I, Heidi Haski, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in School Psychology Distance Learning.

It is entitled:
Increasing Student Engagement and Embedded Learning Opportunities in Early Literacy Instruction at an Urban Preschool through Teacher Instructional Support and Feedback

Student’s name: Heidi Haski

This work and its defense approved by:

Committee chair: David Barnett, PhD

Committee member: Anne Bauer, EdD

Committee member: Renee Oliver Hawke, PhD
Increasing Student Engagement and Embedded Learning Opportunities in Early Literacy Instruction at an Urban Preschool through Teacher Instructional Support and Feedback

A dissertation submitted to the:
Graduate School of the University of Cincinnati
In Partial Fulfillment of the Requirements for the Degree of Doctorate of Philosophy (Ph.D.).
In the School Psychology Program of the School of Human Services of the College of Education, Criminal Justice, and Human Services

By

Heidi Haski, M.Ed.
B.A., Westminster College, 2004
M.Ed., University of Cincinnati, 2005

Dissertation Committee: David Barnett, Ph.D. (Chair), School Psychology
Renee Hawkins, Ph.D., School Psychology
Anne Bauer, Ed.D., Teacher Education
Abstract

Using a combined multiple baseline and alternating treatments design across three classrooms, the present study examined the level of teacher support needed to increase student engagement and practice opportunities for academic skills. The study was conducted during circle time at an urban preschool. Teacher support included a sequence of professional development, feedback, and goal setting, and instructional support and intervention implementation for early phonological awareness skills. The instructional support was intensified over three phases. The last stage involved a comparison of two instructional techniques: choral responding and response cards in terms of their relative effects on student engagement and practice opportunities. Due to ceiling effects, data did not indicate any significant differences in the student active engagement corresponding to increases in instruction support or associated with choral responding or response card instructional techniques. Results for the rate of practice opportunities indicated a slight increase in rate across instructional support phases for 2 of the 3 classrooms, demonstrating greater increases in one class. Additionally, rates of practice opportunities remained similar across both choral responding and response card instructional strategies.
Acknowledgements

The words contained in this dissertation represent far more than the culmination of my graduate school career. They represent the undying support, guidance and inspiration of my family, friends and mentors, without each of whom I would not have had the endurance to reach this point.

I especially want to thank my dissertation committee chair, Dr. David Barnett, for his mentorship and guidance, not only throughout this process, but throughout my graduate school career. His perpetual enthusiasm for research and willingness to provide endless feedback on my musings kept me motivated and inspired me throughout the dissertation process.

To my committee members, Dr. Renee Hawkins and Dr. Anne Bauer, your thoughtful advice, wisdom and sacrifice of time, is greatly appreciated. Dr. Hawkins was instrumental in preparing me for my career as a school psychologist through coursework and practicum guidance. Through her unique perspective and insight, Dr. Bauer has challenged me to consider different angles and approaches to research I otherwise would not have considered. Thank you both serving on my dissertation committee.

I express my appreciation to the School Psychology Program faculty for sharing your knowledge and expertise and teaching me through example to critically think and question. Your training through lectures and practical experiences prepared me with the skill set necessary to succeed as a school psychologist.

To those preschool teachers who allowed me to work in their classrooms and volunteered to put the time and effort into my project as well as ensured that their students were always challenged and learning, I offer my gratitude.
For believing in me, even when I cease to believe in myself, for being my steady rock when the world is out of control, and for offering words of cheer to keep me motivated, I thank my best friend, my fiancé.

Finally, for their unwavering support, and unconditional love throughout my life, I thank my parents, without whom I would not be what I have become. There are no suitable words to describe their constant influence and encouragement. Without them, this dissertation would have been impossible. They taught me to follow my dreams with reckless abandon and to never give up. They gave me wings to fly, but always keep me grounded. They instilled a love for learning within me and cultivated not only my mind, but also my heart. As my greatest cheerleaders, their constant patience and reassurance has given me the spirit and resolution to become the best I can be. For all they have given me, I can only thank them with my unconditional love and adoration.
# Table of Contents

Abstract.................................................................................................................. i

Acknowledgements................................................................................................. iv

Table of Contents.................................................................................................... vi

List of Tables............................................................................................................. ix

List of Figures............................................................................................................ x

Introduction.................................................................................................................. 1

Support for Early Intervention................................................................................... 1

Emergent Literacy Skills............................................................................................ 2

Instructional Variables............................................................................................... 6

  Academic Engaged Time......................................................................................... 6

  Practice Opportunities......................................................................................... 6

Methods to Increase Practice Opportunities............................................................ 9

  Choral Responding Instructional Strategy............................................................ 10

  Response Cards Instructional Strategy............................................................... 12

Teacher Support and Professional Development...................................................... 15

  Professional Development and Emergent Literacy........................................... 16

  Specialized Training........................................................................................... 17

  Coaching and Consultation............................................................................... 17

  Performance Feedback......................................................................................... 19

Research Questions................................................................................................... 21

Methods.................................................................................................................... 22

  Participants.......................................................................................................... 22

  Setting................................................................................................................ 23

  Research Design and Data Analysis................................................................. 25
Measurement

Dependent Variables

Student Active Engagement

Practice Opportunities

Instructional Variables

Technical Adequacy Measures

Interobserver Agreement

Instructional Adherence

Social Validity

Procedures

Baseline: Staff Development and Data Collection

Phase 1: Feedback and Goal Setting

Phase 2: Instructional Support and Intervention Implementation

Results

Engagement

Practice Opportunities

Other Instructional Variables

Social Validity

Discussion

Limitations

Conclusions, Future Directions and Implications for Practice

References

Appendices

Appendix A. Teacher Volunteer Letter

Appendix B. Teacher Permission
Appendix C. Consultant Permission.................................................................73
Appendix D. Consultant/Data Collector Training Agenda.................................74
Appendix E. Choral Responding Script...............................................................75
Appendix F. Response Card Script..................................................................76
Appendix G. Professional Development Meeting Agenda....................................77
Appendix H. Professional Development Handouts.............................................78
Appendix I. Observational Code and Definitions..............................................81
Appendix J. Social Validity Questionnaire.......................................................85
Appendix K. Feedback and Goal Setting Meeting Agenda..................................86
Appendix L. Weekly Meeting Agenda...............................................................87
List of Tables

Table 1. Interobserver Reliability Ratings for Observational Variables..............................30
Table 2. Student Active Engagement Across Phases..............................................................37
Table 3. Rate of Practice Opportunities Across Phases..........................................................41
Table 4. Percentage of Intervals of Instructional and Managerial Variables......................43
Table 5. Average Instructional Support Acceptability Ratings...........................................44
List of Figures

Figure 1. Multiple Baseline Across Classrooms Active Engagement…………………………35
Figure 2. Choral Responding and Response Card Active Engagement………………………36
Figure 3. Multiple Baseline Across Classrooms Rate of Practice Opportunities………………39
Figure 4. Choral Responding and Response Card Rate of Practice Opportunities……………40
Introduction

Our entrance into a new era marked by accountability for student educational outcomes has made educators acutely aware of the importance of providing quality instruction, especially for those students at risk for struggling in academic areas such as reading. Literacy skills are essential not only for academic functioning, but also for social and economic success during adulthood (National Center on Educational Statistics, 2007; National Research Council, 1998; Neuman & Dickinson, 2011). Statistics show that students experiencing reading difficulties in first grade are likely to continue on that trajectory through fourth grade and beyond if early intervention actions are not taken (Badian, 2000; Foorman et al., 1999; Juel, 1988; Missal et al., 2007; Scarborough, 2001). Furthermore, research shows that a child who does not learn literacy skills early is unlikely to learn those foundational skills without intensive instruction (Moats, 1999; Neuman & Dickinson, 2011). Because reading is the underpinning for all formal education, students experiencing chronic reading difficulties are likely to find themselves being retained, receiving special education and remedial services, or dropping out (Cunningham & Stanovich, 1997; Dickinson & Brady, 2006; Scarborough, 2001; Snow, Tabor & Dickinson, 2001).

Support for Early Intervention

In schools serving populations consisting primarily of individuals from economically disadvantaged backgrounds, reading difficulties are more pronounced. Furthermore, research has demonstrated that students from these backgrounds often enter school with less exposure to language and literacy experiences that are linked to future academic achievement (Hart & Risely, 1995, 2003; Lonigan, 2004; Marvin & Mirenda, 1993; Webb, Schwanenflugel & Kim, 2004). Legislative efforts, such as the No Child Left Behind Act of 2001 (NCLB), have given special
attention to those students living in poverty. Efforts to improve instructional programs based on empirically supported practices in conjunction with increased accountability for student progress, especially among minority, disability and poverty groups, is the main target of this federal plan. Improving instructional practices and increasing student progress is a difficult, but not insurmountable endeavor. Recently, the focus has been placed on early intervention programs, especially at the preschool level, in an effort to remediate academic gaps before they grow to overwhelming proportions. This particular study will focus on instructional practices in literacy with the urban preschool population.

Strong preventative, instructional, and intervention practices driven by student outcomes have become the focus due to their documented effectiveness (Fuchs et al., 2003; Principles for Reauthorizing the Individuals with Disabilities Education Act, 2003). The Individuals with Disabilities Education Improvement Act 2004 (IDEA 2004) includes language that allows states and subsequently, school districts to use a Response to Intervention (RtI) approach to determine special education eligibility. Although IDEA 2004 is restricted at present to specific learning disabilities, there is increasing interest in prevention and broad spectrum RtI. Broad spectrum RtI uses student response to high-quality, empirically-derived instruction and intervention supports across a continuum of intensities to make data-based decisions regarding student needs. The present study is framed within this RtI and multi-tiered model of preschool service delivery (Barnett, VanDerHeyden, & Witt, 2007; Gettinger & Stoiber, 2007; VanDerHeyden et al., 2008) and will focus on the universal tier, including instruction for all students, not just those with disabilities, and typical classrooms and practices.

**Emergent Literacy Skills**

During the preschool years, teachers provide essential instruction that lays the foundations for later literacy skills. These precursor or *emergent literacy* skills are directly linked
to oral language and interactions with adults and are the underlying foundation for later reading and writing skills (Lonigan, Burgess & Anthony, 2000; Phillips, Clancey-Menchetti, & Lonigan, 2008). Developing emergent literacy skills is accomplished through multiple modalities including: watching and listening to adults use spoken and written language to communicate (modeling), direct instruction and practice of skills related to emergent literacy, and incidental instruction opportunities (Adams, 1990). The term emergent literacy refers to the developmental process of acquiring literacy skills (Phillips et al., 2008). The main components of emergent literacy include: awareness of print, knowledge of the relationship between speech and print, text structure, phonological awareness, and letter naming and writing. This study will focus on phonological awareness due to its well-documented relationship with early reading and large research base (Gunn et al., 1998; International Reading Association, 2005; National Early Literacy Panel, 2006; National Institute for Literacy, 2007; Phillips et al., 2008; Pufpaff, 2009).

Phonological awareness refers to a child’s ability to recognize the basic sound structure of language (Adams, 1990; Neuman & Dickinson, 2011). Discrete skills included in this construct are oral language skills such as identifying initial and ending sounds, segmenting words into component phonemes, and blending phonemes into words. These skills are further divided into three levels of phonological awareness including syllable awareness, onset-rime awareness and phonemic awareness (Gillon, 2004; McKenna et al., 2010). The present study will focus on onset-rime awareness and phonemic awareness.

Onset-rime awareness deals with recognizing sounds at the intrasyllabic level. For example, a child that has developed onset-rime awareness will be able to break down the word *cat* into its onset syllable *c* and rime syllable *at*. To assess this skill, rhyming tasks are used because in order to rhyme words, children must recognize that onset (beginning) and rime
(ending) sounds are different parts of words and that rhymes have the same rime sound, but a different onset sound (Gillon, 2004).

Phonemic awareness differs in that words are broken down at the individual sound or phoneme level. For example, cat would be broken down into its constituent phonemes /c/ /a/ /t/. During normal speech, the phonemes are blended together and the separated phonemes are not heard. However, it is important for children to learn to perceive these phonemes in order to recognize that words are made up of individual sounds, knowledge that contributes to later reading success (Anthony et al., 2003; Gillon, 2004; Phillips et al., 2008). One way in which this skill is assessed, especially during early development, is by demonstrating alliteration awareness through phoneme matching or phoneme isolation tasks. Alliteration awareness describes a child’s ability to determine which word has a different first sound given a small selection words. Phoneme matching is when a child is given a word such as car and he/she must identify the word from a list that starts with the same sound (Phillips et al., 2008; Torgesen & Bryant, 1994). Phoneme isolation is when a child is asked to identify the sound that they hear at the beginning of a word (Anthony et al., 2003; Stahl & Murray, 1994).

Research has indicated that explicit teaching of these skills during early school experiences (i.e., preschool or kindergarten) leads to improved reading and spelling skills later on, especially for those children whose home environment provides little exposure to these skills (Beck & McKeown, 2007; Lyon, 2002; Massetti, 2009; Musti-Rao & Cartledge, 2007; Torgeson, 2004; Whitehurst & Lonigan, 2002; Yeh, 2003). Emergent literacy skills have been observed in children as young as age 3, providing argument that instruction and acquisition of these skills is developmentally appropriate for preschool aged children (Snow et al., 1998; Anthony et al., 2007).
Despite the fact that phonological awareness has shown many strong links to children’s later reading achievement, little focus has been placed on these skills in early intervention settings. A national survey of emerging literacy views and practices of Head Start preschool teachers revealed that the most frequently used strategies focused on book knowledge/appreciation and print awareness skills (Hawken, Johnston, & McDonnell, 2005). While these are important skills, phonological awareness is more predictive of later reading ability (Burns, Griffin, & Snow, 1999; Casey & Howe, 2002; International Reading Association, 2005; National Early Literacy Panel, 2006; National Institute for Literacy, 2007; Neuman & Dickinson, 2001; Phillips et al., 2008; Pufpaff, 2009; Whitehurst & Lonigan, 2002; Yeh, 2003).

Additionally, Head Start teachers reported introducing literacy activities into the classroom environment and using incidental teaching strategies rather than using explicit direct instruction strategies that have demonstrated effectiveness for at-risk populations (Hawken et al., 2005; Justice & Pullen, 2003; Whitehurst et al., 1994). Due to the need for more explicit instruction of phonological awareness skills in preschool classrooms and the alignment of these activities with the content standards that outlines the key skills children are expected to acquire prior to exiting preschool, alliteration skills were chosen as a target for intervention in the present study (Executive Office of the President, 2002; Hawken et al., 2005). This study demonstrates the need to provide instructional support and training for teachers in order to increase knowledge and implementation of effective instructional strategies that, in turn, will enhance instructional variables such as active student engagement and opportunities to practice academic skills. Academic engaged time and practice opportunities were chosen as targets in the present study due to their documented relationship to increased academic achievement (Greenwood, 1991; Greenwood, Delquandri, & Hall, 1984; Narayan et al., 1990).
Instructional Variables

**Academic engaged time.** Academic engaged time refers to the amount of time that a student is actively engaged in an academic task of at least moderate difficulty (Rosenshine, 1978). This instructional variable is highly correlated with student academic achievement and learning (Heward, 1994). Increasing academic engaged time for students from low-income backgrounds has been shown to help increase academic achievement and reduce gaps in achievement (Greenwood, 1991). Academic engaged time is sensitive to changes in instructional materials and strategies (Greenwood, 1991). Therefore, teachers can alter academic engaged time by increasing productive practice opportunities and changing instructional materials and methods. Academic engagement does not exclusively involve active responding, but can also be demonstrated through careful attention to instructional materials.

**Practice opportunities.** Classroom instruction should be implemented in such a manner that it sets the occasion for important academic behaviors (Greenwood et al., 1994). Active student responding is an observable response to an antecedent that is instructional in nature. Its significance lies in its high correlation with academic achievement (Greenwood, et al., 1984; Narayan et al., 1990; Simonsen, Myers & DeLuca, 2010). However, active student responding does not occur without careful planning. The teacher must first set the stage through effective instruction, opportunities to respond, and effective prompts eliciting appropriate responses. Practice opportunities refer to this interaction between teacher instruction and student responding.

A learning trial is considered to be the basic unit of instruction (Skinner, Fletcher & Hennington, 1996). As referred to in this study as a practice opportunity, the teacher prompt, initiates the learning trial. Each learning trial consists of three components, a stimulus or teacher
prompt, a student response and a consequence or teacher feedback (Skinner et al., 1996). By increasing the quality and quantity of these learning trials, learning rates also increase at the acquisition, fluency and maintenance stages of learning (Barbetta & Heward, 1993; Haring & Eaton, 1978; Miller, Hall, & Heward, 1995; Skinner, Smith & McLean, 1994).

A practice opportunity is defined as the interface between teacher-directed instruction, including all instructional materials, prompts, questions, or other means of eliciting student responses, and its ability to ascertain academic responding (Greenwood et al., 1994). The presence of this instructional variable is especially important for children coming from a low socio-economic background because research has indicated that they often have fewer opportunities to practice skills in the home environment (Hart & Risely, 1995; Marvin & Mirenda, 1993).

Although increasing opportunities to respond may require additional planning and monitoring on the part of the teacher, the benefits are substantial. Learning rates are amplified by increasing the quantity of learning trials within an instructional period (Skinner et al., 1996). Additionally, the teacher is able to ascertain the skill level of his/her students through prompting and generating response opportunities. This allows for adaptation of instruction to student needs. Finally, opportunities to respond are correlated with increased on-task behavior and increased academic engaged time, which contribute to academic achievement (Abner et al., 2007; Greenwood, et al., 1994; Heward, 1994).

Sutherland et al. (2003) researched the effects of increasing opportunities to respond on the behavior of elementary school students with emotional and behavioral disorders ranging in age from 8 to 12. During the study, the classroom teacher increased the number of prompts from 1.24 per minute during the baseline phase, to 3.52 per minute during the research conditions.
With this increased number of prompts came increased accuracy from 71.8% to 75.5% and increased on-task behavior from 55.2% to 82.6%.

Despite the clear advantages to increasing practice opportunities, research has shown that although elementary teachers allocated approximately 75% of the school day to academic instruction, students were actually engaged in active responding to teacher constructed practice opportunities during less than 1% of the school day (Hall et al., 1982). Research on fluency suggests that at least 70% of the instructional time should be composed of practice opportunities (Binder, 1996). The Council for Exceptional Children (CEC) provides guidelines regarding rates of opportunities to respond for teachers of students with high incidence disabilities. They suggest that teachers should provide 4 to 6 opportunities to practice per minute of instruction of new material and students should be able to respond with approximately 80% accuracy. During practice of already acquired skills, teachers should provide 8 to 12 opportunities to respond per minute and students should respond at 90% accuracy (CEC, 1987). The specific methods used to develop these recommendations were not described by CEC.

Sainato et al. (1987) compared preschool students’ on task behavior during circle time when given opportunities to respond at a rates of 3 and 5 opportunities per minute. Teachers used a choral responding strategy to increase practice opportunities during circle time. They found only slight differences in student on task behavior when given practice opportunities at rates of 3 opportunities per minute and 5 opportunities per minute. The rate of 5 opportunities was selected for this study as a target because it fits within the range suggested by the CEC for practice opportunities for new information and may be a more manageable amount for small children as opposed to the 8 to 12 opportunities for review of information (CEC, 1987). The rate of 5 also was judged socially valid by a panel of 10 kindergarten teachers (Sainato et al., 1987).
In addition to increasing rates of practice opportunities, it is also important to examine the quality of practice opportunities and the instructional materials used. Daly et al. (2006) reviewed the research to identify critical factors and variables that affect skill acquisition and ways in which interventions can be individually designed to enhance student outcomes. Intervention strength can be improved through the quality of instructional materials and the contexts in which students practice, and the quality of practice time (Daly et al., 2006). Instructional materials vary in the quantity of practice opportunities; therefore to maximize active responding, educators should carefully select the instructional materials they use. Furthermore, instruction should include modeling, prompting, correcting and reinforcing of accurate responses (Daly et al., 2006). This is consistent with the elements of strong interventions identified by Lentz, Allen, and Ehrhardt (1996). Progress monitoring of student outcomes and establishing goals for increasing material difficulty are additional components influencing quality of practice opportunities. Daly et al. (2006) refer to high quality practice opportunities as productive practice opportunities. Since the direct instruction time in the preschool classroom is generally short, the need for productive practice opportunities is intensified.

**Methods to Increase Practice Opportunities**

The traditional way in which student participation is elicited is through individual questioning or asking for students to volunteer by raising their hands (Armendariz & Umbreit, 1999). The problem with this method of providing practice opportunities is that only a few students get the opportunity to actively respond, mostly those students that are already high achievers (Greenwood 2001; Greenwood, Delquandri, & Hall, 1984). Although most teachers are aware of the inefficiency of this method, managing academic achievement, active student responding, and consequently productive practice opportunities can be a daunting task for a classroom teacher. However, group strategies such as choral
responding and the use of response cards that have demonstrated increases in academic engagement as well as skill accuracy can be managed fairly easily (Godfrey et al., 2003; Heward, Courson, & Narayan, 1989; Wolery et al., 1992).

**Choral responding instructional strategy.** The choral responding group instruction technique involves all students responding in unison to answer a question or complete a task. Choral responding increases a student’s involvement in a classroom activity by giving all students the opportunity to respond, unlike individual responding. The teacher provides immediate corrective feedback based on the majority answer. The use of the choral responding technique has been associated with an increase in active student responding and productive practice opportunities (Godfrey et al., 2003; Heward, et al., 1989). Necessary elements of choral responding include the ability for students to answer with short, one to three word answers with only one correct answer per question (Heward, 1994) and the use of a fast pace to ensure more opportunities to respond (Kamps et al., 1994).

Wolery et al. (1992) examined the use of choral responding and individual responding during word reading instruction for elementary students with cognitive disabilities. This study involved small groups with four students per group and was completed using an alternate treatments design. The researchers compared choral responding and individual responding instructional strategies such that the number of times the stimulus was presented was the same across conditions, but the number of opportunities to respond was greater using the choral responding strategy. There were 16 trials in both conditions with each word being presented 4 times. In the choral responding condition, each student had 16 opportunities to respond and in the individual responding condition, each student had 4 opportunities to respond. Daily probes were given to the students to measure the students’ ability to read the words used during the instructional sessions. Correct, incorrect, and no response answers were tracked for each student.
and percentages of correct responding across instructional conditions was calculated. Wolery et al. (1992) concluded that the choral responding condition was slightly more effective than the individual condition. The researchers noted that the choral responding sessions took slightly more time than the individual sessions of instruction.

A second experiment was conducted by Wolery et al. (1992) because they could not determine if the choral responding condition was more effective than the individual condition due to the higher number of opportunities to respond in the choral responding condition. In experiment 2, the numbers of opportunities to respond per word were equal and the number of exposures per word was greater in the individual responding condition. In the choral responding condition, each word was presented twice and in the individual responding condition, each word was presented eight times. The results indicated that the individual responding condition was more effective than the choral responding condition. The results of experiments 1 and 2 demonstrated an interaction effect such that the effectiveness of the instructional strategy was dependent on the number of opportunities to respond and the number of exposures to each word. The implications of this study is that regardless of the instructional strategy used, more exposures to a concept and more opportunities to respond are associated with more efficient student learning and retention.

Sterling, Barbetta, Heward, and Heron (1997) conducted a study that evaluated the effects of choral responding compared to passive on task classroom behavior (i.e., listening to teacher read a health fact card) when teaching health facts to four fourth grade students with developmental or learning disabilities. During the choral responding condition, students performed better on daily health facts tests and learned almost twice as many total health facts than they did during the passive on task classroom behavior condition.
The effects of the rate of choral responding opportunities were evaluated by Williams (1993) in a severe behavior disability classroom for elementary school students. Slow pacing, which included 5s between learning trials, and fast pacing, which was less than 1s between learning trials were compared. Students responded more accurately, were on task more, and scored higher on quizzes when a fast paced choral responding instructional strategy was used.

Haydon et al. (2010) used an alternating treatments design to compare the effects of three types of opportunities to respond. Individual, choral, and mixed responding (both individual and choral) instructional strategies were compared to determine their effects on sight word and syllable practice in six elementary students with behavioral problems. Through observations, percentages of active student responses were measured. Additionally, student off-task and disruptive behavior was measured. The researchers found that the mixed responding instructional strategy had fewer disruptive behaviors then either the choral responding or individual responding strategies. The choral responding strategy was more effective than the individual responding strategy in decreasing disruptive and off task behavior. For active responding, results were split between the choral responding and the mixed responding strategies. Three of the students participating had their highest mean percentages during mixed responding and three had their highest mean percentages during the choral responding strategy.

Despite the demonstrated positive outcomes of increasing practice opportunities and student engagement through instructional strategies such as choral responding and response cards, it is often difficult for teachers to implement new instructional strategies without proper support and training.

**Response cards instructional strategy.** Response cards are cards, signs, or other items that are simultaneously held up by all students in a class to display their response to a question
presented by the teacher. Responses may be pre-printed on cards, or written in by students. The type of response card depends mostly on student age and skill level. Identically to the choral responding technique, the teacher provides immediate corrective feedback based on the majority answer. This instructional technique has been found to be beneficial in increasing student responding and engagement (Berrong et al., 2007; Gardner, Heward, & Grossi, 1994; Godfrey et al., 2003). Additionally, the response card strategy has the advantage over choral responding of easy detection of correct/incorrect student answers.

Randolph (2007) completed a meta-analysis of the research on response cards. Eighteen articles, theses and dissertations were analyzed to determine the effect that response card usage had on various factors such as, test or quiz achievement, class participation, and off-task behavior. Additionally, Randolph looked at the type of response card used to determine the impact. Overall, it was found that when compared to individual responding techniques, response card strategies had a statistically significant effect for test/quiz achievement, participation, and decrease in off-task behavior. The effect size for test achievement was 0.38 and 1.08 for quiz achievement in the direction of the response cards. Participation in classroom activities had a 47.70% increase in the response card condition and off-task behavior decreased by about 34% in the response card condition. Furthermore, the type of response card used (i.e., pre-printed answers, write-in, etc.) did not matter (Randolph, 2007).

The majority of published studies involving response cards included participants at the elementary and middle school levels. However, there were few studies involving students at the preschool levels (Randolph, 2007). The present study will focus on those students at the preschool level. Additionally, studies included a wide range of topic areas including history, math, science, English, pre-academic skills (i.e. colors, calendar, etc.) and psychology. Many
studies published, included specific disability areas such as learning disabilities, attending disorders or severe emotional and behavioral disorders (Christie & Schuster, 2003; Davis & O’Neill, 2004; Lambert, 2002; Maheady et al., 2002; Marmolejo, Wilder & Bradley, 2004; Randolph, 2007; Shabani & Carr, 2004).

Inwood (1995) studied the participation and on-task behavior of four students with learning disabilities in a preschool classroom. The study used an alternating treatments design to compare hand-raising with response card instructional techniques for learning colors. During the hand raising condition, students were individually called on to come to the front of the classroom and place the color the teacher named on the felt board. During the response card condition, each of the four students participating in the study was given a felt board with three different colored shapes. When the teacher asked them to place a particular color on the board, the students responded by putting their own individual felt shape on their board. Active participation, whether the students actively placed the colored shapes on the felt board, and overall duration of on task behavior, whether the students were looking at appropriate stimuli (i.e., teacher, felt board, etc.) were measured in addition to student accuracy with teacher questions. Inwood (1995) found that active student participation and on-task behavior was greater in the response card condition when compared to the hand raising condition. However, accuracy in answering was not statistically different in each of the conditions.

The study conducted by Godfrey et al. (2003) includes both response card and choral responding phases, as does the present study. Their study involved four preschool students with attending concerns. The skill area of focus was calendar skills including day of the week, month, etc. Godfrey et al. (2003) compared response cards, hand raising, and choral responding by using an alternating treatments design. During the response card condition,
students were given three pre-printed cards to choose between for each prompt. Each card included pictures to help the preschool students distinguish amongst the choices. After each prompt, new response cards were given to the students for the next prompt. During the choral responding phase, students were given a prompt, and then a signal indicating that they were to respond to the question. During the hand raising phase, students were given a prompt and were asked to raise their hand to indicate that they wanted to answer the question. Students were called on individually during this phase. Godfrey et al. (2003) found that student participation and on-task behavior in the response cards condition was greater than in the choral responding or hand raising condition, which was found to have the least amount of participation and on-task behavior. This particular study involved the researchers giving prompts and opportunities to respond rather than the classroom teacher. The present study will focus on training the classroom teacher to deliver prompts and to use the response card and choral responding techniques as a part of their daily classroom instruction.

**Teacher Support and Professional Development**

With the passage of the No Child Left Behind Act of 2001 (PL 107-110), came the accompanying early childhood version, *Good Start, Grow Smart* (Executive Office of the President, 2002). *Good Start, Grow Smart* is a collaborative effort to reform early childhood education among the Department of Health and Human Services (DHHS), the Department of Education (ED), and the White House Office of Domestic Policy. The *Good Start, Grow Smart* initiative places a greater emphasis on accountability through assessment and teaching practices, including the critical area of professional development for educators in the field (Executive Office of the President, 2002).
Good Start, Grow Smart specifically asks early childhood agencies receiving state and federal funding to outline plans for professional development for teachers and other caregivers that increase research-based instructional competencies that can ultimately be translated into increased student learning outcomes. At the forefront of these discussions surrounding effective professional development practices are the questions of how to change teacher behavior in the direction of effective instruction, including how much consultative support is necessary for change as well as what is needed to maintain those behavioral changes (Executive Office of the President, 2002). The present study seeks to address those questions.

Professional development and emergent literacy. Although there has been substantial research interest in emergent literacy interventions and instruction, the actual practical implications and sustainability for those research-based instructional strategies are unknown because they are implemented and maintained by the researcher without generalization to field studies under natural contexts (e.g., Justice et al., 2003; Longwell, 2009). Researchers who have attempted teacher-managed interventions have documented the difficulty of maintaining high intervention adherence (Mortenson & Witt, 1998; Noell et. al., 2002; Noell et al., 2005). This lack of adherence leads to instructional ineffectiveness and inability to determine the effect of the strategies. There are numerous reasons for this occurrence including lack of ownership or interest in the strategies or interventions, and lack of adequate instructional support for teachers implementing new programs and procedures (Grimes & Tilly, 1996). The present study will focus on promoting teacher instruction change through the use of strong professional development.

The term professional development includes a number of activities that have the potential to impact knowledge, skills, or attitude of educators or caregivers and in turn, the development
and knowledge of students (Sheridan et al., 2009). Zaslow and Martinez-Beck (2006) have categorized professional development into five different forms. These include formal education, credentialing, specialized inservice training, coaching and/or consultative interactions, and communities of practice or collegial study groups. The present study will focus on only two of these types of professional development, specialized training and coaching and/or consultation, which will be discussed in more detail in the following sections.

**Specialized training.** The first type of instructional support used in the current study is specialized training. Specialized training may include workshops, conferences, and presentations that provide specific skill instruction and that can be applied directly to instructional practices. Often these trainings are conducted as one point in time presentations by a trainer who is viewed as the “expert” on a particular topic area. This type of training is often one directional and provides little time for the participants to interact with the trainer (Sheridan et al., 2009). Research has shown this type of professional development has little effect on instructional practices (Grimes & Tilly, 1996; Ingersoll & Kralik, 2004; Joyce & Shower, 1982; Sparks, 1986; Yoon et al., 2007). The systems change literature confirms the typical inadequacy of a single event professional development and focuses instead on the process (Fixsen et al., 2005; Hall & Hord, 2001). Despite criticism, this type of specialized training was included in the present study as a starting point from which to add more intensive instructional support because it is a commonly used practice in teacher training as serves as a comparison condition.

**Coaching and consultation.** Comparable to the components of strong interventions, the process of professional development should include, clear expectations, models, practice opportunities and feedback (Grimes & Tilly, 1996). Many studies have included instructional support as follow up to a more traditional professional development event. This kind of support
is referred to as coaching or consultation. The outcome of this increased instructional support through follow up consultation has largely been positive in increasing effective instructional strategies and intervention practices (Noell et al., 2005; Mortenson & Witt, 1998; Noell et al., 2002; Hsieh et al., 2009).

The second kind of professional development addressed in the present study is coaching/consultation. Coaching is defined by Hanft, Rush and Shelden (2004), as a “voluntary, nonjudgmental and collaborative partnership that occurs when one desires to learn new knowledge and skills from the other” (p. 1). Typically, coaching or consultation involves translating knowledge and formal learning by applying that knowledge of new skills and practices in the classroom setting with the support and help of another professional termed the “coach” or “consultant” (Fixsen et al., 2005).

Coaching/Consultative professional development relies on the problem-solving process to support and implement new practices in the classroom. This problem-solving component is especially important since the application of skills and knowledge must be integrated into a teacher’s personal style of instruction for changes to be long lasting and effective (Fixsen et al., 2005). During coaching/consultation, the consultant has frequent interactions with the consultee over a relatively short period of time to change instructional practices and behavior. These interactions include observations, modeling/guided practice, self-reflections, feedback and evaluation of the coaching/consultative process (Hanft, Rush, & Shelden, 2004).

Early et al. (2007) examined seven large scale studies that focused on professional development/training and found that there is little relationship between a teacher’s formal education and quality of classroom instruction and academic success for children. This gives support to the notion that training and support beyond the certification level is necessary to
improve student outcomes and teacher instructional practices. Furthermore, research has given support to the need for comprehensive methods of providing training (Joyce & Showers, 2002). Multifaceted methods whereby, specialized training to impart a knowledge base and foundational skills combined with coaching/consultation to provide demonstrations, practice, and feedback in the classroom setting are more effective in changing teacher instructional practices (Blase, Fixen, & Phillips, 1984; Fukkink & Lont, 2007; Joyce & Showers, 2002; Kealey et al., 2000).

Therefore, the present study will use a comprehensive method of providing support based on providing on-going instructional support through coaching and consultation.

**Performance feedback.** Mortenson and Witt (1998) examined a performance feedback method of instructional support through consultation. Effects were measured through the impact on intervention adherence and student academic performance. A multiple baseline design was used to demonstrate experimental control of the feedback procedures. A training procedure was utilized in which teachers were introduced to the intervention methods, whereby consultants provided rationale for each intervention step. After the initial training, teachers introduced the intervention to the student and began implementation of the intervention under the supervision of the consultant. The teacher was then left to implement the intervention without consultant support. The feedback procedure was implemented when the teacher completed less than 70% of the intervention steps and the data indicated either stable or decreasing adherence. During the performance feedback procedures, weekly meetings were conducted in which the consultant reviewed the intervention adherence and student performance data with the teacher, and provided either positive or corrective feedback as appropriate. Results indicated that teacher intervention adherence data increased during implementation of the performance feedback procedures. Student academic performance was more variable, but showed an increase during the study.
A similar study conducted by Noell et al. (2002) replicated these results demonstrating the efficacy of performance feedback procedures for enhancing intervention adherence. Additionally, this study included maintenance procedures such that follow up meetings were conducted sparsely. Results indicated that although intervention adherence was somewhat variable, it remained high, demonstrating the essential role of on-going feedback in the training of intervention procedures (Noell et al., 2002).

Noell et al. (2005) further investigated the role of instructional support for teachers by examining teachers’ implementation of treatment plans for academic and behavioral concerns using three consultation follow-up procedures. The consultation follow-up procedures included: brief weekly meetings, weekly meetings with an emphasis on the commitment to implement the intervention plans, and performance feedback. During the brief weekly meeting condition, consultants met with participating teachers to conduct a brief evaluation interview structured around plan implementation, student improvement, and teacher questions or comments.

The weekly meeting with an emphasis on the commitment to implement the intervention plans included the weekly meeting and brief evaluation interview as in the previous condition, however, prior to intervention implementation, consultants reviewed points targeting commitment with the teachers. These points included: a discussion of the tendency for people to make intervention plans and then not follow through, the commitment to the student and his/her parents, the loss of creditability if the intervention plan was not implemented as designed, and the importance of implementation to the evaluation of effectiveness (Noell et al., 2005). Furthermore, the consultant discussed self-management, goal setting, and self-reward strategies that may help in maintaining implementation of the interventions; teachers were not required to use a strategy.
The last follow up strategy, performance feedback, involved meeting with the teacher to review intervention permanent products and graphical representations of intervention adherence data and student behavior data. Noell et al. (2005) found that the performance feedback follow-up strategy was most effective for increasing intervention adherence. Additionally, they found a moderate correlation between intervention adherence and student outcomes. This study verifies that feedback is a critical component of effect instructional support and that implementing an intervention as it is designed is associated with positive student outcomes.

The studies by Noell et al. (2002), Noell et al. (2005), and Mortenson and Witt (1998) all demonstrated the efficacy and importance of including performance feedback in consultation procedures for improving intervention adherence. Despite this established role in improving intervention adherence, little research has looked at the role of performance feedback in increasing instructional variables such as practice opportunities/prompts or academic engaged time. Casey and McWilliam (2008) investigated the use of providing graphical feedback to increase incidental teaching in a preschool setting. They found that when shown graphical representations of the amount of time a teacher was engaged in incidental instruction, teachers in all classrooms increased their use of incidental teaching. The present study will further examine the level of teacher support and feedback needed to impact instructional variables as well as increase student engagement and opportunities for practice.

**Research Questions**

The specific research questions to be answered by this investigation include:

1. Will providing instructional support in planned increments of intensity produce corresponding increases in student active engagement and productive practice opportunities for students?
2. Will using a choral responding technique or a response card intervention technique increase student active engagement and practice opportunities to a greater degree?

**Method**

**Participants**

**Classroom/teacher selection.** Participants in this study consisted of teachers and students from three preschool classrooms. Each classroom had two teachers and approximately 15-20 students (including both special needs students and general education students). Classrooms were chosen for inclusion in this project based on student scores on the rhyming and alliteration measures of the Individual Growth and Development Indicators for monitoring progress of individual young children (IGDIs; McConnell et al., 2001). The rhyming and alliteration subtests of the IGDIs were used as a screening tool for selection of classrooms for participation in this study. Both the rhyming and alliteration measures are brief, fluency-based assessments (McConnell et al., 2001). These assessments provide data on the correct number of rhymes a student is able to identify per minute, or the correct number of beginning sounds a student is able to identify per minute. Students are administered these assessments 3 times per school year as a universal screening for pre-literacy skills. The rhyming and alliteration measures are moderately correlated (.57 - .75) with other literacy assessments including the Peabody Picture Vocabulary Test-III, Concepts About Print, Test of Phonological Awareness and letter identification. Moderate correlations (.44-.61) between the assessment and a student’s age were also found indicating the ability to measure growth over time (McConnell et al., 2001). Scores on both rhyming and alliteration assessments have good reliability over a three week period with correlations from .83 to .89 on rhyming assessments and .46 to .80 on alliteration assessments (McConnell et al., 2001).
Classrooms with the highest number of 4 and 5 year old students who scored below the goal for their age level were selected for participation in this study. Teachers in these low scoring classrooms were asked for their voluntary participation in the present study (Appendix A and Appendix B). Teachers in selected classrooms were engaged in classroom instructional practices (low levels are acceptable for participation in this study). Additionally, teachers selected for participation had no administrative actions pending. All teachers were female and had been teaching for 3-5 years. They ranged in age from 30-42 years old. One teacher had a bachelor’s degree in special education; the other two teachers met the minimum requirement of having an associate degree in early childhood education.

**Consultant and observers.** The primary researcher, a licensed school psychologist, served as a consultant in this study (Appendix C). The consultant received instruction in consultation, measurement procedures (including direct observations and IGDIs), intervention adherence and reliability procedures as a part of her licensure program.

Another school psychologist served as a co-observer during 20% of classroom observations. This school psychologist also received instruction on measurement, observational and reliability procedures as a part of her licensure program. The co-observer was trained specifically on the observational code used in the present study. The training procedures included reviewing observational definitions, modeling the observation code in a classroom setting and co-scoring to a reliability of 85% interrater agreement (Appendix D).

**Setting**

This project was conducted in a preschool program located in an urban setting in a Midwestern city. The preschool program was part of a public school early childhood education program. This study took place in participating classrooms over a period of 10 consecutive
weeks for classroom 1, 13 weeks for classroom 2 and 15 weeks for classroom 3 during the regular school year. It is noted that during the study, due to financial downsizing, teachers were notified that they would be laid off at the close of the school year. As a result, morale was low among all study participants.

The present study took place during circle time, a period of the school day characterized by classwide teacher directed instruction, focusing on pre-literacy skills including beginning sounds and phonological awareness. Since phonological awareness skills were already a required part of the daily circle time in the preschool program, this particular subject area was targeted at teacher and administrator request. Circle time lasted for approximately 10 to 15 min. Circle time was chosen as a target in this study because circle time is frequently an activity that requires consultation and support planning for teachers (Zaghlawan & Ostrosky, 2011).

**Materials**

Instructional materials used in this study included commonly used early literacy materials to be used during circle time. Teachers were given picture cards of beginning sound pairs during the professional development phase of this study. Teachers were permitted to use their own materials; however, all participants in the study used the materials supplied by the researcher. The picture cards were placed on two easels held together with spiral binding. This allowed teachers to easily and efficiently flip through the picture cards to find examples or non-examples of alliteration. Additionally, teachers were given scripted directions for both the choral responding and response card instructional strategies (Appendices E and F). Teachers were also given a timer to signal the end time for each of the instructional strategies. Response cards were created for each student in the classroom to include a smile face on one side and a frown face on the other side so that students could indicate yes or no answers to teacher questions. Professional development materials including handouts on practice opportunities, response cards, choral
responding scripts and beginning sound picture cards (Appendices G and H) were given to teachers during the initial professional development session. Graphs of practice opportunities and student engagement were shared with teachers during phases 1 and 2 of the present study. The graphs were line graphs created in excel to visually depict data from consultant observations.

**Research Design and Data Analysis**

A combined design consisting of a multiple baseline design across classrooms and a within-classroom multi-element component was used to evaluate the variables linked to effectiveness of instructional support and instructional strategies (Kennedy, 2005). All classrooms were first in concurrent baseline conditions. The independent variables were then introduced to classrooms staggered one at a time while the conditions for the other classrooms remained unchanged and baseline data collection continued. Data was collected in classrooms 1, 2, and 3 for 10, 13, and 15 weeks respectively. Furthermore, a multi-element design was used during the instructional support and intervention implementation phase of the study to evaluate the relative efficacy of choral responding and response card techniques in increasing student engagement and productive practice opportunities. Only one session was carried out each day.

Data were examined through the use of visual analysis to look at level, trend and variability in the data (Kennedy, 2005). To describe the size of the effects of feedback/goal setting and instructional support/interventions on student active engagement, Cohen’s $d$ statistics were calculated by finding the difference between the means and dividing that number by the standard deviation of the baseline (Busk & Serlin, 1992). Cohen defined small effects as 0.2, medium effects as 0.5, and large effects as 0.8 (Cohen, 1992). Percentage of non-overlapping data points (PND) is a summary statistic that is useful in interpreting results of studies using a
single case design. PND is calculated by counting the number of intervention data points that are higher than the highest baseline point and then dividing that number by the number of total intervention points (Riley-Tillman & Burns, 2009). Both effect size and PND were examined due to limitations in both of the reporting methods. Effect size analysis is preferred with larger data sets while PND results can be influenced by an outlying baseline data point.

**Measurement**

Circle time observations lasted throughout the entirety of the instructional period, which was approximately 10-15 min. During this time, the primary investigator served as the primary observer and coded teacher instructional and managerial behaviors, student engagement, and number of practice opportunities for each type (i.e., choral, response card or individual). Data were collected using a paper and pencil observation code (Appendix I) based on the Instructional and Caring Contacts (ICC; Nichols & Barnett, 2005). Observations were conducted approximately two times per week. The observation code consisted of scan sampling of student engagement every fifth interval of a 15 s partial interval observation tool. Secondary instructional variables including modeling, error correction/feedback, incidental instruction, positive managerial, negative managerial and praise/positive attention were measured using 15 s partial interval recording. In addition to the variables on the ICC, practice opportunities were recorded by indicating a tally mark for each type of opportunity to respond including individual, choral, or response card. Observers were trained to at least 85% (using interobserver reliability) on the observation code and interobserver reliability data was collected during 20% of the observations.

**Dependent Variables**
**Student active engagement.** Student active engagement was measured using scan sampling during every fifth interval of a 15 second partial interval observational tool. Student active engagement is defined as sitting on the carpet with hands and feet to self, eyes oriented to the teacher or other speaker (including peer when appropriate), and actively participating in the activity when an opportunity to respond is given (i.e., verbally responding to a teacher question or prompt, holding up response card, etc.). Scan sampling was conducted through the observer scanning the students in classroom and recording the number of students that were not actively engaged in the instruction. This number was subtracted from the total number of students present to determine the number of students actively engaged in the instruction.

**Practice opportunities.** A frequency count of practice opportunities was recorded during circle time observations. From the number of practice opportunities and the length of circle time, a rate was calculated. Rates of practice opportunities also were calculated for the choral responding and response card interventions. A practice opportunity involves an adult making a verbal statement to elicit a response from a student or group of students. The verbal statement can be made with or without a physical prompt. An adult may also provide a student with an opportunity to practice by having them perform a skill or verbally re-state information that has been provided. For example, during circle time the teacher says, “Today is Thursday. What day comes after Thursday?”

**Secondary instructional variables.** Secondary instructional variables that were measured included modeling, teacher incidental instruction, error correction/feedback, teacher managerial positive and instructional, teacher managerial negative and non-instructional, and other positive attention using 15 s partial interval recording. These variables were included for an analysis of possible co-effects.
Modeling occurs when a teacher provides a child or group of children with assistance or another type of adult initiated opportunity to observe a behavior that will later serve as a guide for the child’s own behavior. For example, a teacher is reading a book to a child and using her finger to demonstrate how to move from the left side of the page to the right side.

Teacher incidental instruction involves the use of naturally occurring, child initiated situations as a means for instruction and practice opportunities. For example, a child points to the window and say it is wet and the teacher uses that situation to instruct the students about rain and weather.

Error correction/feedback involves an adult providing instruction and verbal feedback to a child following an incorrect or inappropriate verbal or physical response made by the child. For example, the classroom teacher brings a pumpkin to circle time to share with the children. She says, “What color is our pumpkin?” A child responds by saying, “Blue.” The teacher says, “It is not blue, it is orange.”

Teacher managerial behavior-positive and instructional involves the teacher delivery of a verbal reminder to a student or group of students that includes a firm tone of voice, getting the child’s attention by making eye contact, saying his/her name or using a signal, and provides a replacement behavior, explanation, practice of the appropriate behavior, or a choice. For example, a student is running through the classroom. The teacher responds by saying, “Tommy, you need to walk because if you run in the classroom, you could fall and get hurt or hurt someone else.”

Teacher managerial behavior-negative and non-instructional is defined as when a teacher verbally reprimands a student involved in inappropriate behavior without providing a
replacement behavior, explanation, practice of appropriate behavior or a choice. For example, when a teacher says, “Jimmy, stop doing that right now.”

Other positive attention is defined as adult provided verbal reinforcement such as praise or specific feedback about the appropriateness of a student’s behavior. For example, a teacher says to a student, “I like the way you are sitting quietly, Amanda.” Additional examples and scoring information is contained in the observation code scoring and behavioral definitions (Appendix I).

**Interobserver agreement.** To ensure that observation data were accurate, a second observer collected interobserver agreement data during 20% of observations in each of the three classrooms and during each of the study phases. For the instructional and managerial variables, including, modeling, error correction/feedback, incidental instruction, positive managerial, negative managerial and praise/positive attention, interobserver agreement was calculated through an exact event occurrence method whereby an agreement was scored only when two observers scored the same number of occurrences during each interval of observation. Interobserver agreement was then calculated by dividing the total number of agreements by the total number of agreements and disagreements and multiplying by 100%. Both the engagement and practice opportunities variables were measured by using total agreement method. For engagement, an average percentage of student engagement was calculated by each observer and the smaller number was divided by the larger number and multiplied by 100%. For the number of practice opportunities, the total numbers were tallied for the total as well as each type of response, individual, choral and response card. The tallied amounts of practice opportunities including total, individual, choral and response card for each observer were calculated and the smaller number was divided by the larger number and multiplied by 100%. To control for
observer drift, observers met to review observation code definitions prior to observing. Interobserver agreement was calculated during 20% of observations. Average interobserver agreement and range for each variable is reported in Table 1.

**Instructional adherence.** Instructional adherence data were collected on both of the group instructional strategies during 20% of the observations. Observers monitored the number of steps completed by checking off items on an intervention procedural checklist (Appendices E and F). Instructional adherence data were based on the percentage of intervention items completed during the session. The average instructional adherence for the choral responding instructional strategy was 84%, 76% and 84% for classrooms 1, 2 and 3 respectively. The range was 60% to 100%. The average instructional adherence for the choral responding instructional strategy was 76%, 80% and 88% for classrooms 1, 2, and 3 respectively with a range of 60% to 100%.

<table>
<thead>
<tr>
<th>Table 1. Interobserver Reliability Ratings for Observational Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Modeling</td>
</tr>
<tr>
<td>Error Correction/Feedback</td>
</tr>
<tr>
<td>Incidental Instruction</td>
</tr>
<tr>
<td>Positive Managerial</td>
</tr>
<tr>
<td>Negative Managerial</td>
</tr>
<tr>
<td>Praise Positive Attention</td>
</tr>
<tr>
<td>Active Engagement</td>
</tr>
<tr>
<td>Practice Opportunities</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Response Card</td>
</tr>
<tr>
<td>Choral Responding</td>
</tr>
<tr>
<td>Individual Responding</td>
</tr>
</tbody>
</table>
Social validity. Intervention and outcome acceptability ratings were obtained through social validity questionnaires administered to teachers (Ehrhardt et al., 1996). The questionnaires were administered upon completion of the study and scored on a 5-point Likert scale (Appendix J). The areas addressed by this questionnaire included: acceptability of the instructional support process, acceptability of the intervention strategies, willingness to use the intervention procedures in the future, and student outcomes.

Procedures

Baseline: Staff development and data collection for rate of practice opportunities and engagement. A specialized training (lasting approximately 30 min) focusing on student literacy outcomes, analysis of classroom literacy data, building productive practice opportunities in lesson planning, and increasing active student engagement was conducted by the researcher prior to beginning data collection (Appendices G and H). Prior to this training, circle time topics focused on calendar, print awareness and letter naming activities. Additionally, hand raising response strategies were typically used with some choral responding. Upon completion of specialized training, observational data points (conducted during circle time) were gathered for each of the participating classrooms. Once the first classroom achieved a steady state of responding or when 5 observational points were obtained, the first classroom entered the feedback and goal setting phase; the remaining 2 classrooms continued with data collection in this phase.

Phase 1: Feedback and goal setting. After the baseline data were collected in accordance with a multiple baseline design, teacher support was introduced during phase 1 of the study. The teacher support process for this study was based on district-approved standard procedures for improving instructional interventions through the Response-to-Intervention
approach to service delivery. During this phase of instructional support, the consultant shared data on productive practice opportunities and student active engagement with the teachers and helped the teachers to collaboratively set goals for these variables (Appendix K). Goals were set based on guidelines provided by CEC (1987) and Sainato et al. (1987) at a rate of 5 practice opportunities per minute.

**Phase 2: Instructional support and intervention implementation.** In phase 2, the consultant provided instructional support during a brief 10-15 minute weekly meeting with the teachers. Using a multiple baseline design, the introduction of this phase was staggered across classrooms. Intervention procedures using response card and choral responding strategies were implemented during this phase. Intervention plans were (a) teacher-managed, (b) in a structured classwide instructional format, and (c) focused on onset-rime phonological awareness skills. These intervention plans were implemented during circle time, as a universal instructional intervention that all students receive. Scripts outlining the key components of all interventions chosen for classroom implementation were created (Ehrhardt et al., 1996). These scripts were also used to collect instructional adherence data (i.e. percentage of intervention steps completed).

Training on the response card and choral responding strategies included the consultant reviewing the procedures with the teacher, modeling the strategies in the classroom setting, and coaching/providing feedback while the teacher implemented the strategies. Using the script to collect adherence data, teachers needed to complete 90% of the intervention steps prior to being able to independently implement the strategies. If they did not complete at least 90% of the steps, the consultant continued to model, provide feedback, and coach the teacher until this criteria was met. Any repeatedly missed steps were reviewed. Error correction/feedback was most frequently missed. Teachers implemented the choral responding and response card strategies for a period of
3-5 min each during the circle time instruction. Each intervention was characterized by teachers showing the class two picture cards that either started with the same sound or did not start with the same sound and verbally saying the names of those pictures. Teachers were also permitted to verbally give word choices, or use any other materials of their choice; however, all teachers chose to use the picture cards they were given by the principal investigator. Teachers then counted down from 5 to allow adequate wait time when learning new concepts (no wait time needed for review practice). Students were asked to respond to each prompt by answering verbally as a group or to hold up a response card with a green smile face and a red frown face to indicate yes or no respectively. The teacher then provided feedback on whether the majority answer was correct or incorrect.

Both intervention plans were implemented every day, four times per week during circle time for approximately 6-10 min. During this phase, an alternating treatments design was used such that teachers alternately implemented choral responding and response card intervention strategies. Each intervention strategy was implemented for a time period of 5 min. The intervention orders were counterbalanced to prevent order effects.

During a weekly instructional support meeting, the consultant met with the teachers to briefly review observational data regarding productive practice opportunities and active student engagement, provide performance feedback, and review instructional adherence data (Appendix L). Active student engagement and productive practice opportunity variables were graphed and reviewed with the teachers during these weekly meetings. Additionally, the consultant discussed any concerns or questions about the intervention plans.

Results

Engagement
Figure 1 shows active student engagement for classrooms 1, 2 and 3 across baseline, feedback and goal setting, and instructional support phases. Visual analysis of this variable depicts high levels of engagement across all phases. High levels of engagement during the baseline phase created a ceiling effect, thus allowing minimal room for improvement during instructional support phases.

Classroom 1 had mean engagements of 88.56% (SD= 3.53), 80.70 (SD= 6.46), and 83.33% (SD= 7.71) during the baseline, feedback and goal setting and instructional support phases respectively. Classroom 2 had mean engagements of 84.59% (SD= 6.46), 85.34 (SD= 5.29), and 85.93% (SD= 4.88) and classroom 3 had mean engagements of 86.93% (SD= 7.28), 81.90% (SD= 7.28), and 85.60% (SD= 7.03) during the baseline, feedback and goal setting and instructional support phases respectively.
Figure 1. Multiple Baseline Across Classrooms Active Engagement

Figure 2 depicts student active engagement by classrooms during the response card and choral responding instructional strategies implemented in the instructional support phase.
Engagement in the Response Card conditions showed small, but consistent differences in classrooms 2 and 3; classroom 1 remained consistent across both instructional strategies.

Figure 2. Choral Responding and Response Card Active Engagement
In classroom 1, the mean engagement was 83.63% (SD= 7.50) during the response card instructional strategy and 83.20% (SD= 9.07) during the choral responding instructional strategy. Mean engagements for classroom 2 were 91.25% (SD= 5.66) during the response card instructional strategy and 82.52% (SD= 4.83) during the choral responding instructional strategy and in classroom 3, the mean engagement was 86.65% (SD= 11.59) during the response card instructional strategy and 79.77% (SD= 12.96) during the choral responding instructional strategy. Table 2 summarizes student active engagement across phases and instructional strategies including means, standard deviations and ranges across all three participating classrooms.

<table>
<thead>
<tr>
<th>Table 2. Student Active Engagement Across Phases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>M(SD)</strong></td>
</tr>
<tr>
<td>Classroom 1</td>
</tr>
<tr>
<td>Classroom 2</td>
</tr>
<tr>
<td>Classroom 3</td>
</tr>
</tbody>
</table>

The percentage of non-overlapping data points (PND) for active engagement between baseline and phase 1 for classroom 1 was 0% and 0% between baseline and phase 2. Classrooms 2 and 3 had a PND of 0% between baseline and phase 1 and 10% between baseline and phase 2. Additionally, the PND for the response card and choral responding instructional strategies were 0% and 10% respectively for classroom 1, 40% and 10% for classroom 2 and 10% and 10% for classroom 3. Due to the large amount of overlap in the data, it does not appear that the instructional support and interventions had a reliable impact on the active student engagement variable.
Effect sizes for classroom 1 were 2.23 for phase 1: Feedback/Goal Setting and 1.48 for phase 2: Instructional Support. The effect sizes for the choral responding intervention and response card instructional strategies were 1.52 and 1.40 respectively. Classroom 2 had effect sizes of 0.12 and 0.21 for phase 1 and phase 2 and effect sizes of 0.32 and 1.03 for choral responding and response card instructional strategies. Classroom 3 had effect sizes of 0.69 and 0.18 for phase 1 and phase 2 and effect sizes of 0.984 and 0.038 for choral responding and response card instructional strategies.

**Practice Opportunities**

Results for the rate of practice opportunities are depicted in Figure 3. A visual analysis of these data indicated that for classrooms 1 and 3, practice opportunities increased from the baseline phase to the feedback and goal setting phase and instructional support phases. Classroom 2 showed lower rates of practice opportunities during the feedback and goal setting and instructional support phases than the baseline.

Classroom 1 had a mean rate of 2.68 practice opportunities per minute ($SD= 0.80$), 3.80 ($SD= 2.41$), and 4.06 ($SD= 0.85$) during the baseline, feedback/goal setting and instructional support phases respectively. Classroom 2 had mean rates of practice opportunities per minute of 4.10 ($SD= 2.23$), 3.43 ($SD= 0.20$), and 2.23 ($SD= 1.11$) and classroom 3 had mean rates of practice opportunities per minute of 2.97 ($SD= 0.63$), 3.78 ($SD= 0.33$), and 5.10 ($SD= 2.36$) during the baseline, feedback and goal setting and instructional support phases respectively.
Figure 3. Multiple Baseline Across Classrooms Rate of Practice Opportunities

Figure 4 depicts the rate of practice opportunities during the response card and choral responding instructional strategies. Classrooms 1 and 2 showed slightly higher rates of practice opportunities using the choral responding strategy compared to the response card strategy.
Similar rates of practice opportunities were demonstrated among the choral responding and response card instructional strategies in classroom 3.

Figure 4. Choral Responding and Response Card Rate of Practice Opportunities
Classroom 1 had a mean of 3.92 practice opportunities per minute ($SD = 0.86$) during the response card instructional strategy and 4.60 ($SD = 1.61$) during the choral responding instructional strategy. Mean rates of practice opportunities per minute were 2.99 ($SD = 1.38$) during the response card instructional strategy and 3.17 ($SD = 1.42$) during the choral responding instructional strategy for classroom 2. For classroom 3, the mean rate of practice opportunities per minute was 6.80 ($SD = 3.80$) during the response card instructional strategy and 6.28 ($SD = 4.14$) during the choral responding instructional strategy. Table 3 summarizes rate of practice opportunities across phases and instructional strategies including means, standard deviations and ranges across all three participating classrooms.

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Baseline</th>
<th>Feedback and Goal Setting</th>
<th>Total</th>
<th>Instructional Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M(SD)</td>
<td>Range</td>
<td>M(SD)</td>
<td>Range</td>
</tr>
<tr>
<td>1</td>
<td>2.69(0.80)</td>
<td>2.2-4.1</td>
<td>3.80(2.41)</td>
<td>1.7-6.6</td>
</tr>
<tr>
<td>2</td>
<td>4.10(2.23)</td>
<td>0.2-7.8</td>
<td>3.43(0.20)</td>
<td>3.3-3.7</td>
</tr>
<tr>
<td>3</td>
<td>2.97(0.63)</td>
<td>2.1-4.0</td>
<td>3.78(0.33)</td>
<td>3.3-4.2</td>
</tr>
</tbody>
</table>

Percentage of non-overlapping data points (PND) was calculated for each of the participating classrooms. The percentage of non-overlapping data points for active engagement between baseline and phase 1 for classroom 1 was 40% and 40% between baseline and phase 2. Classrooms 2 had a PND of 0% between baseline and phase 1 and 0% between baseline and phase 2. Classroom 3 had a PND of 20% between baseline and phase 1 and 60% between baseline and phase 2. Additionally, the PND for the response card and choral responding instructional strategies were 40% and 50% respectively for classroom 1, 0% and 0% for classroom 2 and 70% and 70% for classroom 3. Due to the large amount of overlap in the data,
it does not appear that the instructional support and interventions had a reliable impact on the active student engagement variable; however classroom 3 did show some increase in non-overlapping data points for both the choral responding and response card instructional strategies.

Effect sizes for classroom 1 were 1.39 for phase 1: Feedback/Goal Setting and 1.71 for phase 2: Instructional Support. The effect sizes for the choral responding intervention and response card instructional strategies were 2.39 and 1.54 respectively. Classroom 2 had effect sizes of 0.30 and 0.84 for phase 1 and phase 2 and effect sizes of 0.42 and 0.50 for choral responding and response card instructional strategies. Classroom 3 had effect sizes of 1.29 and 3.38 for phase 1 and phase 2 and effect sizes of 5.25 and 6.10 for choral responding and response card instructional strategies.

Other Instructional Variables

Additional instructional variables including: modeling, error correction/feedback, incidental instruction, positive managerial, negative managerial, and praise/positive attention were monitored throughout the present study. Mean percentage of intervals, standard deviations and ranges were reported for each of these other instructional and managerial variables in Table 4. These secondary variables remained at low levels throughout all phases of the study, thus indicating that the instructional support and interventions did not have a significant effect on these variables.
The mean percentage of intervals for the modeling instructional variable decreased during the phase 1 (feedback and goal setting), but then slightly increased during phase 2 (instructional support) for both classroom 1 and 2. Classroom 3 experienced a decrease in modeling across all phases. Mean percentage of intervals for error correction increased from baseline through phase 1 and phase 3 for both classroom 1 and 2. Classroom 1 showed a significant increase and classroom 3 showed a slight increase. Classroom 2 increased during phase 1, but decreased again during phase 2. Incidental instruction mean percentage of intervals increased from baseline to phase 1, but decreased in phase 2 for classrooms 1 and 2. Classroom 3 experienced a slight increase across all phases.

Positive managerial teacher behaviors had a mean percentage of intervals that decreased from baseline to phase 1 and phase 2 for classrooms 1 and 2. Classroom 3 showed an increase in phase 1 and a decrease in phase 2. Negative managerial behaviors had less consistency among
classrooms. Classroom 1 showed similar means from baseline to phase 1, but a decrease in phase 2. Classroom 2 showed an increase across baseline, phase 1 and phase 2 and classroom 3 showed an increase from baseline to phase 1, but a decrease in phase 2. The positive attention variable also lacked consistency across classrooms. Classroom 1 increased in mean percentage of intervals from baseline to phase 1, but decreased in phase 2, whereas classroom 2 decreased across all phases and classroom 3 remained the same across all phases.

**Social Validity**

Average scores for each question on the Acceptability Questionnaire (Appendix J) were obtained by asking teacher participants to complete the questionnaire that the completion of the study. Overall, questions about the consultation process and intervention procedures received average ratings between “agree (4)” and “strongly agree (5).” Table 5 summarizes the average rating for each question among all three classrooms.

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>I liked the teacher support/consultation process</td>
<td>4.67</td>
</tr>
<tr>
<td>I would work with consultants using this process in the future</td>
<td>4.67</td>
</tr>
<tr>
<td>I thought having a staff development prior to beginning the support/consultation was helpful</td>
<td>4.33</td>
</tr>
<tr>
<td>I liked meeting weekly with the consultants to review the observational data</td>
<td>4.33</td>
</tr>
<tr>
<td>The intervention script was easy to follow</td>
<td>4.33</td>
</tr>
<tr>
<td>I liked the procedures used in this intervention</td>
<td>4.00</td>
</tr>
<tr>
<td>The intervention was easy to include in my daily routine</td>
<td>4.33</td>
</tr>
<tr>
<td>I would be willing to use this intervention in the future</td>
<td>4.33</td>
</tr>
<tr>
<td>Overall, this intervention was beneficial for the students</td>
<td>4.33</td>
</tr>
</tbody>
</table>
Discussion

Two main research questions were investigated in the present study. These included: (a) will providing instructional support in planned increments of intensity produce corresponding increases in student active engagement and productive practice opportunities for students and (b) will using a choral responding technique or a response card intervention technique increase student active engagement and practice opportunities to a greater degree? Data indicated that for the active student engagement variable, active engagement was high during baseline and continued to remain high throughout the feedback and goal setting and instructional support phases respectively. Because of this ceiling effect, data did not indicate any significant differences in the student active engagement corresponding to increases in instruction support. As depicted in Figure 2, however, classrooms 2 and 3 showed slightly higher student active engagement during the response card instructional strategy. Classroom 1 demonstrated similar levels of engagement across both instructional strategies.

Results for the rate of practice opportunities indicated a slight increase in rate across instructional support phases for classrooms 1 and 3 and a decrease in rate across phases for classroom 2. Additionally, rates of practice opportunities remained similar across both choral responding and response card instructional strategies in classroom 3, but were slightly higher during the choral responding strategy in classrooms 1 and 2. Other instructional variables including, modeling, error correction/feedback, incidental instruction, positive managerial, negative managerial, and praise/positive attention, remained at low levels throughout all phases of the study, thus indicating that the instructional support and interventions did not have a significant effect on these variables.
Mortenson and Witt (1998) found that performance feedback for teachers enhanced the implementation of the intervention strategies. Their results also indicated that student academic performance demonstrated some improvement, but the student variables were much more variable than the teacher intervention implementation. Variability of both student and teacher outcomes were noted in the present study. Teachers did not implement any of the instructional strategies when not given support. However, when provided with modeling, coaching and feedback, teachers implemented the intervention strategies with moderate adherence. This is similar to Mortenson and Witt’s (1998) findings that when asked to implement the intervention strategies with no support, teachers completed less than 70% of the intervention steps. However, during the phases when teachers were given consultative support and corrective feedback, completion of the intervention steps increased. In the present study, consistent with Mortenson and Witt (1998), the rate of practice opportunities increased in 2 of the 3 classrooms when consultative support and feedback was given. The third classroom decreased in the number of practice opportunities from baseline to feedback/goal setting and from feedback/goal setting to instructional support phases. This may have been in part due to baseline rates of practice opportunities rates being in the goal range for this classroom. During the feedback and goal setting phase, the teacher was told that she was meeting the goal. As a result, the teacher in that classroom may not have been as focused on increasing practice opportunities as in the other two classrooms. Additionally, during the instructional support phase, this classroom had the lowest intervention adherence average (74%), indicating that they were not implementing the instructional strategies as designed. A final factor that may have contributed to the decreasing practice opportunities across instructional support phases is low morale and motivation due to
the lay-off announcement. This announcement was made following baseline data collection for that classroom.

Noell et al. (2005) also examined the role of performance feedback in the implementation of instructional interventions; however they expanded this support by conducting weekly meetings to share student behavioral data in addition to intervention adherence data. This support strategy resulted in increased adherence to intervention procedures and improved student outcomes (Noell et al., 2005). The present study differed from these two studies in that it did not measure intervention adherence as a teacher performance outcome, but rather looked at student engagement as a student performance variable and rate of practice opportunities as a teacher performance variable. Student engagement was high during the baseline and continued to remain high throughout the study for all classrooms. Since engagement was already high, there was not as much opportunity for increase. However, 2 of the 3 classrooms included in the study did show some increase in rate of practice opportunities because lower baseline rates allowed for more growth.

When compared to one another, the choral responding and response card intervention strategies appeared to be equally effective at increasing student engagement and rate of practice opportunities. In classrooms 2 and 3, engagement was slightly higher during the response card instructional strategy and in classrooms 1 and 2, practice opportunities were slightly higher during the choral responding strategy. This is consistent with findings in the literature indicating that both the choral responding and response card strategies were effective in increasing student responding (Godfrey et al., 2003; Inwood, 1995; Wolery & Ault, 1992). It would be expected that an increase in student responding would be linked to an increase in teacher given practice opportunities. Rates of practice opportunities delivered by teachers during both the choral
responding and response card strategies were within The Council for Exceptional Children guidelines (1987) and those rates found by Sainato et al. (1987). This indicated levels of practice opportunities at rates consistent with levels shown through research to be effective in increasing on task behavior and more efficient student learning and retention (Sainato et al., 1987; Sutherland et al., 2003; Wolery & Ault, 1992).

Secondary variables, including modeling, positive managerial, negative managerial, error correction/feedback and praise/positive attention remained at low levels throughout all instructional support phases and intervention strategies. Based on Casey and McWilliam (2008) and Noell et al. (2005), who found that feedback is the critical component required for increasing teacher instructional variables, it would be expected that secondary variables would remain at low levels because explicit feedback on these variables was not provided. The exception is error correction/feedback which we would have expected to increase because it is included as one of the intervention steps for the choral responding and response card strategies. However, it remained at low levels as well. This may be due to the error correction/feedback step being the most frequently missed step of the instructional strategies.

**Limitations**

Since beginning engagement rates were already well within the expected range for preschool students, there was not much room for growth. To combat this particular limitation, the use of better classroom screening procedures and selection criteria to limit ceiling effects may have been effective. The current study employed the use of the rhyming and alliteration subtests of the IGDIs as a screener and teachers in classrooms with low scoring students were asked for their voluntary participation. Although this screening was designed to determine classrooms where students needed additional practice in pre-literacy skills targeted by the current
study as well as the preschool program in general, it did not include active student engagement and practice opportunities screening procedures. Therefore, classrooms with low scoring students were not necessarily classrooms that had low student engagement and practice opportunities. Adding brief observations targeting active student engagement percentages and practice opportunity rates would be an effective way of ensuring that classrooms chosen for participation were not already at ceiling levels for these two variables.

Another related limitation involves the collection of baseline data after the initiation of the beginning of the study professional development programming. Since the present study began with a professional development prior to the commencement of data collection, there was no way to determine the effect of the professional development on engagement and rates of practice opportunities. This may have resulted in the high levels of engagement and rates of practice opportunities at the onset of the study. It may have been useful to measure baseline levels prior to the implementation of the professional development programming, therefore allowing the effectiveness of the professional development to be measured in addition to the instructional support and feedback strategies used by the current study.

Instructional adherence to the intervention strategies is another area of possible limitation. Although teachers were initially trained to at least 90% adherence, during some of the observations, instructional adherence was lower that desired (range was 60% to 100% for both instructional strategies). During the instructional support and intervention phase, discussion of instructional adherence was a component of the weekly meeting; however, there was not a plan for re-training the teachers on the interventions in response to low adherence. Therefore, this low adherence may have had some influence on both the student engagement and rate of practice opportunity variables. For example, classroom 2 showed a decrease in practice
opportunities across each of the instructional support phases rather than the expected increase; classroom 2 had instructional adherence of 76% and 80% on the choral responding and response card strategies respectively. This may have been attributed to lack of comfort and fluency with the instructional strategies. It may be helpful to include a phase in the study where teachers can practice the instructional strategies for fluency.

Adherence data collection for meetings held between the teachers and consultants as part of the instructional support process were not collected by an outside observer, therefore potentially indicating a limiting factor. Adherence data for teacher meetings held during feedback and goal setting and instructional support phases were collected through consultant checkmarks upon completing a step on the agenda; however, having a second observer collect adherence data would have ensured that each step was completed and added to the technical adequacy of the consultation process.

Another potential limiting factor impacting the implementation of this particular study and the intervention adherence in particular included external programming factors. Shortly after beginning implementation of the present study, an announcement that all preschool instructional staff would be laid off for the following school year was made. This affected all participants in the present study. As a result, motivational and emotional factors may have played a role in the outcomes of the present study. After the announcement, although no one quit the research study, the teachers appeared to have decreased motivation and enthusiasm for participating in the present study as well as in daily instructional practices.

Due to potential limitations of the current observational procedures for engagement and practice opportunity rates, changes in the observational procedures may strengthen the present study. Active engagement was recorded during every fifth interval throughout each observation.
Active engagement was defined as sitting on carpet with hands and feet to self, eyes oriented to teacher or other speaker (including peer when appropriate) and actively participating in activity when opportunity to respond is given (for example, making a verbal response to a prompt to name a letter). In an attempt to more accurately measure active engagement, in addition to a scan sampling every 5 intervals, the number of students actively engaged was to be recorded after each prompt/practice opportunity given. Due to the high rate of practice opportunities and the number of prompts given within close proximity of one another, an accurate count of students engaged was not able to be consistently recorded for each prompt. Engagement percentages recorded in this study are based on engagement recorded every 5th interval rather than after each prompt. In studies measuring active engagement after each prompt as well as the accuracy of those responses, the number of practice opportunities was set to a specific number that was more manageable for observational recording (Inwood, 1995; Wolery & Ault, 1992). However, since rates of practice opportunities were measured as a dependent variable, specifying the number for each observational period was not feasible. Therefore, in order to limit the demands on the observers, using a strategy whereby observations of teacher instructional variables are alternated with observations of active engagement and practice opportunities. Another strategy could be to use multiple observers to measure different variables throughout the observation. For example, one observer could measure instructional variables, while the other observer measures active engagement and practice opportunities. A third way to improve observation and measurement would be to video record instructional periods in order for a single observer to measure all variables. This option may also aid in more accurate co-observations.

Conclusions, Future Directions, and Implications for Practice
Based on the results of the present study, there are many natural extensions and directions in which to proceed in the future. One such area, related to the providing instructional support through consultation involves videotaping teachers during instructional periods and asking those teachers to evaluate their own performance to compare with feedback provided by a consultant. This would help teachers to take more ownership over improving their own instructional practices. Another such extension would be to provide the opportunity for structured collegial support and feedback as a part of the consultation process. This would give teachers the occasion to observe and be provided with modeling opportunities in a natural setting. Additionally, building a system of instructional support through the use of colleagues is more sustainable in the long term than using a single non-teacher consultant.

A further area in which to extend the current study is to compare other instructional strategies in addition to choral responding and response cards. These may include response chaining, individual responding, and mixed responding types. This would allow for continued research into the optimal rate of practice opportunities at the preschool level as well as the optimal type or types of instructional strategies to reach that rate. To move in this direction, evaluating student growth and evaluating student learning through the use of formative progress monitoring tools based on skills targeted during instruction would be necessary. Determining a relationship between increased instructional supports, rate of practice opportunities, and active engagement, and an increase student learning would allow teachers and consultants to employ the optimal combination of support and instructional strategies to achieve the highest student gains. Examining secondary variables included in this study such as modeling, managerial variables, error correction and positive praise and their relationship to student engagement and learning would be another logical extension of the present study.
The implications to be gleaned from the current study include the practicality of the choral responding and response card instructional strategies. The use of these strategies did increase the use of practice opportunities during whole class instructional time. There did seem to be higher rates of practice opportunities during the choral responding strategy since there are no external materials needed, but higher engagement with the response cards. As such, the use of the response card strategy may have some advantages over the choral responding strategy. These include holding student attention and focus better than its counterpart. Additionally, this strategy allows for physical movement which may benefit students with attention and focus difficulties. Response cards also provide non-verbal students with the opportunity to participate in group instruction and offer responses. The response card strategy is more easily tailored to students that may have special needs.

Implications for instructional practice based on the current study indicate that teachers were more likely to implement new strategies when they felt adequately supported. During the baseline and feedback phases, none of the teachers implemented any of the instructional strategies to increase practice opportunities despite having discussed them during a professional development meeting. It was not until the consultant introduced it during the last phase that the teachers implemented the strategies. This indicates the necessity of having a consultant to guide, model and help with implementation of new instructional strategies. Based on social validity results, teachers indicated that they liked the instructional support and feedback consultation process.

Due to the practicality of this study and the focus on improving instructional practices in the classroom setting which directly impacts student outcomes, the argument for continued research in this area is inherent. Based on the findings of the present study, there is still a need to
determine the best way in which to support teachers and the best whole group instructional strategies to use in order to improve outcomes for students.
References


active participation and social behavior of students with moderate and severe

163-197.

Developing service delivery systems. In S.C. Paine, G.T. Bellamy & B. Wilcox (Eds.),
*Human services that work: From innovation to standard practice* (pp. 149-165).
Baltimore, MD: Paul H. Brookes Publishing.

to young children: A 2 and 3 year follow up and a new preschool trial. *Journal of
Educational Psychology, 87*, 488-503.


Levin (Eds.), *Single-case design and analysis* (pp.187-212). Hillsdale, NJ: Lawrence
Erlbaum.

(Eds.), *Best practices in school psychology* (Vol. 4, pp. 721-735). Bethesda, MD:
National Association of School Psychologists.


participation, academic achievement, and on-task behavior during whole-class, math


National Early Literacy Panel. (2006, March). *Findings from the National Early Literacy Panel: Providing a focus for early language and literacy development.* Presentation at the annual conference of the National Center for Family Literacy, Louisville, KY.


York: Guilford.


response to intervention (pp. 1-12). New York: Guilford Press.


Psychoeducational Assessment, 22, 304-319.


Appendix A

Dear Teachers,

I am a doctoral student in school psychology at the University of Cincinnati. This year I will be conducting a research project at your school. My goal is to help you improve your student outcomes in early literacy skills (rhyming and alliteration) and the instructional strategies you use during circle time. I will help provide instructional support to reach this goal. We would like to document the effects of our support, your implementation of the strategies and the effect that it has on student early literacy outcomes. We would like to share these results with other professionals in the field. This letter is to invite you to participate in this research study.

Through your participation, we will be able to document effective practices in consultation and instructional support and strategies. We will summarize outcomes in research reports. The reports will help us see how we can better support teachers to provide effective instruction. Individual names of people or the school will not be included in our reports. The research may be shared at national conventions and in journals. We would appreciate your help.

Sincerely,

Heidi Haski, M.Ed.

School Psychology Doctoral Student

University of Cincinnati

haskih@email.uc.edu
Title of Study: Increasing student engagement and embedded learning opportunities in early literacy instruction through teacher instructional support and feedback

Introduction:
Before you agree to be a part of this study, it is important that you know what it is. This form describes the parts of the study. It describes your right to leave the study at any time. It is important to know that no promise can be made as to the results of the study. You are invited to participate in this study being supervised by Heidi Haski and Dr. David Barnett.

Purpose:
The purpose of this study is to examine whether providing instructional support for teachers will increase engagement and practice opportunities for students. We will also look at two the effects of two instructional strategies on student engagement and practice opportunities. These instructional strategies are based on techniques that have demonstrated effectiveness. The goal is to help teachers to implement good instructional strategies and research-based interventions in the classroom. Some of the UC graduate students will work on the study as a part of their training. Approximately 5 teachers will be involved in this study. Your participation will not go past the end of the school year.

Procedures and Length of Study:
We believe there is very little risk to being in the study. This study will take place during circle time. This study will involve brief observations during circle time and center time lasting 20 minutes. These observations will be conducted 2 times per week. A staff development focusing on early literacy (rhyming and alliteration), effective instructional strategies, active student engagement and productive practice opportunities will be a part of this study. UC students will serve as consultants to provide instructional support. As a part of the support, consultants will collaboratively meet with you weekly for approximately 10-15 minutes to set goals, provide support and feedback, answer questions and review data from observations. Additionally, two research-based instructional strategies will be used during circle time. These strategies include
choral responding, whereby students respond to teacher prompts as a group and response cards, involving students using a physical prop to signal responses to prompts. These strategies will focus on rhyming and alliteration early literacy skills.

For the study, we will also look at demographic information (gender, racial/ethnic background, and years of experience) and information from a rating scale evaluating the consultation and interventions procedures filled out upon completion of the study. Also, your permission is requested for the possible use of observational data from mental health consultant fall observations of each classroom. You might be a part of the study for up to 12 weeks. We would like to possible share the ideas with other educators in professional journals and at conferences. Information will not be used unless you agree to participate. There is no direct benefit to you from our study. However, through the consultation process you may gain information that may help you better serve students in the future.

Risks:
While we do not anticipate any risk or discomfort, you may experience discomfort in this study. Maybe you won’t like having researchers observe in your classroom. If you have any discomfort you can talk to the researchers and see if your worry can be taken care of. You may also want to leave the study. All of these would be acceptable options. You are in control of your involvement. If you choose to withdraw from the study the researchers will stop observing in your classroom and any records thus far collected will be destroyed and shredded or deleted.

Confidentiality:
No information that is presented or published will identify you or the school. All information will remain confidential. Data will be kept in a secure locked office. No data will be kept by researchers that have the students’ or teachers’ names. Data will be kept for five years and then it will be destroyed. The information from the study may be published; however, you will not be identified by name.

Right to Refuse or Withdraw:
Your taking part is voluntary. You may refuse to leave the study AT ANY TIME without any consequences.

Offer to Answer Questions:
If you have any questions about this study, you may call Heidi Haski, M.Ed. at 513-543-0551 or Dr. David Barnett, 513-556-3338. The Chair of the Institutional Review Board Social & Behavioral Sciences can be called for questions about your rights as a participant in this research at 513-558-5784.

Legal Rights:
Nothing in this form ignores any legal right you have. This permission does not release the research, the institution, or its agents from responsibility for neglect.
I HAVE READ THE INFORMATION ABOVE. I FREELY CONSENT TO TAKE PART IN THIS STUDY. I WILL GET A COPY OF THIS PERMISSION FORM FOR MY INFORMATION.

_____________________________________     __________________
Signature of Participant                        Date

_____________________________________     __________________
Signature of Person Obtaining Consent          Date
Appendix C

UC Consultant Consent to Participate in a Research Study
College of Education, Criminal Justice, and Human Services, University of Cincinnati (UC)

Heidi Haski, M.Ed. Principal Investigator
513-543-0551 haskih@email.uc.edu

Dr. David Barnett, Ph.D. Co-Principal Investigator
513-556-3338 David.Barnett@uc.edu

Title of Study: Increasing student engagement and embedded learning opportunities in early literacy instruction through teacher instructional support and feedback

As a consultant and data collector in the instructional support study, we are asking for permission to include your demographic information in the research report. This information may be helpful for readers of the research to decide whether the findings can be generalized. The information we would like to include would be your gender, racial/ethnic background, and year in graduate training.

Permission for including your demographic information in the study is by your choice. If you do not give permission, this information will not be reported.

If you have any questions about this study, you may call Heidi Haski, 513-543-0551 or Dr. David Barnett, 513-556-3338. The Chair of the Institutional Review Board Social & Behavioral Sciences can be called for questions about your rights as a participant in this research at 513-558-5784.

I HAVE READ THE INFORMATION ABOVE. I VOLUNTARILY AGREE TO REPORTING OF MY DEMOGRAPHIC INFORMATION. I WILL GET A COPY OF THIS CONSENT FORM FOR MY INFORMATION.

Consultant’s Name_________________________ Gender __________
Racial/Ethnical Background_______________ Year in Graduate Training____

_________________________________     __________________
Consultant’s Signature                      Date
Appendix D

Consultant/Data Collector Training Agenda

[ ] Overview of the study
[ ] Role of the consultants
[ ] Obtaining teacher consent
[ ] Consultative activities - Discussion of feedback/goal setting and weekly follow up agendas
[ ] Data collection and training on observation tools
[ ] Guidelines for the ethical treatment of participants
[ ] Questions/comments
Appendix E
Choral Responding Scripts

1. ____ Give class prompt or question (cuing).
2. _____Cue the students verbally 5-4-3-2-1 to allow adequate wait time (wait time).
3. ____ Prompt students to answer in unison (choral response).
4. ____ Provide feedback on whether majority answer was correct or incorrect (feedback).
5. ____ Meet goal number of practice opportunities per session (number of practice opportunities).
Appendix F

Response Card Scripts

1. ____ Give class prompt or question (cuing).

2. ____ Cue the students verbally 5-4-3-2-1 to allow adequate wait time (wait time).

3. ____ Prompt students to hold up response cards (Response Cards).

4. ____ Provide feedback on whether majority answer was correct or incorrect (feedback).

5. ____ Meet goal number of practice opportunities per session (number of practice opportunities).
Appendix G

Professional Development Meeting Agenda

- Welcome/review Agenda

- Review 3 Tiers of Literacy Data – what it represents, etc.

- Time for teachers to complete worksheet to analyze data from their own classroom

- Discussion about data
  - 1 literacy activity you’ve done this week at circle time
  - 1 literacy activity you’ve done this week at center time
  - How do you feel about your winter outcomes?
  - How would you feel if your spring cone looked like the ideal?
  - What’s one thing I can do differently between now and spring to move my outcomes toward the ideal?

- Effective Instructional Strategies
  - 5 Big Ideas of Literacy from National Reading Panel
  - Creating Practice Opportunities
  - Choral Responding
  - Response Cards

- Questions and Comments
Appendix H

Quick and easy ways to increase practice opportunities in your classroom

What are practice opportunities?
- A practice opportunity is any occasion that allows a student to apply or “practice” the skills they are learning. For example, if students are learning about rhyming, a practice opportunity might involve the teacher holding up a spoon during lunchtime and asking the class, “What rhymes which spoon?”
- Practice opportunities and student responses may look very different depending on the skills that are being taught, e.g. social skills, letter naming, etc.
- Active responding is when a student gives a response that can be observed by a teacher. For example, verbal responses, holding up cards to indicate answer, etc.
- Passive responding does not involve any outward expression of an answer. For example, listening to the teacher, watching others respond, etc.

Why is it important to add opportunities for students to actively respond to instruction?
- Students “learn by doing” (actively answering teacher questions and responding to prompts)
- Classrooms that include plenty of opportunities for students to actively practice the skills being taught have shown higher levels of achievement.
- Teacher is able to receive immediate feedback on the effectiveness of the instruction.
- Teachers are able to ensure that students understand the material adequately before teaching something new.
- Students that are actively responding are more likely to be on task and are less likely to be disruptive

Pacing and Number of Practice Opportunities
- A fast pace keeps students’ attention.
- Down time between practice opportunities or questions is limited. When the students respond, the teacher immediately either begins the directions for the next question or the correction to the current task.
- Oral tasks are especially adaptable to fast paced instruction and questioning.
- Giving children about 10 to 15 opportunities to respond per minute is a good goal for most tasks.
- Young children especially need frequent changes in tasks. For example, a teacher might work intensively for 3 to 5 minutes on a letter-sound task and then spend 15 seconds acknowledging students’ efforts and praising before switching to a phonemic awareness task for 3-5 minutes.

What are some easy ways to incorporate more practice opportunities in my classroom?
- Choral responding techniques
- Response card techniques
- Incidental teaching during center time, meal times, etc.
What is choral responding?
- Choral responding is simply when all the students answer a teacher’s question or complete a task all at the same time.
- Choral responding increases student involvement in a classroom activity and gives all students the opportunity to respond unlike individual turn taking.

How does it work in the classroom?

<table>
<thead>
<tr>
<th>Steps</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Provide clear directions and model one or two trials.</td>
<td>(Teacher) &quot;Listen. Get ready to tell me whether hat and hand start with the same sound.&quot; [pause, give response cue] (Students) &quot;yes!&quot;</td>
</tr>
<tr>
<td>2. Provide a thinking pause if needed.</td>
<td>Let the complexity of the question/problem and students' level of mastery determine the length of pause (probably not more than 5 or 6 seconds).</td>
</tr>
<tr>
<td>3. Use a clear signal or cue to indicate when students are to respond.</td>
<td>To indicate when students are to respond, (e.g. &quot;class.&quot; &quot;How many?&quot; a quick hand or arm movement, pointing, showing a picture, etc.). Use a &quot;get ready&quot; signal if the thinking pause is longer than a few seconds.</td>
</tr>
<tr>
<td>4. Provide feedback for the &quot;majority&quot; response.</td>
<td>When only correct answers are heard, that is, all are correct -- &quot;Yes!&quot; &quot;Great!&quot;, etc. When just one or two incorrect answers are heard, that is, a few errors -- &quot;Yes, hat and hand start with the same sound,&quot; Repeat same question again later. When more than a few incorrect answers are heard, that is, about 1/3 or more incorrect responses -- provide correct answer and immediately repeat item for Choral responding. Repeat same item again a few questions later.</td>
</tr>
<tr>
<td>5. Randomly call on individual students from time to time.</td>
<td>This can be used to boost student self-esteem. Present the item first, (so that entire class is still paying attention) then call on individual student's name instead of giving the Choral Responding signal. Do not try to catch students making errors. Instead set up students for success in front of peers.</td>
</tr>
</tbody>
</table>
What are Response Cards?
- Response cards are cards, signs, or items which are simultaneously held up by all students in class to display their response to a question or problem presented by the teacher.
- A potential advantage that response cards have over choral responding is that the teacher can easily detect the responses of individual students, which can be difficult with choral responding.

Suggestions for Using Response Cards:
- Response cards are likely to be more effective when used to give students many active responses within a short time period (5-10 minutes) and/or when interspersed during a lesson.
- Model using response cards and provide students with practice on how to use them.
- Maintain a lively pace (i.e., keep inter-trial intervals short).
- Provide clear and consistent cues for students to hold up and put down their cards.
- Give feedback based upon the majority response. (See Choral Responding)
- Remember that students can benefit and learn from watching others. Don't let students think it is cheating to look at classmates' response cards.
- Make the cards easy to see. Consider the size, print type, color codes, etc.
- Make the cards easy for students to manipulate and display.

Examples:
- Yes or No card
- Pinch card - each student is given a single card with multiple answers (e.g., a card with clearly marked sections different answers). The student holds up the card with thumb and forefinger "pinching" the part of the card displaying his or her answer. Brightly colored clothespins also make excellent "pinching" tools; students simply clip the pin or attach the marker to the selected part of the response card.
Appendix I

Measurement Code

Date: __________  Classroom Number: _______  Number of Children Present: ________

Number of Adults Present: _____  Co-Observation: _____yes _____no  Observer: ___________

Start Time: ______________  End Time: _______________

Interval Length – 15 seconds partial interval

<table>
<thead>
<tr>
<th>Instructional Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Response Cards</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Choral Responding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|  **Modeling** | | | | | | | | | | |
| **Error Correction/Feedback** | | | | | | | | | | |
| **Incidental Instruction** | | | | | | | | | | |

| **Managerial Variables** | | | | | | | | | | |
| **Positive Managerial** | | | | | | | | | | |
| **Negative Managerial** | | | | | | | | | | |
| **Praise/Positive Attention** | | | | | | | | | | |
| **Student Scan Sampling** | | | | | | | | | | |
| **Active Engagement** | | | | | | | | | | |

|  **Frequency Count** | | | | | | | | | | |
| **Practice Opportunities/Prompts (Tally marks)** | | | | | | | | | | |
| **Type: Response Card** | | | | | | | | | | |
| **Type: Choral Responding** | | | | | | | | | | |
| **Type: Individual Engagement** | | | | | | | | | | |
| **# of students actively Responding** | | | | | | | | | | |
Scoring and Behavioral Definitions

All of the teacher behaviors (instructional and managerial), with the exception of practice opportunities, are scored using partial interval measurement by placing a check mark in each interval where the behavior occurred.

Instructional Variables

Modeling occurs when a teacher provides a child or group of children with assistance or other type of adult initiated opportunities to observe a behavior that will later serve as a guide for the child’s own behavior.

Example: A teacher is reading a book to a child and using her finger to demonstrate how to move from the left side of the page to the right side.

Error Correction/Feedback involves an adult providing instructional verbal feedback to a child following an incorrect or inappropriate verbal or physical response made by the child. Error Correction/Feedback occurs only when an adult provides a student with a specific replacement behavior or response.

Example: The teacher brings two pumpkins in to circle time to share with the children. She says, “Today we are going to talk about pumpkins. What color is our pumpkin? A child responds by saying, “blue.” The teacher says, “No, it’s not blue, I think it’s orange but it also has a couple of spots of yellow over here…”

Incidental Instruction occurs when a teacher provides learning opportunities or instruction in a context that is initiated by a student and uses the student’s interests and activities to elaborate.

Example: A student tells the teacher that he went to the park yesterday. The teacher asks the student, “What did you do at the park?” The student replies, “I like to run.” The teacher replies, “Running is lots of fun at the park. What kind of feet do we use in the classroom?”

Managerial Variables

This category is scored by scoring the method(s) used by the teacher to manage the students’ behavior.

Teacher Managerial – Positive and Instructional (TM – P&I). Teacher delivers verbal reminder to child or group of children engaged in an inappropriate behavior where the reminder includes:

- Firm but pleasant tone of voice
- Getting child’s attention by making eye contact or saying name (or using signal to get group attention if addressing entire group)
- Providing one of the following:
Replacement behavior (Do you remember how we…specific behavior inserted).
Explanation (Don’t swing your arms like that, you could hurt someone).
Practice (Let me see you sit criss cross applesauce on your name).
Choice (of activities or reinforcers).

***This category is also scored when the teacher is teaching rules or routines to a child or group of children.

Teacher Managerial – Non-Instructional (TM – NI). Teacher engages in negative scanning of class or group or delivers verbal reprimand to a child engaged in inappropriate behavior with one of the following:

- Does not get child or group’s attention first
- Does not provide explanation of what child did that was inappropriate or an appropriate replacement behavior
  Example: “Stop doing that right now.” OR “You are being too loud.”

Other Positive Attention (OPA). This category is scored when an adult provides verbal reinforcement such as praise or specific verbal feedback regarding the appropriateness or desirability of a behavior.

Examples:

- During circle time the teacher says, “Melissa, I see that you are ready to listen to the story. Joey told me he likes this story.”
- A teacher says, “I like the way that you are sitting quietly Amanda.”
- During circle time the teacher notices that a student is laying on his back on the floor so she says, “Tyler I need you to sit up on your bottom and face me.” Tyler quickly sits up on his bottom and faces the teacher and she says, “Thank you Tyler.”
  (Scored Teacher Managerial: Positive and Instructional and Other Positive Attention)

Active Academic Engagement - (Scan Sampling)

Active Engagement will be recorded during every fifth interval throughout the observation. The number of students actively engaged in the instruction will be counted every fifth interval and will be divided by the total number of students present and multiplied by 100 to determine the percentage of students actively engaged. Additionally, the number of students actively engaged will be recorded after each prompt/practice opportunity is given.

Active engagement is defined as sitting on carpet with hands and feet to self, eyes oriented to teacher or other speaker (including peer when appropriate) AND actively participating in activity when opportunity to respond is given (for example making a verbal response to a prompt to name a letter).
Prompts/Practice Opportunities – (Frequency Count)

Prompting/Providing a Practice Opportunity involves an adult making a verbal statement to initiate a response. The verbal statement can be made with or without a physical prompt. It also occurs when an adult provides a student with an opportunity to practice by having them perform a skill or verbally re-state information that has been provided. The type of opportunity/response required was recorded with a tally mark as choral responding (all students verbally answering the question in unison), response card responding (students hold up a card to indicate his/her response), or individual responding (one student answers question).

Example: During circle time the teacher says, “Today is Thursday, what day comes after Thursday?” (Teacher Directed Instruction and Prompt/Practice Opportunity)
Appendix J

Social Validity

Acceptability Questionnaire

Purpose: The purpose of this questionnaire is to get feedback concerning your overall satisfaction with the intervention(s) implemented in your classroom.

Directions: Please read the following statements and circle the number (1-5) that best describes your agreement or disagreement with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>I liked the teacher support/consultation process</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I would work with consultants using this process in the future</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I thought having a staff development prior to beginning the support/consultation was helpful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I liked meeting weekly with the consultants to review the observational data</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The intervention script was easy to follow</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I liked the procedures used in this intervention</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The intervention was easy to include in my daily routine</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I would be willing to use this intervention in the future</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Overall, this intervention was beneficial for the student(s)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Please make any additional comments below.

(adapted from Erhardt et al., 1996 and Martens, Witt, Elliot, & Darveaux, 1985)
Appendix K

Feedback and Goal Setting Meeting Agenda

[ ] Share data and show graphs from baseline observations on practice opportunities

[ ] Share data and show graphs from baseline observations on engagement

[ ] Discuss appropriate goal levels with teachers for both engagement and practice opportunities

[ ] Collaboratively set goals with teachers

[ ] Discuss next steps in the study – set next meeting/observation times

[ ] Questions or Concerns?
Appendix L

Weekly Meeting Agenda

[ ] Share data and show graphs from baseline observations on practice opportunities

[ ] Share data and show graphs from baseline observations on engagement

[ ] Discuss goal levels with teachers for both engagement and practice opportunities

[ ] Are teachers meeting goals for engagement and practice opportunities? Why not?

[ ] Review instructional adherence data with teachers and provide performance feedback.

[ ] Are teachers implementing interventions as they were designed? If not, conduct problem-solving and troubleshooting according to Response to Intervention Checklist.

[ ] Questions or comments?