Antecedent - Environment				
Teacher Behaviors				
Consequences-based Strategies				
Logistical Questions				
Lesson Structure				
General Behavior				
OTHER(Describe)				
Time Spent:				

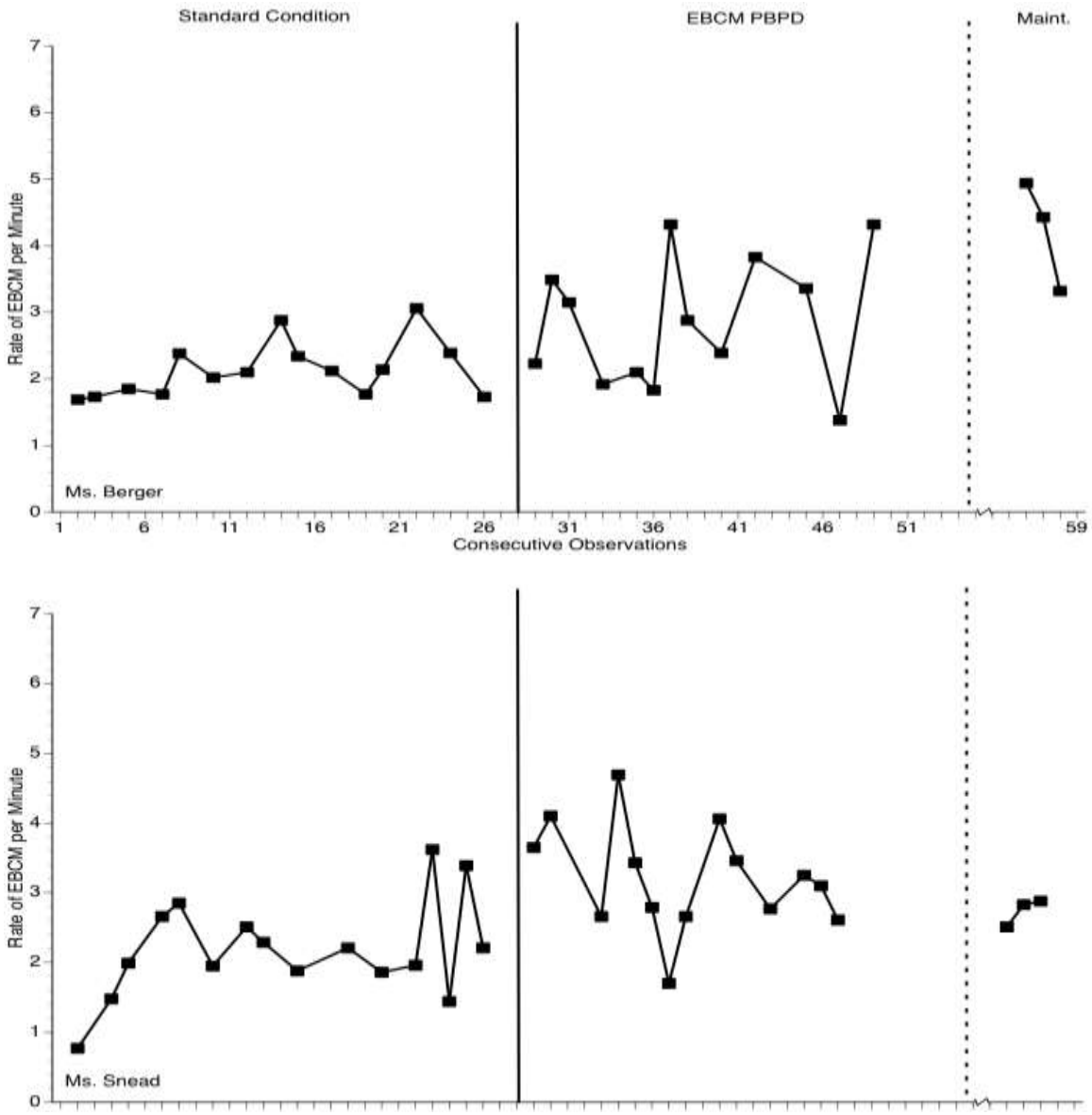
Appendix R. EBCM Practice by Teacher Graphs

Group 1

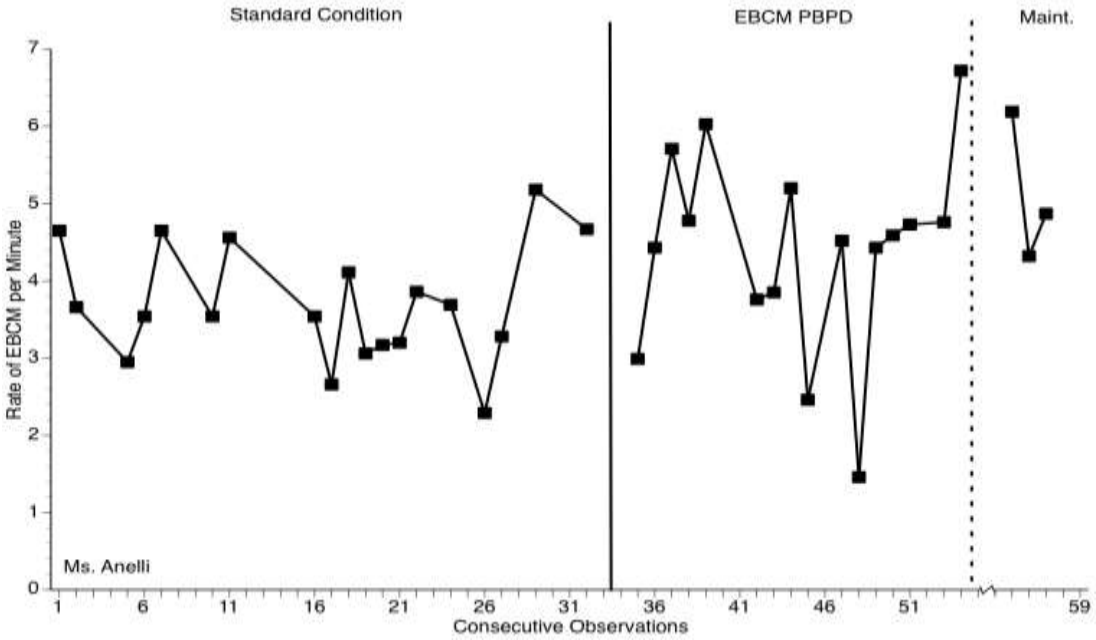


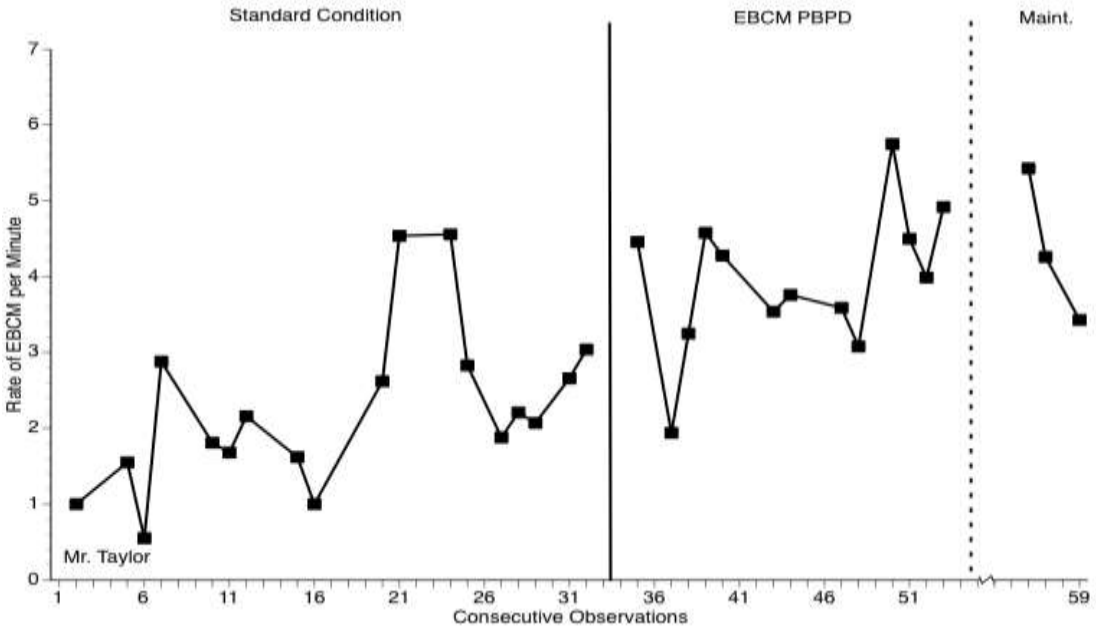


Group 2


Standard Condition
EBCM PBPD
Maint.
Rate of EBCM per Minute
Ms. Berger
Consecutive Observations
Ms. Snead

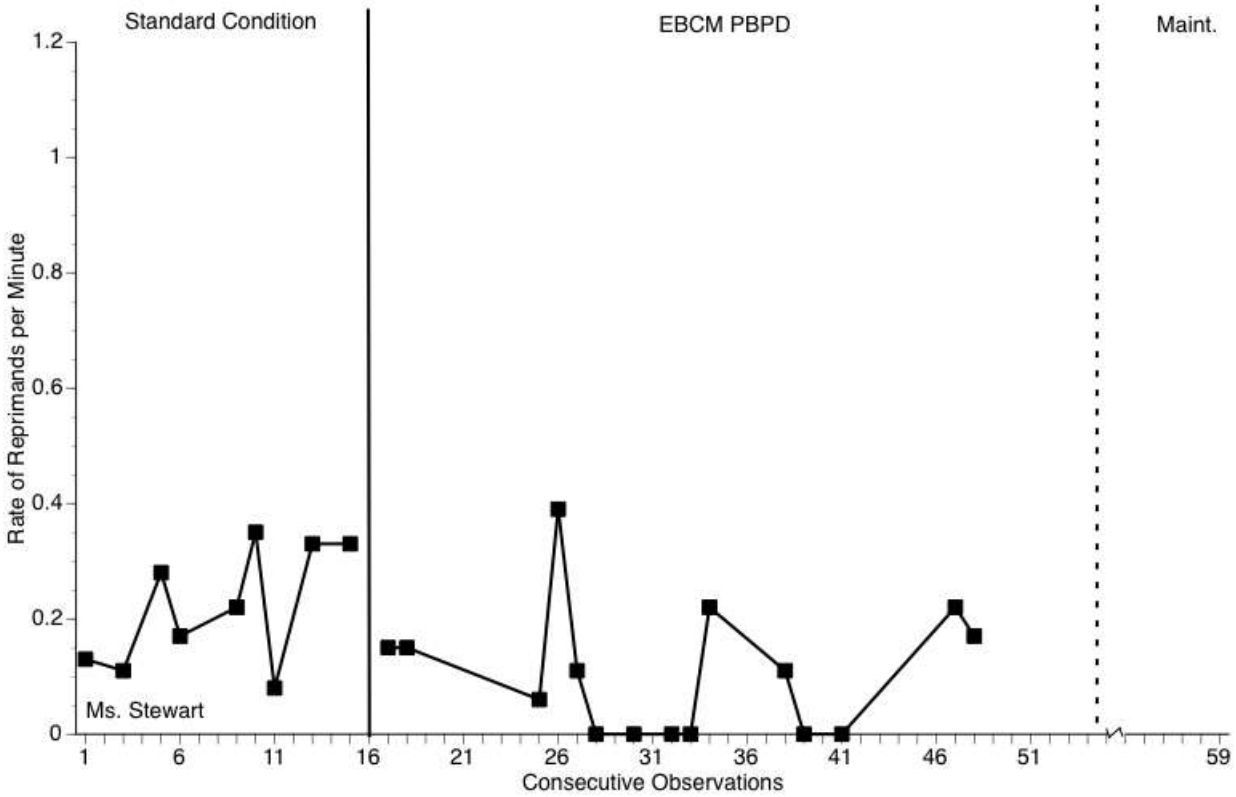
Group 3

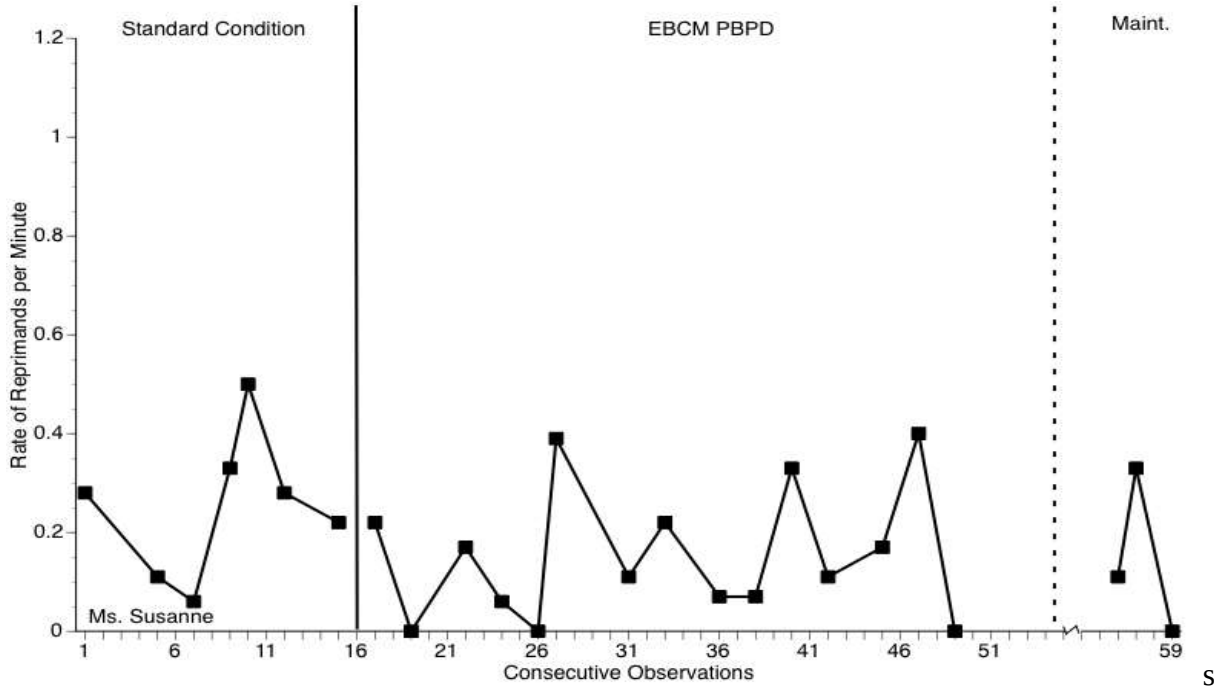

Standard Condition
EBCM PBPD
Maint.
Rate of EBCM per Minute
Ms. Anelli
Consecutive Observations


Standard Condition
EBCM PBPD
Maint.
Rate of EBCM per Minute
Mr. Taylor
Consecutive Observations

Group 1

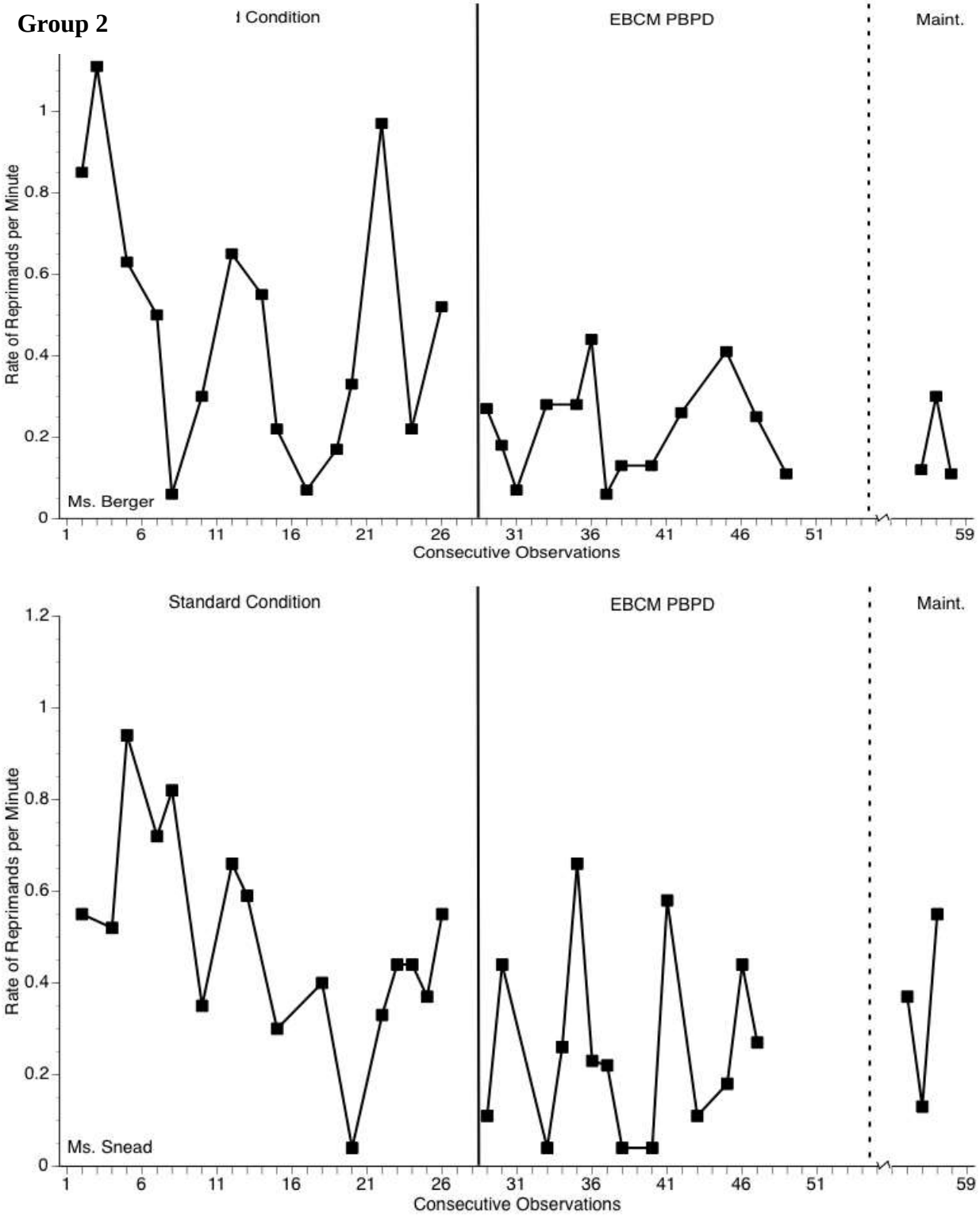
Appendix S. Reprimand by Teacher Graph



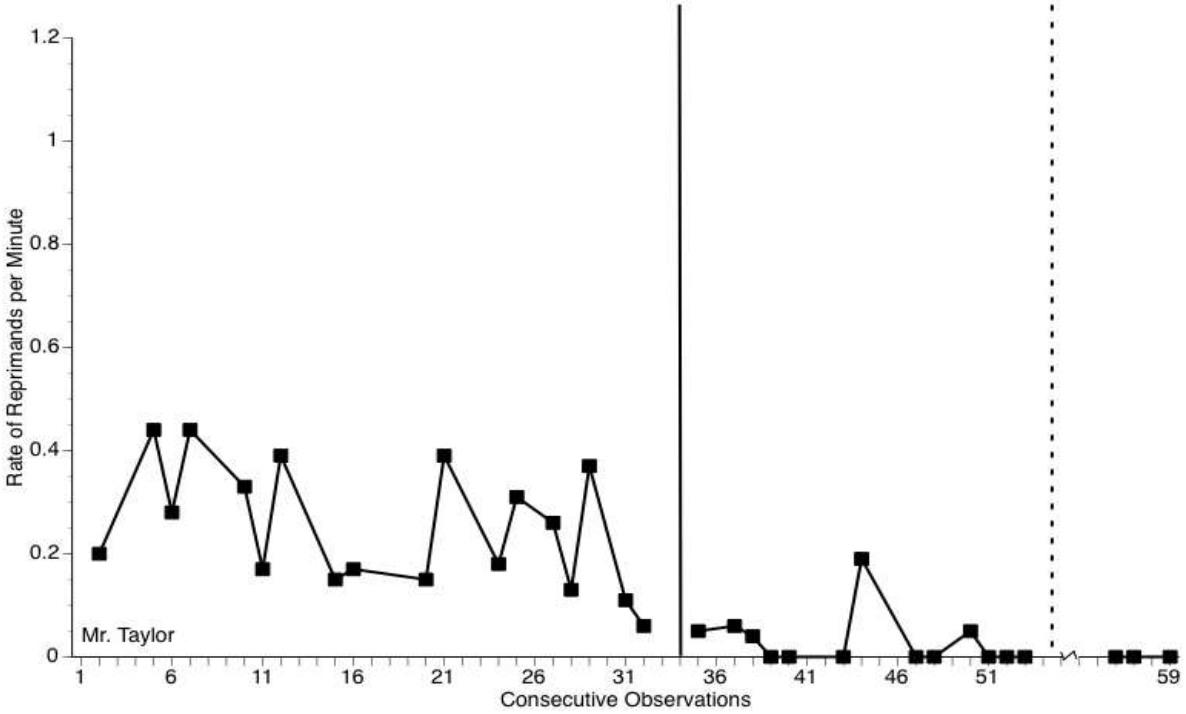


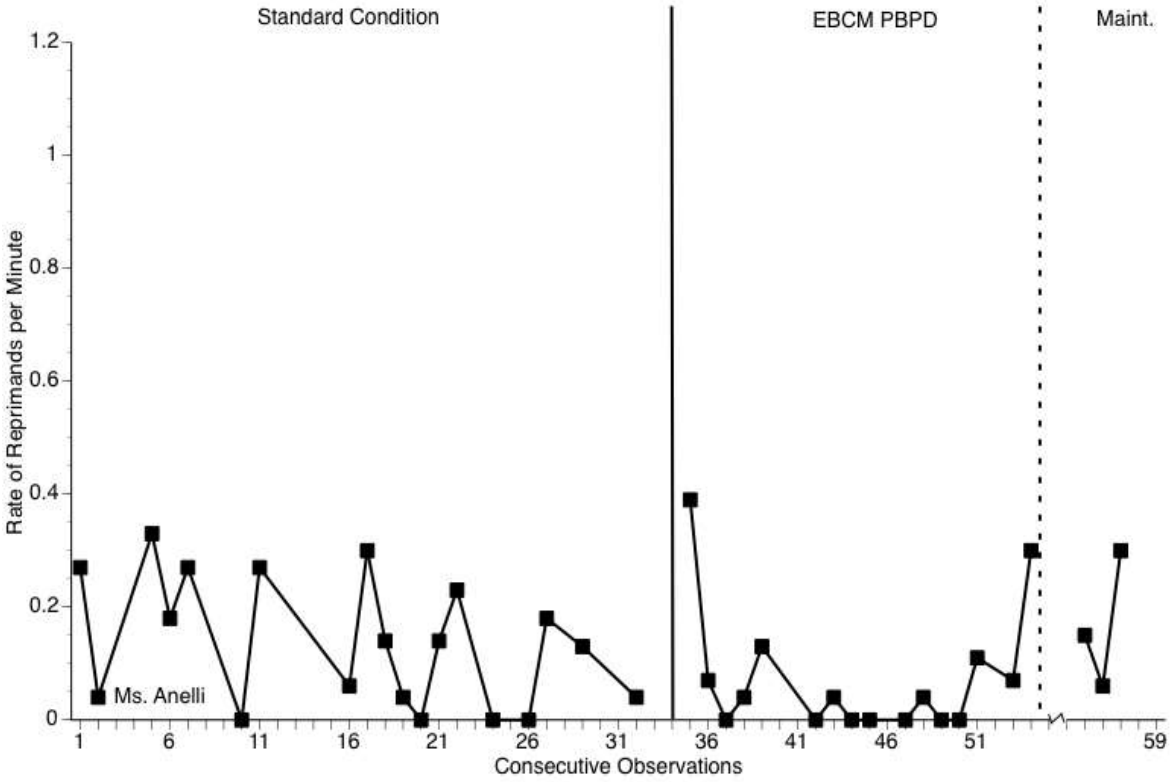
S

Group 2


I Condition
EBCM PBPD
Maint.
Rate of Reprimands per Minute
Ms. Berger
Consecutive Observations
Standard Condition
EBCM PBPD
Maint.
Rate of Reprimands per Minute
Ms. Snead
Consecutive Observations

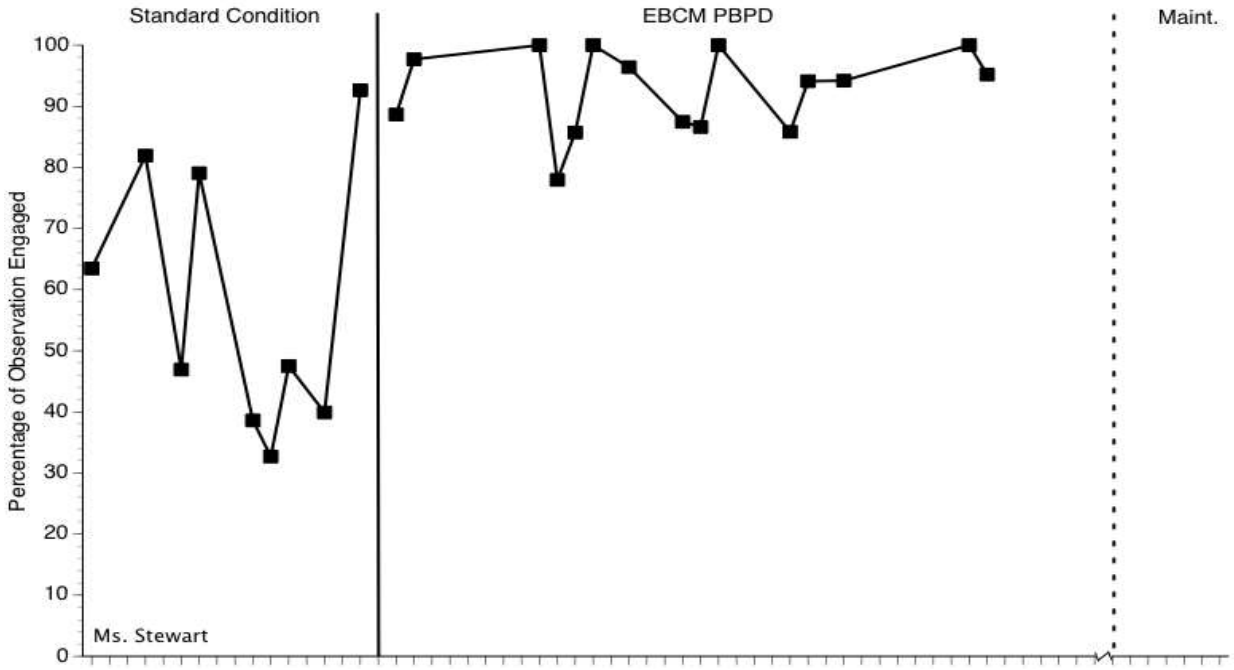
Group 3

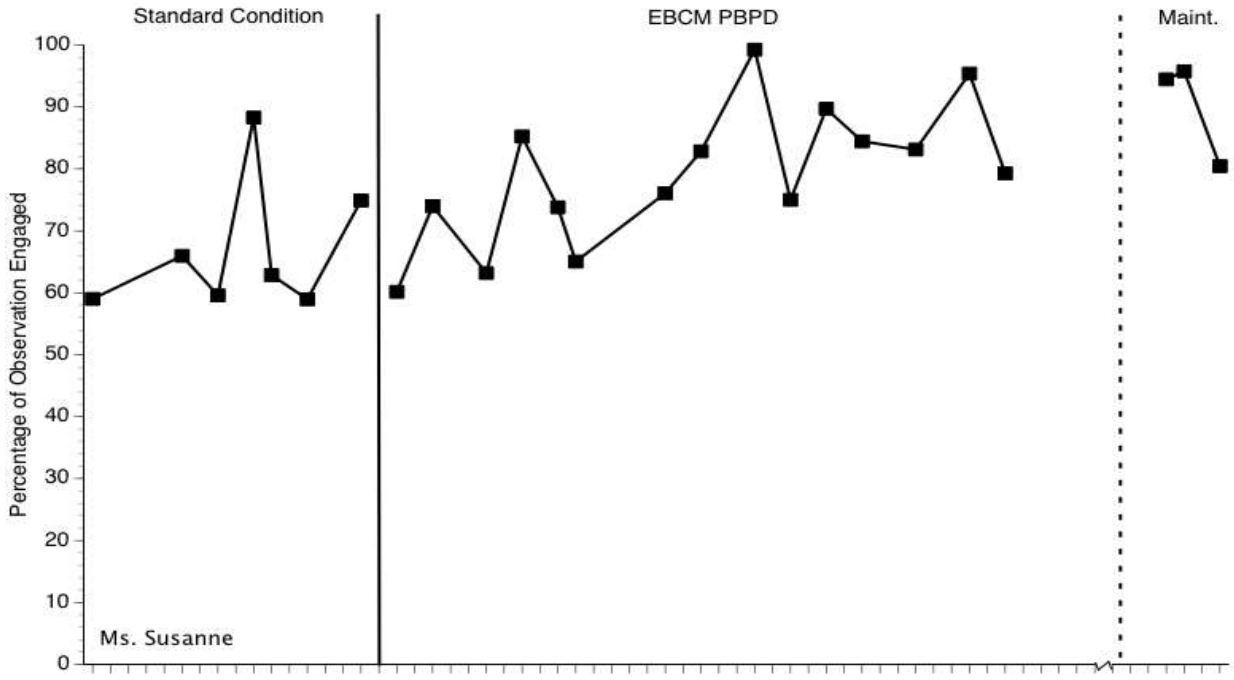

Rate of Reprimands per Minute
1.2
1
0.8
0.6
0.4
0.2
0
Mr. Taylor
1
6
11
16
21
26
31
36
41
46
51
59
Consecutive Observations


Standard Condition
EBCM PBPD
Maint.
Rate of Reprimands per Minute
1.2
1
0.8
0.6
0.4
0.2
0
Ms. Anelli
1
6
11
16
21
26
31
36
41
46
51
59
Consecutive Observations

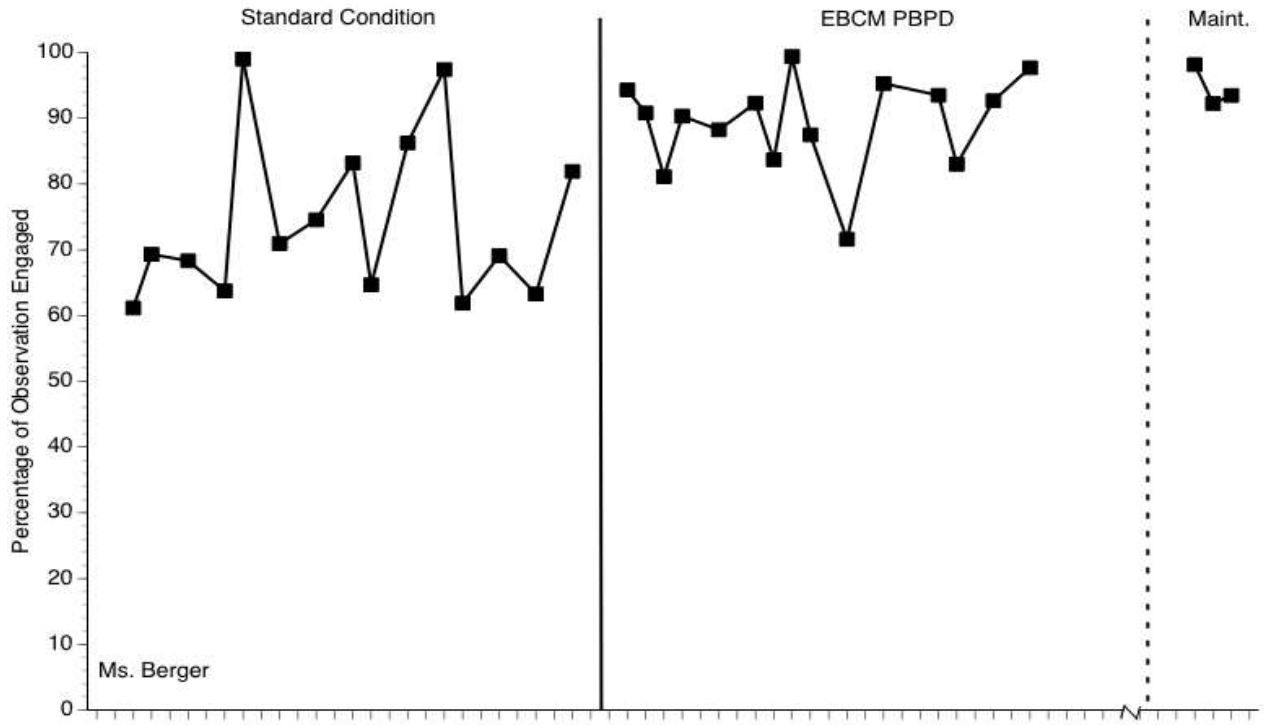
Appendix T. Student Engagement by Teacher Graphs

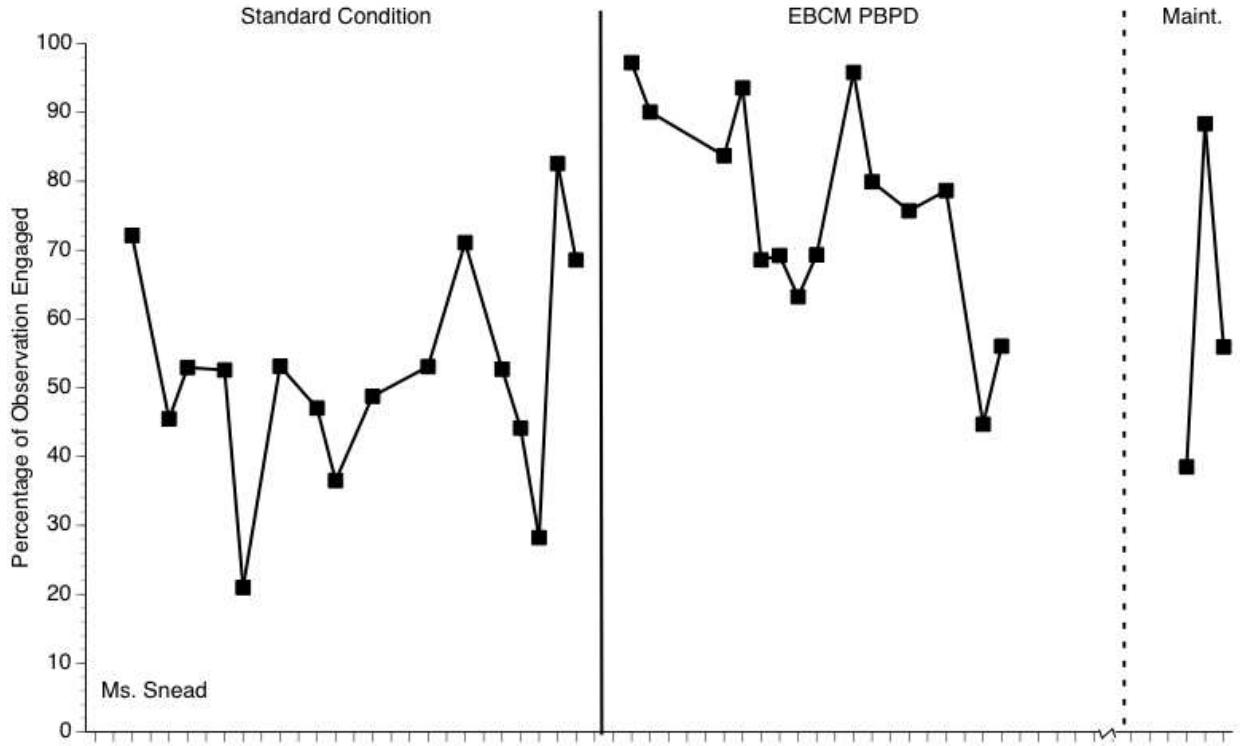
Group 1



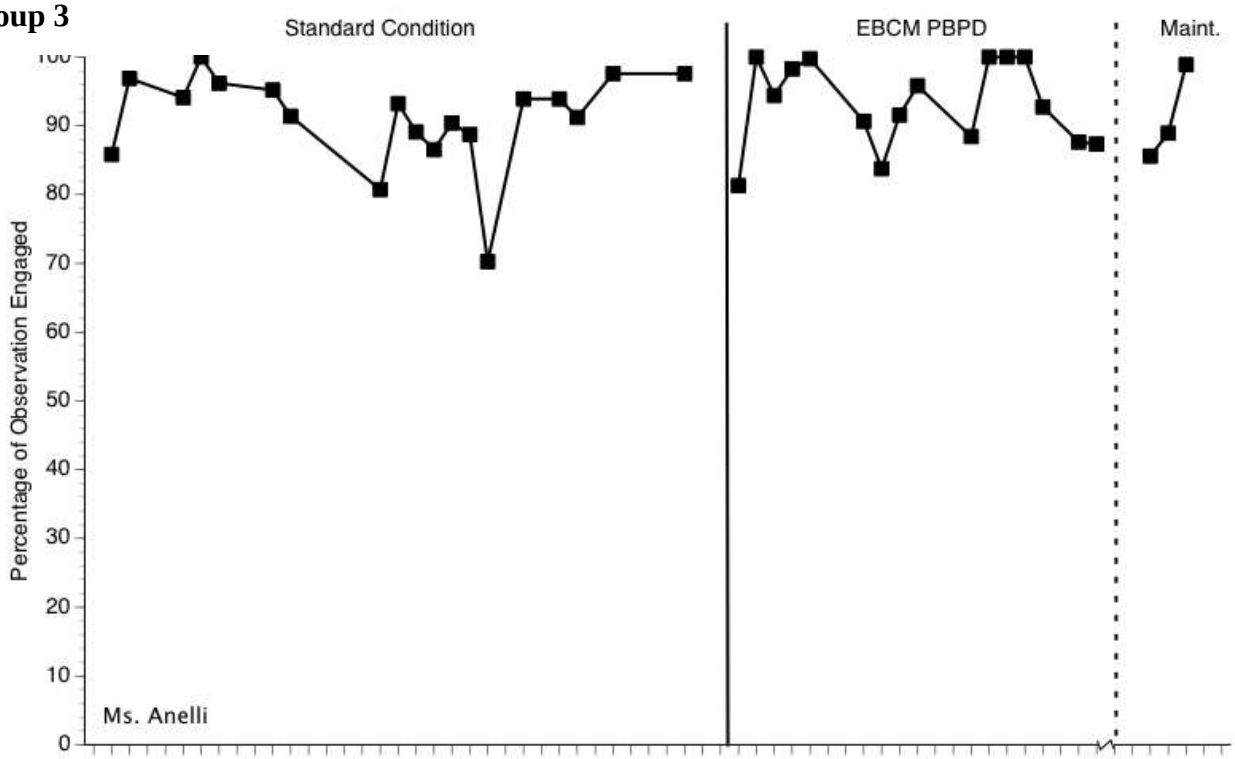


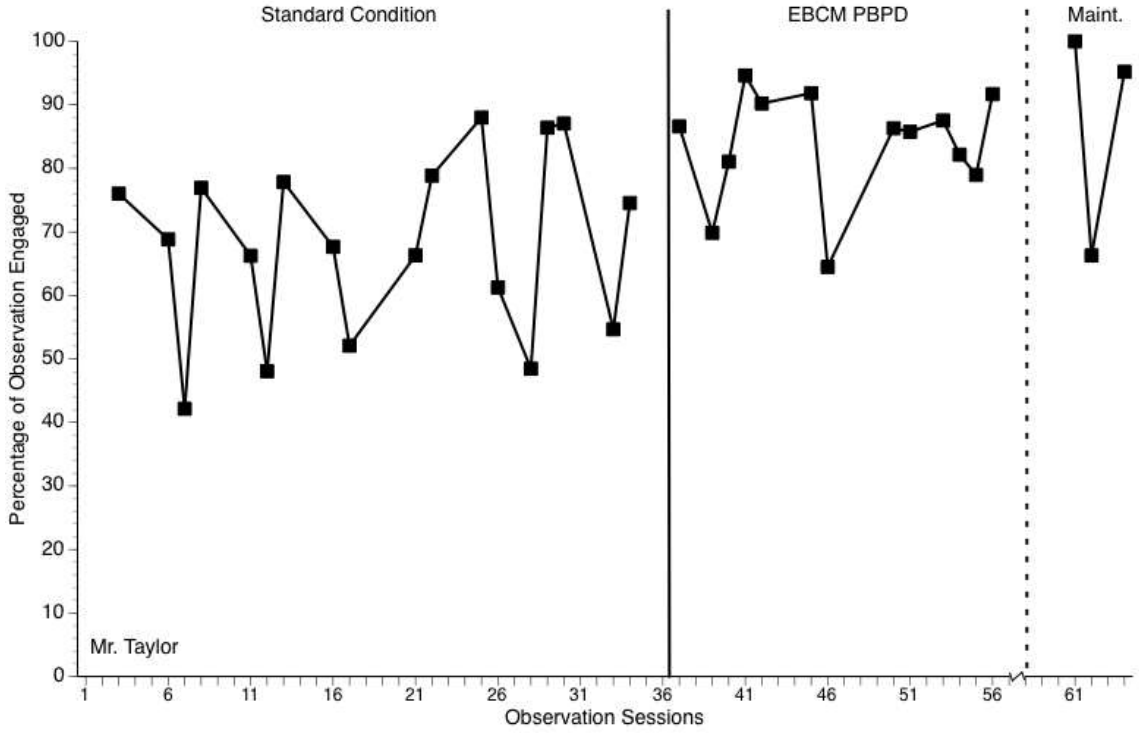
Group 2


Standard Condition
EBCM PBPD
Maint.
Percentage of Observation Engaged
100
90
80
70
60
50
40
30
20
10
0
Ms. Berger


Standard Condition
EBCM PBPD
Maint.
Percentage of Observation Engaged
100
90
80
70
60
50
40
30
20
10
0
Ms. Snead

Group 3


Standard Condition
EBCM PBPD
Maint.
Percentage of Observation Engaged
100
90
80
70
60
50
40
30
20
10
0
Ms. Anelli


Standard Condition
EBCM PBPD
Maint.
Percentage of Observation Engaged
100
90
80
70
60
50
40
30
20
10
0
Mr. Taylor
1
6
11
16
21
26
31
36
41
46
51
56
61
Observation Sessions