

Advancing instructional coaching with teacher formative assessment and input

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Literacy Program Evaluation and Development Initiatives for P–12 Teaching

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Chapter 3

Advancing Instructional Coaching with Teacher Formative Assessment and Input

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ABSTRACT

With increased attention to teacher quality and accountability, instructional coaching has emerged as a popular form of teacher support and professional development in literacy and other areas of instruction. Despite significant interest from school personnel, researchers, and federal funders, there remains a lack of consensus around the key components and activities of instructional coaching. To that end, studies that use quantitative and qualitative methods can offer valuable information on the development and validation of coaching practices. This chapter briefly describes the Classroom Strategies Assessment System Coaching Model that draws on the adult learning and formative assessment literature. We offer key observations of educators' knowledge of and experience in instructional coaching from focus groups conducted with teachers in high-poverty, urban elementary schools. Directions for practice and research are discussed.

INTRODUCTION

Literacy skills are a crucial foundation for academic and personal growth throughout a child's P-12 experience, and on into adult life. The development of the skills and knowledge we use to read and write

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begins early in life, yet so too begin skill deficits that affect later learning and opportunities. Children from families living in poverty may start their formal educational experiences with substantially lower exposure to, and development of language (Hart & Risley, 1992) or early literacy skills (Chatterji, 2006). Literacy gaps allowed to persist over the first years of schooling are associated with a range of subsequent risks, including an increased risk of failure to graduate high school on time (Hernandez, 2011). Classroom teachers thus have a critically important mission—particularly those of students in the elementary years from traditionally underserved populations.

Teaching is a complicated profession, and effective teaching requires specialized skills and knowledge. Teachers must know what to teach and they must be aware of the specific skills students need to learn, and how these skills are associated and develop. Moreover, teachers must be skilled in the management of classrooms and the delivery of instruction. As with other highly specialized professions, attaining the knowledge and skill necessary to achieve or maintain proficiency in these areas requires more time and support than pre-service teacher education programs can offer. Teachers' needs for ongoing professional development in literacy teaching might include gaining awareness of literacy standards, increasing understanding of the interrelationships between reading subskills, or the how specific instructional strategies interact differently with students' acquisition of skills at different stages in learning development. Each of these areas for development represent important aspects of literacy instruction. Thus ongoing professional learning is a necessity for teachers, yet gaining new knowledge and skill for teaching can be a challenge. The success of professional development may be limited by factors such as the match between teachers' needs and training offered, constraints imposed by the format of the training (i.e., workshops outside the classroom or school building), and the extent to which knowledge or skills obtained by teachers translate into improved student learning.

Research on professional development for teachers has been conducted to some degree since the mid-twentieth century, yet the attention given to this important aspect of teachers' work was limited until the 1990s and 2000s (Borko, 2004; Wilson & Berne, 1999). Early work by Joyce and Showers gradually produced evidence that lasting improvement in teaching practice could be achieved, and would require a mixture of training, practice, and follow-up (Joyce, Showers, & Bennet, 1987). As a result of these efforts, interest in job-embedded professional development increased and a variety of new programs or models inspired by their findings have appeared—giving rise to the now popular term “instructional coaching.” Coaching as a form of professional development (for literacy instruction in particular) has seen increased interest in educational legislation, from literacy coaching prompted by elements of the No Child Left Behind Act (NCLB, 2001), to recent funding initiatives for the development and implementation of coaching in the Every Student Succeeds Act (ESSA, 2015).

The science of coaching as a form of professional development for teachers is emerging; there is a need at this time for additional examination of the ways in which components and activities of coaching are associated with specific teacher and student outcomes. This is particularly true in the domain of literacy instruction. Our scientific knowledge of the development or acquisition of literacy skills is arguably greater than that for development of other academic skills (e.g., mathematics, science, writing), yet historic gaps in literacy achievement persist (Kena et al., 2015). The challenge is to identify ways in which ongoing professional development can best support teachers' acquisition and application of best practices in literacy instruction.

In this chapter we describe current gaps in this area of research with respect to the components and activities of coaching, and how these relate to teacher and student outcomes. To that end, we describe the literature on adult learning and teacher formative assessment and introduce the Classroom Strategies

Assessment System (CSAS) Coaching Model that is focused on enhancing classroom practices through formative assessment of teaching. Although the CSAS Coaching Model is applicable across academic skill domains, the results of this line of research may produce for literacy coaches. Second, key observations from elementary school teacher focus groups that examined educators' knowledge of and experiences with coaching are presented briefly to highlight opportunities for future innovation. Finally, directions for educational practice and research are offered.

COACH-BASED PROFESSIONAL DEVELOPMENT FOR TEACHERS

Maximizing professional development opportunities for teachers as a mechanism for improving teacher performance has also become a national focus in the US, yet these programs have yielded mixed results. Few large scale studies have directly measured the effects of professional development on teacher learning and professional growth (e.g., Carlisle, Correnti, Phelps, & Zeng, 2009; Goldschmidt & Phelps, 2010). Often, traditional professional development models (e.g., one time workshops) are short in duration, lack follow-up support, and do not consistently translate into changes in teacher instructional practices (e.g., Desimone, Porter, Garet, Yoon, & Birman, 2002; Goldenberg, & Gallimore, 1991; Sparks, 1983; Ward, 1985; Yoon, Duncan, Lee, Scarloss & Shapley, 2007).

As a result of increased attention to teacher quality and accountability, instructional coaching has emerged as a popular form of teacher support and professional development. Despite the proliferation of instructional coaching models to support teachers' use of new educational practices, enthusiasm for these professional development models has not been matched with rigorous evaluations of how such models impact teacher or student learning (e.g., Cornett & Knight, 2009; Denton & Hasbrouck, 2009; Feiman-Nemser, 1996).

Instructional coaching is a particularly appealing form of support for teachers because it circumvents the "transfer of training" problem that plagues traditional professional development models (e.g., Riley-Tilliman, & Eckert, 2001; Rose & Church, 1998; Salas, Tannenbaum, Kraiger, & Smith-Jentsch, 2012; Shernoff et al., 2015). This "transfer" problem relates to a trainee's inability to generalize the knowledge and skills developed in one setting (like a workshop on classroom management) to a new context (e.g., the classroom). These low generalization rates have led researchers to more closely examine specific features of professional development that lead to sustainable instructional improvements and enhanced student learning (Carlisle & Berebitsky, 2011; Garet et al., 2008). A meta-analysis of the effect of training and coaching on teacher instructional practices by Joyce and Showers (2002) documented that 25% of teachers transfer a new skill into practice when training involved only theory, discussion, demonstration, and practice whereas 90% of teachers transfer a new skill into practice when training involved instruction, modeling, practice and repeated data-driven feedback (Joyce & Showers, 2002).

Instructional coaching is understood to be able to maximize transfer of training for two reasons. First, coaching embodies what is known about how adults learn and the critical role that active learning (e.g., modeling, demonstration, ongoing performance feedback and visual display of progress) plays in teachers' acquisition of new instructional skills (Garet et al., 2001; Scott, Cortina, & Carlisle, 2012). For example, recent reviews of the literature on the use of reading coaches as a follow-up to traditional training demonstrated increased implementation quality and improved student achievement (Kretlow & Bartholomew, 2010; Speck & Knipe, 2001). Second, because many instructional coaching models are job-embedded and classroom focused, this form of support increases the likelihood that teacher learning

has close proximity to practice and is directly focused on authentic classroom challenges and student learning (Carlisle & Berebitsky, 2011; Penuel et al., 2007).

Many educators now occupying positions with titles including the term “Coach” or “Specialist” focus on literacy instruction. Instructional coaching, as it is discussed in this chapter, may be considered a broad term that encompasses roles such as literacy coach. As outlined in the standards created by the International Literacy Association, a literacy coach is a professional educator with specialized knowledge of literacy skills and instruction who may provide services directly to students, instructional leadership to teachers, or coordination at a systems level (International Reading Association, 2010). Beyond describing a literacy coach’s potential involvement in supporting teachers’ growth in teaching reading, the standards offer little guidance on specific details on the nature of coaching offered to teachers, which may be taken as a reflection of the status of research in this field. A diverse array of recent work has been accomplished on coaching to improve early and elementary literacy instruction in multiple contexts. Examples include models of coaching designed to assist teachers of pre-school age children in vocabulary or early literacy development (e.g. Neuman & Cunningham, 2009; Wassik, 2010), or models in which coaches work directly with teachers to analyze student reading achievement data and implement class-wide interventions (e.g. Denton, Swanson, & Mathes, 2007). Yet while research on coaching for literacy instruction has produced a range of models and some evidence supporting their use, the body of scientific knowledge on the functional relationships between the components of these models and activities of coaches within them is limited in comparison.

GAPS IN THE LITERATURE ON COACHING

Although instructional coaching has been highlighted as a promising supplement to traditional professional development (Desimone, Porter, Garet, Yoon, & Birman, 2002; Garet, Porter, Desimone, Birman, & Yoon, 2001), gaps exist in the instructional coaching literature that warrant further attention. Coaching is regarded as an iterative process that occurs between a coach and at least one teacher. Existing coaching models are diverse and often characterized by their intended outcomes rather than key components that constitute the model, and the actions of participants in the process. Broadly speaking, these gaps can be described as relating to the components or key features of coaching, and the processes or activities through which coaching occurs.

Components of Coaching

Coaching is not clearly operationalized in the literature, and its key features or core components remain ambiguous (e.g., Blachowicz, Fogelberg & Obrochta, 2005; Denton & Hasbrouck, 2009; Duessen et al., 2007; Galluci et al., 2010). Components of coaching, which include variables associated with the structure or arrangement of coaching, vary across models and implementations. For example, the duration and frequency of coach and teacher interactions represent a temporal or scheduling component; the ideal amount of time coaches and teachers meet and the time between meetings is unknown for any particular professional development objective. Potential components also include the characteristics of individuals involved, such as professional knowledge and qualifications, psychological variables such as personal or professional efficacy and interpersonal skills, or the roles such individuals are expected to fulfill.

Instructional coaching related to literacy and reading has been studied more than other content areas such as mathematics and science. Substantial federal initiatives and funding have mandated integration of instructional coaches into reading support, particularly in high poverty communities where rates of reading problems and disruptive behaviors exceed national averages (Aud et al., 2010; Tolan & Henry, 1996). Deussen, Coskie, Robinson, and Autio (2007), in their analysis of survey data on the implementation of literacy coaching in Reading First schools, reported a wide variety of literacy coach characteristics such as coaches with and without advanced training in literacy, educational attainment, areas in which degrees were attained, and years of teaching experience. The extent to which coach characteristics relate to coaching competencies remains unknown.

Bright and Hensley (2010), in their review of Reading First reports based on groups of literacy coaches in 15 states, describe an equally mixed landscape of literacy coach backgrounds and credentials, as well as a diverse array of coaching roles spanning multiple levels and domains. The roles of literacy coaches in this report involved consultation with teachers for individual students, assistance with planning instruction, development of instructional delivery, in addition to systems-level roles (facilitating grade level team meetings) and administrative roles (coordination of reading assessment and management of data).

Activities of Coaching

The relationships between specific activities of coaching and improvements in teachers' practices and student outcomes are not well understood. Possible factors may include the variety and quantities of behaviors in which the coach engages while working with teachers, such as the type of explanation and modeling provided, the manner in which data are collected, or how feedback is delivered. Specification and documentation of what coaches and teachers do within this form of professional development is necessary to understand the relationship of those actions to the variety of intended teacher and student outcomes.

Addressing the Gaps

The need for additional empirical investigation to advance our understanding of instructional coaching "best practices" does not necessarily stem from a lack of coaching models. Rather, there is a need for more systematic research on the functional relationships that exist between specific coach, teacher, and student actions and characteristics. Denton and Hasbrouck (2009) asserted that instructional coaching is a broad term that might be used to describe a wide range of coach and teacher activities, and applied in support of a wide variety of intended outcomes; they concluded that "In a very real sense, practice has preceded theory in this area. Until coaching models are clearly defined, it will be impossible to determine whether specific coaching approaches result in improved teacher practices and, most importantly, in improved student outcomes" (pg. 172). Thus, beyond the fact that coaches tend to engage in some form of observation and meeting with teachers, there is little systematic knowledge at this time about the relationships that exist between features or key elements of coaching, specific coach or teacher behaviors, and subsequent outcomes for teachers and students.

In the sections that follow we advocate that formative assessment of teaching is an important component of effective coaching and powerful driver of coaching activities such as goal setting, implementation plan design, monitoring and feedback. We also provide a brief description of research on the CSAS Coaching Model, which is unique in its use of formative assessment of teaching practices, to set practice

goals, design implementation plans, provide performance feedback, as well as evaluate progress and goal attainment. In addition, input from focus group participants offers insight on how teacher feedback can help guide new questions for research on coaching. As this phase of research on instructional coaching is still within its infancy, insights gained from talking to teachers about their knowledge of and experiences with instructional coaching can highlight gaps in the existing literature and inform future coaching models (Shernoff et al., 2015). Teachers are key stakeholders in these activities; their input also informs methods to increase buy-in, implementation integrity, and transfer of skills from the context of training into the classroom.

FORMATIVE ASSESSMENT OF TEACHING IN COACHING

Various research efforts since the 1960s have attempted to account for teacher effects in understanding patterns of student achievement, including large-scale analyses of extant data as well as small-scale observational or descriptive studies intended to shed light on potential explanations for trends in student achievement (Darling-Hammond, 2000; Rivkin, Hanushek, & Kain, 2005; Wang, Haertel, & Walberg, 1993; Wenglinsky, 2002). Consequently, there is a substantial body of research literature establishing the teacher as a crucial factor in student learning. Perhaps more importantly, there has been a growing understanding that it is not the teacher as much as the *teaching* that matters most—it is not the presence of a particular teacher in the classroom, but is instead what the teacher does that matters most (e.g. Palardy & Rumberger, 2008). Decades of research on instruction has produced a knowledge base of individual practices that are effective in promoting learning in basic skills or content areas (e.g., Brophy & Good, 1986; Hattie, 2009; Rosenshine & Stevens, 1986; VanDerHeyden & Burns, 2005).

Research connects the use of such behaviors as summarizing, giving students many opportunities to respond (Skinner, Fletcher, & Henington, 1996), promoting metacognition, and praising or correcting students' responses (e.g. Lysakowski & Walberg, 1982) as being of particular value during instruction. Other strategies, such as provision of practice including variable levels of guidance or independence, are understood to be associated with greater learning gains in the context of student readiness relative to the instructional objective (e.g. Connor, Morrison, & Katch, 2004). Likewise, research highlights the value of classroom behavior management strategies such as provision of clear directives and specific behavioral praise (e.g. Sutherland, Wehby, & Copeland, 2000) as effective in promoting students' academic engagement.

This scientific knowledge base represents a major resource for teacher professional development and instructional coaching. Given the research on effective instructional and behavior management practices, it follows logically that assessment of their use by teachers could promote higher quality instruction. In their systematic review of literature on the use of coaching to enhance implementation fidelity Kretlow and Bartholomew (2010) concluded that the prominence of key instructional strategies in promoting learning "...suggest[s] the utility of a universal measure of instructional proficiency. Such a measure could be a helpful tool in making coaching a more transportable training practice." (pg. 293). Yet the development and validation of formative assessments of teaching is limited (Reddy, Dudek, & Shernoff, 2015; Reddy, Fabiano & Jimerson, 2013). Capturing information about teaching in a manner that produces reliable and valid data is a major challenge for researchers and practitioners. As described above, teaching comprises sets of behaviors that are used in concert to produce and respond to student learning.

Consequently, gathering meaningful information about instructional delivery and classroom behavior management requires attention to the complex interplay of multiple dimensions of teacher behaviors.

This complexity imposes substantial conceptual and methodological hurdles. Often, researchers interested in studying teacher practices rely on self-reports of practices—a method that is convenient, but limited in its ability to provide valid information about specific instructional practices (Mayer, 1999). Others have approached the challenge through development of rubrics based on frameworks of effective instructional practices (e.g. Danielson, 2013; Teemant, Wink, & Tyra, 2011). Yet these instruments tend to provide holistic information about teaching and the extent to which they produce data that distinguish between specific teaching strategies may be limited. Others have approached the challenge by limiting the focus of assessment to a specific academic domain or a more narrow range of teaching strategies (e.g. Reinke, Lewis-Palmer, & Merrel, 2008). This may provide data useful for successful implementation of a targeted intervention, but may be of less utility in strengthening core instruction. Each of these methods may also be limited by the amount or intensity of training and resources required for implementation.

In this chapter we describe a new coaching model (CSAS Coaching) that uses a skill-based teacher formative assessment to guide the coaching process (Reddy, Dudek, & Shernoff, 2014; Reddy & Dudek, 2014). A core component of this model is the iterative use of teacher practice data to identify instructional strengths and needs, form specific goals, design implementation plans, monitor implementation quality, provide feedback, and evaluate goal attainment. A system for the formative assessment of teaching is introduced (i.e., Classroom Strategies Assessment System; CSAS; Reddy & Dudek, 2016), which is embedded throughout the coaching process.

Formative Assessment of Teacher Practice: The Classroom Strategies Assessment System

Coaching models operating without data (from students or teachers) miss the opportunity to provide well-defined goals for desired change and the timeline for attainment of goals. Such models also lack the ability to objectively detect and respond to changes in teacher instructional practices and student learning and behavior. Coaching models cannot be evaluated if their components and processes are not well-defined and measurable. A lack of measurable components, activities, and outcomes prevents more systematic understanding of the ways in which coach behaviors and teacher behaviors interact, and how these actions ultimately impact student learning.

Therefore, the coaching model introduced in this chapter uses the Classroom Strategies Assessment System (CSAS; Reddy & Dudek, 2014), which is an observational assessment for measuring teachers' use of evidence based instructional and behavioral management practices related to student learning and behavior. Based on over 60 years of literature on effective teaching, the CSAS targets specific instructional and behavioral management strategies, and was designed to measure the frequency and quality with which they are used. The CSAS uses a three stage process of pre-observation conferencing, direct observation, and post-observation reflection to promote teachers' use of these evidence based strategies. Specifically, the CSAS counts the frequency of eight specific teacher practices and uses rating scales to capture information on high quality strategies related to five well-known dimensions of instruction and four dimensions of behavior management. The CSAS offers practitioners and researchers a method for assessing qualities of teaching objectively and repeatedly over time. Research on the CSAS has demonstrated good factor structure, internal consistency, inter-observer agreement, test-retest reliability and

freedom from item bias (Reddy, Fabiano, Dudek, & Hsu, 2013a; Reddy, Dudek, Fabiano, & Peters, 2015). Furthermore, the scores produced by observations with the CSAS have been shown to be predictive of student achievement as measured by state testing (Reddy, Fabiano, Dudek, & Hsu, 2013b).

The CSAS includes two forms: an Observer Form (CSAS-O) designed for trained observers (e.g., instructional coaches, teacher evaluators, or researchers) and a Teacher Form (CSAS-T) designed for teachers in self-reflection or assessment of their practices. The CSAS-O is completed in three parts: a classroom observation (Part 1), two strategy rating scales (Part 2) including a scale for Instructional Strategies (28 items) and one for Behavior Management Strategies (26 items), and a classroom checklist (Part 3) that includes 14 items assessing the presence of specific features or procedures observed in the classroom. The CSAS-T includes two parts: the two strategy rating scales and the classroom checklist that parallels the CSAS-O.

Part 1 of the CSAS-O is completed during classroom observation in which the observer tallies the occurrence of discretely observable instructional behaviors such as response opportunities, praise or corrective feedback, or verbal directives. Also during the observation, observers take notes relative to the Part 2 instructional and behavioral management strategy dimensions. Following the observation, observers use the tallies from Part 1 along with their dimension notes to inform the Part 2 rating scale metrics of the observed frequency of evidence based strategy use and the recommended frequency of evidence based strategy use. Discrepancy scores are calculated by obtaining the absolute difference between ratings of the observed strategy use and the recommended strategy use for each item. Larger discrepancy scores indicate a difference between what teaching strategies were observed and what the teaching strategies could have or should have been used differently during the observed period. In this way, CSAS discrepancy scores help observers and teachers identify potential skill areas in teachers' repertoire that may need improvement (i.e., large discrepancies) or are areas of strength (i.e., small discrepancies).

Comprehensive training is provided prior to use of the CSAS-O by certified trainers to ensure agreement of ratings across observers. Observer training occurs in four phases, and was designed to accommodate diverse backgrounds and educational experiences. First, trainees are introduced to the purpose of the CSAS, its structure, and the procedures required for its completion. Second, trainees learn the strategies measured by CSAS-O and how to reliably complete the CSAS-O. Third, trainees are provided opportunities to practice CSAS-O Part 1 observations and Part 2 ratings via use of classroom videos along with detailed feedback from experienced CSAS trainers. Finally, trainees must successfully complete and pass a certification test that uses the CSAS-O to rate several videos of classroom instruction (Reddy & Dudek, 2014) (see Tables 1 and 2).

THE CSAS COACHING MODEL

The CSAS Coaching model uses a problem solving framework that centers on the use of formative data from multiple ongoing classroom observations throughout the coaching process and duration. In this coaching model, CSAS data inform decisions related to identifying practice needs, forming goals, designing implementation plans, monitoring instructional delivery, and providing performance feedback. This model is distinct from other forms of coaching in that it focuses exclusively on increasing teachers' capacity to deliver highly effective classwide instruction, versus other aspects of teaching such as curriculum planning or implementation of targeted interventions for individual or small groups of students. Designed to be agnostic of student age, course content, or academic subject (such as reading, math, or

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Table 1. CSAS-O Part 1 instructional and behavior management strategies

Strategies	Definition
Instructional	
Concept Summaries	A teacher summarizes or highlights key concepts or facts taught during the lesson. Summarization statements are typically brief and clear. This teaching strategy helps students organize and recall material taught.
Academic Response Opportunities	A teacher creates opportunities for students to share their understanding of the lesson content with the teacher or class. These opportunities can be verbal or nonverbal responses (e.g., explain answers, repeat key points, brainstorm ideas, and show answers on the board).
Academic Praise	A teacher gives a verbal or nonverbal statement or gesture to provide feedback for appropriate academic performance.
Academic Corrective Feedback	A teacher gives a verbal or nonverbal statement or gesture to provide feedback for incorrect academic performance.
Behavior Management	
Clear 1 - 2 Step Directives	A teacher gives a verbal instruction that specifically directs a behavior to occur immediately. These directives are clear and they provide specific instructions to students to perform a behavior. They are declarative statements (not questions), describe the desired behavior, and include no more than two steps.
(Reducing) Vague Directives	A teacher gives a verbal instruction that is unclear when directing a behavior to occur immediately. These directives are vague, may be issued as questions, and often include unnecessary verbalizations or more than two steps.
Behavioral Praise	A teacher gives a verbal or nonverbal statement or gesture to provide feedback for appropriate behavior.
Behavioral Corrective Feedback	A teacher gives a verbal or nonverbal statement or gesture to provide feedback for inappropriate behavior.

social studies), the model includes equal emphasis on promoting the use of evidence based instructional strategies as well as classroom behavior management strategies.

The distinguishing feature of this model is the assessment of specific teaching practices at all stages of coaching. Prior to working with the coach, data on the teachers' instructional and behavior management practices are collected with at least two classroom observations using the CSAS. This helps inform the coaching process by establishing a baseline against which future observations of teaching practices may be compared. Once coaching begins, ongoing classroom observations using the CSAS are important for progress monitoring and the provision of feedback. Throughout this sequence the coach conducts at least two 30-minute observations using the CSAS-O between each meeting with the teacher. These observations provide data to help solidify establishment of realistic, but ambitious, goals and provide data that help coach and teacher evaluate progress in meeting goals as coaches and teachers review the CSAS observational data via numeric and graphic displays (i.e., bar and time series graphs) to monitor changes in teaching practices.

CSAS Coaching Sequence

Meetings between coaches and teachers are scheduled to occur weekly and last for at least 30 minutes. Although each of the meetings has a specific objective, the structure of each follows a standard pattern

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Table 2. Descriptions of the CSAS-O Part 2 Instructional Strategies (IS) and Behavioral Management Strategies (BMS) rating scales

IS Scales	Definitions
Total Scale	The Total IS scale reflects the overall use of Instructional Methods and Academic Monitoring/Feedback.
Instructional Methods Composite Scale	How classroom instruction occurs. Measures teachers' use of teacher directed or student directed methods. This includes how a teacher incorporates active learning techniques such as hands on learning and collaborative learning in the presentation of lessons as well as how a teacher delivers academic content to students.
Adaptive Instruction	Strategies teachers use to respond to their students' learning needs while teaching. These practices reflect teacher flexibility and responsiveness to students' needs, as well as methods of differentiated instruction.
Student Directed Instruction Subscale	Strategies for engaging students in the lesson, creating active learners, and encouraging self-initiative in the learning process. These practices encompass direct experience, hands on instructional techniques, linking lesson content to personal experiences, and cooperative learning strategies.
Direct Instruction Subscale	Methods for conveying information to students and strategies employed while teaching lesson content/concepts. These practices include modeling, advanced organizers, summarizing, and other instructional methodology.
Academic Monitoring/Feedback Composite Scale	How teachers monitor students' understanding of the material and provide feedback on their understanding. These strategies assess students' thinking and encourage students to examine their own thought processes. Teachers guide students understanding by encouraging students, affirming appropriate application of the material, and correcting misperceptions.
Promotes Student Thinking Subscale	Practices for stimulating students' metacognitive and higher order thinking abilities. They encourage students' to critically think about the lesson material (why/how analysis), generate new ideas, and examine their own thought processes.
Academic Performance Feedback Subscale	How teachers provide feedback to students' on their understanding of the material. These practices assess teacher efforts to explain what is correct or incorrect with student academic performance.
BMS Scales	Definitions
Total Scale	The Total BMS scale reflects the overall use of Proactive Methods and Behavior Feedback.
Behavior Feedback Composite Scale	How teachers respond to students appropriate and inappropriate behaviors. This includes the usage of praise to encourage positive behaviors and corrective feedback to redirect negative behaviors.
Praise Subscale	Verbal and nonverbal strategies teachers use to praise students for specific appropriate behaviors in the classroom.
Corrective Feedback Subscale	Verbal and nonverbal strategies teacher use to redirect or correct students' inappropriate behavior in the classroom.
Preventative Methods Composite Scale	Strategies teachers use to promote positive behaviors in the classroom and reduce the likelihood of negative behaviors. These strategies include prompts, routines, reviewing rules, and presenting instructions or requests in a clear manner.
Proactive Methods Subscale	Proactive verbal and nonverbal strategies teachers use to promote positive classroom functioning and establish effective learning environments. These practices include taking actions to prevent problem behaviors from occurring, establishing clear and consistent expectations, and creating a positive atmosphere in the classroom.
Directives Subscale	Strategies teachers use to communicate their behavioral requests to students and manage the movement and behavior of students during class transitions.

throughout the model. Each meeting begins with a review of the CSAS formative assessment data and a review of the teachers' implementation of specific practices. This is followed by discussion focused on development or review of implementation plans and communication of next steps. Coaches maintain logs of each meeting, and provide teachers written summaries of after each session.

Identification of Needs and Goal Setting

The coaching process begins with baseline CSAS-O data collection to identify strengths and potential practice needs based. Coaches review the baseline data to understand teachers' use of strategies and generate potential practice goals based on general guidelines (heuristics) from the effective teaching literature. For example, the CSAS-O Part 1 assesses the frequency counts of instructional and behavior management practices such as presence or absences of academic or behavioral praise statements versus academic or behavioral correct feedback. In this example, practice needs are suggested based on the heuristic of three times more praise statements versus corrective feedback (Reddy, Fabiano, & Dudek, 2012; Voerman, Meijer, Korthagen, & Simons, 2012). Likewise, coaches and teachers collaboratively discuss practice needs and frame them into practice goals as measured by the CSAS-O (see Tables 1 and 2).

Following baseline data collection, the initial meetings between coaches and teachers involve an informal interview to facilitate establishment of rapport, the coach's understanding of the teacher's current approaches to instruction and behavior management, and to enhance teacher knowledge of learn class-wide strategies that can be promoted through the coaching process. This is followed by a discussion of the definitions of strategies measured by the CSAS-O and a review of the teacher's baseline CSAS-O data. This initial discussion enables the coach and teacher to use common language (i.e. the strategies operationalized in the CSAS) to discuss current and desired practices and to describe changes in the teachers' use of strategies over time. After the teacher understands the definitions and quality indicators of each strategy as measured by the CSAS-O, the coach and teacher review the teachers' baseline data together to identify practice needs and goals. The interconnectedness of instruction and classroom behavior management necessitates that the coach and teacher select instructional *and* behavior management targets for coaching.

Plan Development

The second phase of the process is plan development. Based on the strategies targeted and goals defined by the end of the first two meetings with the teacher, coaches draft implementation plans, which are collaboratively reviewed and finalized by the coaches and teachers. These plans include operational definitions of each strategy to be implemented by teachers, a description of the context in which implementation is to occur (for example, during transitions between activities, during whole-group instruction, or during independent work time), and a list of steps to be followed by teachers for using the strategy correctly.

Implementation

After the second phase, teachers implement their goals and making changes to the targeted strategies. Throughout this sequence coaches conduct ongoing observations with the CSAS to gather progress monitoring used in subsequent coaching meetings. These meetings are devoted to reviewing coaches' observational data on the teachers' use of identified strategies, provision of specific feedback, model-

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ing, and planning to support implementation. Teachers and coaches review the teacher's progress in implementation, celebrate improvements, and note needs for further development using CSAS-O data to guide those discussions. During these meetings coaches also discuss and model techniques the teacher can use to implement the instructional or behavior management strategies targeted. These meetings offer the teacher opportunities to receive instruction and modeling from the coach on effective use of targeted strategies.

Evaluation and Maintenance

The final meeting in this sequence is dedicated to assessing goal attainment and discussing how to maintain high-quality implementation of the targeted strategies in instruction and behavior management. Depending on trends observed in data from formative assessment of teaching, the nature of support provided by the coach to the teacher may then be scaled back, adjusted, or discontinued.

Research on the CSAS Coaching Model

The CSAS coaching model is grounded in effective teaching and coaching processes (e.g., effective communication, direct instruction, assessment of practice needs, goal formulation) as well as evidence based formative assessment (Reddy & Dudek, 2016). Preliminary results from a study using the CSAS coaching model across four coaching meetings offer promising findings. Using a randomized control trial of 89 general education elementary school teachers, the authors found that teachers in the immediate coaching condition (i.e., teachers who received four coaching meetings immediately after baseline data collection) demonstrated significantly greater improvements in independently observed CSAS Part 1 idiographic behavior management strategies ($F = 7.21, p < .009, d$ -ratio of .54) and CSAS Part 2 Behavioral Management Strategy ratings ($F = 7.10, p < .009, d$ -ratio of .54) at post-intervention compared to teachers in the waitlist condition that did not immediately receive four coaching meetings with the CSAS. Compared to teachers in the wait list, teachers in immediate coaching reported significantly greater improvements in CSAS Part 2 Instructional Strategy ratings ($F = 3.93, p < .05, d$ -ratio of .35) and CSAS Part 2 Behavioral Management Strategy ratings ($F = 3.03, p < .05, d$ -ratio of .27) at post-test.

Extended Research on the CSAS Coaching Model

To build on the information obtained from the initial randomized controlled trial of the four-session CSAS coaching model, the authors revised the coaching protocol to span a total of eight meetings—thereby doubling the amount of visual performance feedback, instruction, modeling, and practice received by teachers on their targeted strategies. The sequence and structure of meetings was retained, as well as the weekly pace and formative assessment using the CSAS-O.

The coaching process in the CSAS 4-Session model was adjusted to span eight 30-minute weekly meetings with the teacher, and to include at least two 30-minute observations of teaching in between each meeting (for a total of 14 formative observations using the CSAS-O). Phase 1, goal setting, occupies the first two meetings. During these meetings the coach and teacher establish rapport, and as in the four-session study described above, the coach facilitates their review of CSAS-O data by describing the strategies assessed, and explaining how to interpret the graphic representations of the data. The second phase, Plan Development, occurs in the third meeting. Meetings 4 through 7 are each devoted to

feedback on implementation of targeted strategies, and instruction and modeling to promote frequency and quality of strategy use. Teachers implement their targeted instructional and behavior management strategies throughout this time (after meeting 3), yet time is divided between meetings to emphasize discussion on one domain (e.g. Instructional Strategies) versus the other domain.

Starting in the fall of the 2015 – 2016 school year, a randomized controlled trial of the 8-session CSAS coaching model was rolled out with urban elementary schools that serve high-poverty students. In addition to the expanded dosage of coaching, data on student academic and behavioral functioning are being collected to evaluate the extent to which changes in teachers' use of strategies translate into changes in student academic and behavioral functioning. For student academic functioning this is accomplished through analysis of data from reading and math benchmark tests already in use by the district. Data on students' behavioral functioning include observations of classroom engagement using the Cooperative Learning Observational Code for Kids (CLOCK; Volpe & DiPerna, 2010) and teacher ratings of students' pro-social behaviors in the classroom setting using the Devereux Student Strengths Assessment (Naglieri, LeBuffe, & Shapiro, 2011). Results of this trial, which are pending, will add to knowledge of the impact of this particular form of coaching on teacher practices and student behavior and learning.

With respect to reading instruction, these results may inform the work of specialists coaching teachers on best practices in reading instruction by demonstrating the effects of increased use of evidence-based strategies to enhance their delivery of instruction on specific reading skills. Specifically, the CSAS coaching model provides an evidence-based, structured process for coaching to enhance teachers' classroom practices. The strategies measured by the CSAS and targeted in its coaching model are universal, teaching practices that stem from the effective instruction literature. As such, these strategies are important and promote student achievement for all kinds of instruction, including but not limited to literacy and its related skills. Furthermore, future CSAS research may expand to provide supplemental items specifically related to literacy instruction and other content areas requiring unique skills or competencies.

Prior to field testing the eight meeting CSAS coaching model, the authors conducted several focus groups to explore teachers' knowledge of and experience with instructional coaching. Next we offer key observations from focus groups and future direction of research and practice.

USING TEACHERS' PERSPECTIVES TO INFORM FUTURE DIRECTIONS

To extend the work on the CSAS coaching model we wanted to assess teachers' knowledge of and experience with instructional coaching in high poverty elementary schools. We sought to conduct focus groups to engage teachers' within partnering schools in a conversation about their experiences with professional development and ideas related to coaching and use of evidence based practices. In the spring of 2015 we met with four groups of teachers in a large urban school district serving children in high-poverty neighborhoods. Focus groups lasted between 45 minutes and an hour, and consisted of 4 groups of between 5 and 10 teachers (a total of 34 teachers participated).

Qualitative analyses conducted by the research team after transcription of focus group interviews produced a set of themes that captured teachers' priorities, experiences, and recommendations with respect to professional development provided by coaches and factors associated with adoption of evidence based practices. Although thematic analysis of these transcripts is beyond the scope of this chapter, in the next two sections we describe how work on the CSAS and the coaching model advances research

on instructional coaching, and we follow with quotes from teachers during focus groups that illustrate potential directions for research on coaching that incorporates formative assessment of teaching.

Some Key Observations on Core Components

The focus groups generated several general observations that can inform future research and practice. General observations noted included teachers' desire for individualized assessment, structured professional development (coaching), efficient and practical coaching methods, coaches' inter- and intrapersonal factors (i.e., coaching interaction style), and recognition of teacher efficacy.

Individualization through Assessment

Teachers may rightly expect literacy coaches to be highly knowledgeable, experienced educators with expertise in reading and language development. Yet the kind of knowledge required by these individuals may be both professional as well as situational. Dialogue from one of the focus groups conducted indicated that on the one hand, teachers would prefer coaches to know something of the overall range of academic and behavioral needs in the classroom by reviewing scores or other data prior to working with them. One teacher stated:

And if they come in without that understanding or background knowledge they can be very judgmental. Or they can have suggestions that may not be very relevant to what we can or cannot do. They might need to be modified.

Other teachers saw value in having the coach learn this situational information through first-hand observation. For example, a colleague of the teacher quoted above expressed the following:

I want to see how they approach my classroom after I've been there for several days. I don't know when they're going to come in, several days, several months of teaching. I just want to see what they're able to do. So I don't really want them to know much [about the classroom].

The message is one of match: perhaps literacy coaches can best serve teachers if they learn of the specific needs in the classroom through direct observation and interaction first, rather than entering the process with pre-determined goals and recommendations. This has implications for selection of areas in which consultation will focus, and potentially on generation of goals that are ambitious, yet realistic. In the proposed eight meeting CSAS coaching model coaches review CSAS-O data collected by trained independent observers prior to meeting with the teachers they coach.

This enables some initial exploration of trends in strategy use by the teacher, but does not convey situational information that might be helpful in the coaching process. For example, a coach and teacher might work together on enhancing the teacher's use of behavioral praise in the classroom. As part of this conversation, the coach will likely share with the teacher information about effective ratios of praise to corrective feedback when forming a goal for strategy use. Situational information about the students in the room might impact the recommendation the coach provides. In general, it is optimal for teachers to use praise about three to four times as often as corrective feedback (Voerman, Meijer, Korthagen, &

Simons, 2012), yet for students with greater learning needs who may require more explicit instruction the optimal ratio may be higher.

Other statements draw attention to the importance of considering differences within and between classrooms when implementing a program of professional development. A focus group participant explained this view by stating “Because they sort of feel like, ‘Oh gosh, what if they show up on a day where everything is up for grabs;’; likewise, another teacher expressed that “...everybody’s classroom is different, so that’s another thing. Because you walk in [Teacher 1’s] class and it can be different than walking in [Teacher 2’s] class.”

Teachers’ needs for professional development may be varied or multifaceted to the same extent that teaching is a multifaceted job. Within the model presented in this chapter is an assessment tool with sufficient sensitivity to identify individualized needs related specifically to instructional and behavior management strategies; additional professional development activities might be necessary at times to enhance other aspects of teaching, such as training on teaching of specific content (e.g., Landry, Swank, Smith, Assel, & Gunnewig, 2006), or domain specific knowledge, such as learning about the development and interrelationships of reading skills (e.g. Moats & Foorman, 2003). Additional research on this and other needs for professional development must be conducted.

These statements about the variability to be encountered during observations raise questions about the number of data required to obtain representative estimates of current functioning. Although research on the specific relationship between the frequency and duration of observations in the process of teacher coaching is still sparse, it has been suggested that the amount of time coaches spend observing during instruction may be associated indirectly with student literacy achievement (e.g. Elish-Piper & L’Allier, 2010). This is an area that requires substantial additional study. Future research on the use of teacher formative assessment will address questions related to the nature of change in practice, and the technical characteristics required of an assessment intended to convey information about that change.

A Structured Process for Professional Development

A third grade teacher provided the following thought in contribution to a discussion on teachers’ desires for professional development:

You know I think both ways. Not to sound like a Debbie Downer. ... Sometimes, yeah I hate to sound negative but, like the teachers who have been here for a while... They’ll bring programs that provide coaching, but then there’s no follow up. So, you know, they’ll bring the coach in for maybe a day or two and whatever happens to it we started. So this, too, in my experience it’s been that there’s no follow up. There’s no end result.

Recent implementations of instructional or literacy coaching have been criticized for lacking structure, such as set timelines, well defined goals, and clear expectations for the roles of coaches and teachers. The model introduced in this chapter is based on a problem-solving framework that imposes a structure on the sequence of interactions between teacher and coach, promotes formation of specific goals, and also presents a terminus for each iteration of the coaching process. Yet, as this teacher alluded, the need for follow-up might arise. Although this model addresses this teacher’s concern about the lack of an “end result,” the statement raises questions about the extent to which teachers maintain progress in use

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of new strategies or evidence based practices after the conclusion of the structured problem-solving sequence with a coach.

Recent research on instructional coaching provides examples. As mentioned, Fabiano, Reddy, and Dudek's (in press) brief CSAS coaching model found significant change in teacher instructional and behavior management practices after four coaching meetings, including three instances in which specific visual performance feedback was provided. In another example, Kretlow, Cooke, and Wood (2012) provided teachers a workshop on a classwide mathematics instructional procedure followed with one "preconference" and two meetings with a coach (one for explanation and modeling, then one for feedback). Their results suggested accurate implementation of a new, multi-step instructional procedure, as well as successful transfer of the acquired skills to non-coached lessons.

What duration and frequency is optimal for a coaching relationship given a specific goal for change in teaching practices? Does the optimal dosage differ between separate objectives for coaching? It may be that the intensity of the coaching process (the number of meetings between teacher and coach, and the length of time between the meetings) may be varied according to the complexity or severity of the teachers' or students' needs.

Efficiency and Feasibility

Examples of literacy coaching, such as those found in the report by Duessen and colleagues (2007), depict scenarios of coaching without determined conclusions, or without consistent interactions. Much of what we know about current or recent implementations of literacy coaching suggests large caseloads, or lengthy spans of time between meetings of coach and teacher. When asked to describe ways in which coaching could be most useful, a focus group participant expressed a desire for a degree of immediacy, such that this resource might be accessible when necessary rather than requiring teachers to wait.

...So once we have that snapshot of the training, then we're kind of thrown in a classroom with the material and we're learning it as we go along and you know, we're told you can e-mail me or you can schedule another workshop, but that workshop is no good if the first workshop you got was in June, you're implementing this instruction, this curriculum in September and then your next workshop is in May. So it defeats the purpose when all along I need this support, I have these questions.

Limited time was identified as a chief barrier to learning and subsequently implementing new evidence based practices in discussion of barriers to implementation by teachers. The breadth and depth of topics potentially tackled in professional development often do not lend themselves to the schedule and demands of the school day. This statement representing teachers' desire to access resources flexibly and quickly suggest value in exploration of professional development resources that make use of technology to expedite communication between teachers and consultants.

The CSAS Coaching Model was designed with time (efficiency and feasibility) in mind; coaching meetings are designed to fit within 30 minutes, and kept to eight sessions. Yet the extent to which coaches and teachers have opportunities to interact or share information is essentially limited to their shared availability in the same school building. Future research and development in this area will doubtlessly explore ways in which information technology might expedite sharing and use of data, or expand opportunities for interaction beyond current confines.

Currently, research on the use of technology to promote more immediate and efficient communication between coaches and teachers has largely focused on the use of various audio/video recording methods, or “bug in the ear” audio feedback devices to deliver immediate, specific feedback to teachers with minimal interruption to lessons (e.g. Rock et al., 2009; Scheeler, Congdon, & Stansbery, 2010). Additional applications might include video conferencing, or web-based systems to provide teachers and consultants simultaneous access to student or teacher data.

Provision of technologically mediated professional development activities for teachers is a topic that might be gaining in interest, but certainly an area that requires additional investigation (e.g. Dede, Ketelhut, Whitehous, Breit, & McCloskey, 2008). Initial investigations suggest technologically mediated coaching or consultation interactions may offer viable alternatives to in-person meetings for observation, modeling, and feedback. For example, Pianta, Mashburn, Downer, Hamre, and Justice (2008), randomly assigned teachers to receive professional development targeting early childhood classroom practices based on informational modules and internet-based consultation and feedback, or to receive the professional development through the use of online informational modules alone. Those teachers who interacted with a consultant online demonstrated improvement in teacher-child interactions, whereas those provided professional development in the form of informational modules (accessible at will) did not display any change in quality of teacher-child interactions. Distinct advantages and drawbacks of technologically mediated professional development are likely to be uncovered throughout additional research.

Inter- and Intrapersonal Factors

The inter- and intrapersonal characteristics of coaches are viewed as key components of the coaching process. Are there instances in which teachers would be resistant to working with a coach because of concerns about their own perceived efficacy as teachers? Who willingly works with a coach and why? Additional input from teachers may help advance understanding of factors that help or hinder teacher openness or buy-in to coaching.

Interpersonal Trust

In the CSAS Coaching model coaches enter classrooms to observe teachers and provide feedback on the amount and quality of teachers’ use of specific strategies. This requires a degree of trust between both parties to be a productive arrangement. The topics of confidentiality and transparency in the coach-teacher relationship appeared multiple times throughout conduct of these focus group interviews. Some feedback was incorporated into the launch prior to coaches’ first observations in each teachers’ room. Teachers acknowledged the importance of observation on the part of coaches, but felt that such an arrangement would not be truly optimal without a guarantee that the information collected and discussed would be kept in strict confidentiality, and not used in a manner evaluative of the teacher. As stated by one teacher,

It’s that whole conversation about ‘I’m here to help you – if something happens in your room it’s going to be confidential. I’m not there to report to your administrator. That conversation needs to happen for a teacher to feel comfortable. Otherwise they feel like they’re there and they’re going to report on what they see to your principal. They always have that in the back of their head.

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Expanding on this thought, this teacher expressed a desire for transparency on the part of the observing coach. For example, in description of a previous experience with an instructional coach this teacher explained:

But it depends upon the coach. There are some, you know, some are better than others...And the ones that usually get complaints from teachers about – because teachers feel like they're being observed and evaluated by a coach, and that's not how you want to feel. So, it could be...it could be intimidating at times. We have those who come in with a notebook and then you feel like...It's like a 45 minute observation and it makes you feel uncomfortable.

In response to this feedback, coaches in this implementation of the CSAS coaching model start their work with teachers by sharing explicit ground rules that establish expectations for confidentiality with the teacher, as well as transparency of information collected by the coach—all data collected or notes taken by the coach are shared jointly by the pair. These statements also call into question the relative advantages of recruiting coaches internally or externally. Are existing collegial relationships a firm foundation for a consultative process? Or, might changes in roles between colleagues prompt unease?

Teacher Efficacy

Teachers' openness to working with a coach might be related to the extent to which they perceive the relationship as a sign of limited effectiveness or qualification as a teacher. One focus group participant, a support staff member whose assignment involved providing instructional support to classroom teachers, explained:

There's also the aspect of like, we've been told to go in and work with some teachers and we've been invited in to work with some teachers. So, it depends on how open they are to having somebody in the room or not. They've already decided before we walked in the door. They didn't ask for this, they don't want it. They're insulted or whatever.

Another teacher from the same school offered a statement to the contrary:

I'm okay with it. I don't mind it. If it's something that is going to help. I mean I'm not trying to pat myself on the back or anything, but I do think that I'm pretty good at what I do, so if something um, you know that I, that the coach may see that I can improve on, I'm willing to give it a shot. As long as she delivers the message the right way.

Teachers' beliefs about their own efficacy in teaching have received frequent attention in educational research, both as an outcome, as well as a covariate. Comments such as the examples offered above suggest the possibility that teachers with lower perceptions of their efficacy as teachers might be less likely to fully engage in the coaching relationship or coaching activities than teachers with greater beliefs of their own efficacy.

Cantrell and Callaway (2008) discussed similar conclusions in a descriptive study of a group of middle and high school teachers. This group of teachers had been selected based on their implementation of a literacy initiative (either high implementation, or low implementation) out of a larger professional

development project. Analyses of interviews conducted with both groups suggested that those teachers who were “high implementers” exhibited greater degrees of teacher efficacy, and greater resilience in response to barriers to use of the new program than those teachers found to be “low implementers”.

Research on instructional coaching has produced evidence to suggest that coaching might increase teacher efficacy; future research on ways in which coaching that increases teacher efficacy under what circumstances, as well as the extent to which low teacher efficacy could be a limiting factor in coaching. Future research might contribute knowledge by examining key aspects of coach communication, and how these are associated with teachers’ receptivity and subsequent implementation of targeted practices.

Some Key Observations on Activities of the Coaching Model

Whereas the key components of a program such as instructional coaching consist of the people (teachers, consultants) involved and the physical and chronological arrangement of their interactions, and the technology used, the *key activities* of coaching are the specific behaviors of the coaches and teachers throughout the process. As described, it is necessary to study closely the effects of the activities of coaching as they relate to the desired professional development outcomes. In the CSAS coaching model, coaches engage in assessment, instruction, modeling, and planning with their teachers; teachers, in turn engage in practice (teaching their students) and planning with coaches. Each of these activities is likely found to some degree in any given coaching model, yet the way in which they are carried out may be significant. Two coaching activities noted in the larger literature are modeling and feedback.

The Context of Modeling

Along with observation, explanation/instruction, and feedback, modeling of strategies or practices to be learned is an activity highly associated with coaching. Yet precisely what modeling involves, or what kind of modeling is most helpful for a given training objective has not been determined. In the context of the coaching model described in this chapter, coaches model the instructional and behavior management strategies by acting out a strategy or briefly role-playing with the teacher. Coaches’ modeling in this instance occurs without student participation, as coaches and teachers meet when teachers are not with students (e.g. during prep time, or before school). Multiple teachers commented on the extent which they value or desire modeling in professional development sessions, yet the examples they shared had the coach demonstrating an activity by working directly with students as the teacher observed. For instance, one teacher shared the following:

They modeled lessons, they did lessons, they let us sit back and we’d actually watch—watch them do it and I was oh my. I’d never seen this before. It was like the first time ever that anybody came into my class and did a lesson [to show me how to do it].

Modeling is used didactically for teachers during coaching, yet the extent to which the type and amounts of modeling provided leads to different levels of teacher implementation has not been studied in depth. Modeling might be accomplished verbally, during a meeting, such as offering examples of concept summaries, or clear directives. Similarly, models of classroom strategies could also be presented through short audio/video recording. As described the teacher above, modeling might also be accomplished by the coach or consultant teaching a lesson for the classroom teacher to observe.

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It would be helpful to know the relative benefits of varied kinds of modeling, as each requires different resources. It may be that limited modeling, involving short verbal demonstrations of strategies, is necessary for teachers to learn and implement instructional and behavior management strategies such as those described in Tables 1 and 2. Such brief, simple modeling may not be sufficient when the objective is implementation of something more complex, such as a new framework for differentiation during reading instruction, or implementation of a brand new English/language arts curriculum.

Provision of Feedback

Feedback to reinforce or correct performance of skills is a critical action for student learning; it plays an important role in adult learning as well. Feedback may vary in terms of immediacy, frequency, format (spoken, written, graphic, or combinations of each). Various forms and formats of feedback have been studied within the coaching literature, but the features of feedback best suited to differing coaching objectives have yet to be determined.

Scheeler, Ruhl, and McAfee (2004) summarized the experimental or quasi-experimental research available on the effects of different types of feedback on teachers' practices. Although their findings were sparse, given the limited number of studies that met the criteria for inclusion in their review, the immediacy and specificity of feedback provided to teachers stood out as important features. More recently, Solomon, Klein, and Polytylo (2012) reported the results of a meta-analysis on the same topic; much of the research included in the analysis had been conducted since the publication of Scheeler, Ruhl, and McAfee's (2004) review. Again, the immediacy and specificity of feedback emerged as significant characteristics, yet the importance of the immediacy of feedback appeared smaller in this analysis. The authors hypothesized the presence of unmeasured variables as important moderators of the effect of feedback at different latencies. For example, perhaps the level of the teachers' need, or the complexity of the behavior to be acquired might alter the extent to which immediate or weekly feedback would be adequate.

Feedback is often described in terms of praise or correction, or as reinforcement and punishment; praise increases the likelihood of a behavior, and correction or punishment decreases the likelihood. Yet this popular understanding may only be part of the story for teacher professional development. Kluger and Denisi's (1996) meta analysis of feedback described a theory positing that the reference of feedback (self versus task) is an important determinant of the effect of feedback. Feedback on task performance is associated with more positive outcomes, whereas feedback in the form of personal attribution is associated with weak, null, or potentially even negative outcomes. During one focus group conversation about how coaches interact with teachers, a special education teacher recommended careful phrasing in feedback:

...How you say it. How you give the feedback. You can't sound critical. You make it sound more like a suggestion. Like ... 'You know what, I have another idea. Next time I come, you know what, why don't we try....'

Interviewer: "We..."

Teacher: "Yeah! It should be 'we.' It should be we."

By framing the feedback in terms of a new strategy to try, or a strategy for the coach and teacher to try together, the feedback is not normative, but instead focuses on a task, and a shared ownership of the task or objective between teacher and coach. Throughout the classroom strategies coaching process teachers are provided with visual performance feedback in the form of graphs that depict increases in the frequency with which they use a set of discrete teaching behaviors, as well as changes in the frequency and quality with which they implement more complex teaching and classroom management behaviors. Coaches also provide verbal feedback as they review the graphs with the teacher, explaining trends in the data, linking data to observations in the classroom, and exploring ways to maintain or improve use of targeted strategies. Coaches provide feedback that is specific, yet the use of data reflecting the teacher's own practices makes the task-orientation of feedback a more salient issue worthy of additional consideration in future implementation of, or research on instructional coaching.

CONCLUSION

Teachers play crucial roles in the lives of their students. Yet the profession of teaching is complex, and it requires ongoing learning and professional development. We know from decades of research on professional development that single-session lectures on new concepts or programs are not sufficient to help teachers transfer new knowledge and skills from the context of training to that of the classroom. For this reason, instructional coaching as a professional development resource has attained a high level of interest in policy, practice, and increasingly in research.

While instructional coaching may hold significant promise for improving the quality of teaching, we highlight how scientific knowledge on coaching in general, and its key components and activities are surprisingly limited. Formative assessment of teaching was highlighted as a valuable resource in coaching that is under-utilized in schools. A model of instructional coaching (i.e., CSAS Coaching) that uses teacher formative assessment as core component was briefly described.

Evaluation of the key components of coaching models will undoubtedly contribute to the knowledge base of best practices in teacher professional development. Yet at this stage of inquiry on the key components and activities of coaching there is a wide field of new opportunities for innovation in research and practice, and as such, exploration of multiple alternative paths ahead must be undertaken. Observations from teacher focus groups illustrate the value of input from key stakeholders (i.e., knowledge of and experiences with coaching) in advancing professional development and research in education.

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