

**Coaching Metacognition:
A Study in Developing Accurate Self- Assessment in Novice Teachers**

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Abstract

School quality across the country hinges on high quality instruction from effective teachers. Teacher quality and development are of the utmost importance to all schools, but particularly those in low-income neighborhoods with high minority and English-Learning populations. These are areas where teacher turnover is high, and school staffs are generally more inexperienced than schools in higher-income, English-speaking communities. Research shows learning gaps between students with experienced teachers and students with inexperienced teachers, serving to highlight how important it is for schools to quickly develop novice teachers into competent educators. A review of the literature on professional development in education and in other fields demonstrated the importance of both reflection and feedback in order to improve practice. However, in both literature and practice, it became clear that there are substantial barriers to novice teacher accuracy in reflection. In essence, novice teachers do not independently accurately and effectively reflect. Three novice teachers at Cornerstone Academy exemplified the challenges associated with new teacher reflection and self-assessment. These individuals stated that they reflect regularly, but they were not accurately doing so. Thus, despite being dedicated to improving instructionally, they were ineffective at self-assessing their areas for growth. In order to improve their self-assessment accuracy, these teachers needed improved metacognitive awareness of their teaching practice, and an instructional model against which to reflect.

For this action research, I analyzed the impact of three instructional coaching sessions with teachers in which they were explicitly coached to self-assess: they were given an instructional model video, tools to use to reflect (video, a reflective journal, reflective prompts), and explicit coaching on how to reflect. Over the course of the intervention, teachers became more aware of their teaching practice, more reflective in their discussions about their teaching, and more accurate in their self-assessment of their instruction. The result of the intervention sheds light on key practices in which schools might engage to quickly build the reflective capacity and competence of novice teachers in service of student achievement. Schools that hire and staff a large number of inexperienced teachers can improve student achievement rapidly by concentrating on novice teachers through a process focused specifically on building reflective capacity and accurate self-assessment.

Context and Problem of Practice

Across the country, schools, districts, researchers, and policy makers highlight inequalities within our education system. English learners, minorities, and students from low-income neighborhoods are afforded fewer opportunities and achieve lower than white, English-speaking, or high/middle income peers. Schools in these communities frequently struggle to keep and train effective teachers- high turnover and a large cadre of new teachers mean that students in underserved communities are taught by inexperienced and often ineffective teachers. Policy-makers, researchers, and educators alike have repeatedly stated that teacher quality is a significant predictor of student achievement; however, schools in communities with the greatest need for highly effective educators often staff a revolving door of teachers. Jacob (2004) notes the multiple studies that have found that urban districts are more likely to be staffed by teachers who are less likely to have graduated from a competitive college, less likely to be certified, and less likely to have experience. Upon entering the classroom, inexperienced teachers are still developing the pedagogical and content knowledge to clearly instruct their students, and the first few years of a teaching career are generally spent “learning the ropes.” New teachers are frequently learning on the job, attempting to learn how to lesson plan and behavior manage, in addition to the content or grade level material. Carrell and West (2010) found achievement gaps between students with inexperienced teachers and those with experienced teachers. Newer teachers, they posit, are more likely to focus on the assessment as a measure of student learning and focus on “teaching to the test” and less likely to focus on a comprehensive set of skills that teaches students to think. With the national transition to Common Core Standards that require a high level of cognitive process, urban districts staffed with inexperienced teachers are even less likely to be able to raise the level of rigor that students need in order to succeed in and after school, widening the achievement gap even further. The urgency with which our education’s inequities must be addressed puts significant pressure on the inexperienced teachers in low-income and minority schools to improve outcomes for their students.

New teachers in high-need urban environments are faced with an extensive list of “to-dos” in addition to the pressure to enhance student academic performance. This combination of inexperience and pressure to produce academic results is challenging to overcome, and many teachers leave their low-income schools after a short amount of time (Ingersoll and Merrill, 2012). Pressure for new teachers to produce student results and improve rapidly might shift given a more supportive and reflective environment. Coaching and mentorship fosters continuous improvement, and induction programs across the country incorporate coaching, mentoring, and reflection as part of new-teacher training. In many states, many

novice teachers work with a coach or mentor to set goals, target areas for growth and create steps toward improvement.¹ Such a practice requires a new teacher to self- evaluate and self- monitor reflection as well as an accurate understanding of one's own practice as well as practices of other teachers. Effective coaching and mentoring requires hours of support time a week: mentors observe and meet with new teachers about their practice and guide them through a reflective conversation that helps new teachers understand both the current state of their practice, and how to improve. High teacher turnover in urban schools often means that schools often lack the numbers of experienced teachers necessary to effectively mentor and coach new teachers through this induction process. Mentor teachers might end up supporting multiple new teachers in addition to their own students, and subsequently find themselves stretched thin. New teachers in urban schools frequently do not learn how to be reflective about their teaching practice, and may not develop a very clear understanding of excellent teaching practice and how to get there.

Cornerstone Academy Preparatory School was founded with the vision that a college education should be an option for everyone, and the mission to prepare all scholars for college beginning in kindergarten.² The school's mission, to change the educational outcomes of the scholars who enter the front gate and close the achievement gap depends on a cadre of highly effective teachers. The achievement gap, however, while slightly altered, persists, in part, by a perpetual churn of new teachers. In the 2013-14 school year, eight of 12 teaching staff members were new to Cornerstone. Of those eight, five were in their own classroom for the first time. Of those twelve, nine were first or second year teachers. Two of twelve had more than three years of teaching experience. In the 2014-15 school year, eight of fourteen teachers were new to Cornerstone. Of those eight, two are first year teachers and three are second year teachers. Ten are teaching at a grade level for the first time. Through the hiring process, the school has attempted to hire more experienced teachers, but a large number are new to their practice in one way or another.

In order to effectively teach all scholars in Cornerstone classrooms, the school depends on teachers to reflect on their practice and take steps to constantly improve. In order to improve, a teacher must be able to accurately assess their

¹ In California, for example, the Beginning Teacher Support and Assessment program is required for new teachers to earn their clear teaching credential, and is aligned with California Standards for the Teaching Practice, which teachers use to help monitor their instructional growth(<http://www.btsa.ca.gov/>).

² Cornerstone Academy is a public elementary charter school in the Franklin McKinley School District of East San Jose, California. The school was founded in 2009 and opened in 2010, with a student population of approximately 40% Vietnamese, 43% Latino, and the remaining 17% a composite of Filipino, African American, Chinese, Laotian, Asian Indian, Cambodian, Native American, and Caucasian. 73% of students receive Free or Reduced Lunch, and over 70% of students speak a language other than English at home. Each year, the school has added between 60 and 90 students in Kindergarten, and now has grades K-5. There are 14 classroom teachers and 7 instructional support staff, including classroom aides.

practice in relation to a model of excellence, and create steps toward improvement. As part of a school-wide teacher evaluation process, Cornerstone uses a 1-4 scale rubric (see appendix) with indicators of excellent teaching practice, and uses the same framework for instructional coaching throughout the year. In order to gather initial data on teaching practice, the school's leaders asked teachers to self-assess their instructional practice at the beginning of the year.

Teachers submitted their initial rubric self-rankings to the leadership team after two weeks of Summer Professional Development and approximately 3 weeks of classroom teaching. When compiled, the leadership team noticed inconsistencies in teachers' rankings. Some teachers had ranked themselves higher (4s) than coaches had believed in walkthroughs. The same teachers had ranked themselves higher than other teachers, who are (according to coach observation) stronger and more experienced in the same areas. Even with the indicators of specific actions embedded in the evaluation tool, teachers' self-ranking did not always align with reality and evidence. Teachers with four or more years of experience were more consistent and aligned with evidence than teachers with three or fewer years of experience. As the school grows, it continues to hire young teachers. Despite the presence of indicators on the rubric domains, misalignment between teachers' and leaders' perception of classroom practice illustrates that some teachers, particularly first and second year teachers do not have an accurate perception of their teaching practice.

Since the school's founding, instructional coaches have worked with each teacher to set and work toward goals for improved teaching. Each year, many teachers' practice improved. However, a few teachers each year did not grow as much as teachers as their peers. Bercher and others have asserted that individuals who have an accurate perception of their current level of understanding or current level of practice more clearly understand the things that they have to do in order to improve it. Accurate self-monitoring is crucial for learners (including teachers who are learning the practice) to reflect on their practice and take further action. (Bercher, 2012) There are many possible reasons that new teachers at Cornerstone struggle to accurately self-monitor. The majority of first and second year teachers at the school are current Teach for America corps members, committed to the classroom for two years. In the rapid training that is Teach for America institute, the process of reflection frequently takes a backseat to learning how to plan lessons, assess learning, and manage a classroom with a high sense of urgency, per the organization's mission. Another possible reason is that in the No Child Left Behind assessment accountability structure, new teachers are pressured to produce results that become primary over in depth instruction. It may also be the case that new teachers do not have a very clear idea of what "good instruction" looks like; they lack access to a vision, model, or instructional framework that clarifies "good teaching". New teachers also lack both content and pedagogical knowledge, and thus spend a great deal of time working on building their skill set in those areas, and not in reflecting on what

happened during a particular lesson or interaction with a student. Time, thus, becomes a constraint on reflection as well. The last barrier is that of skill: self-monitoring is a skill that must be developed in order to significantly improve teaching practice.

Cornerstone has three instructional coaches that observe and meet with teachers weekly to discuss classroom practice and help teachers reflect to improve. Even with support for reflective practice through instructional coaching, new teachers need models toward which to work toward. Cornerstone has a Teacher Evaluation Rubric on which teachers and administrators assess each teacher's practice at multiple points in the year. However, this tool is also new, and the indicators require teachers to understand pedagogical vocabulary and instructional terms. Without visuals or exemplars attached to the rubric, it is difficult for new teachers to understand the nuances of the rubric in order to accurately assess themselves against it. There are teachers at Cornerstone who fall very close to 4s on indicators across the rubric. Each teacher has a planning period, and peer observations are highly encouraged. However, new teachers frequently are not practiced in the skill of focused observation, and might feel overwhelmed when observing a more experienced teacher. Without guidance or support during this observation, a new teacher might not notice some of the nuances that would make a difference in his or her own classroom. Novice teachers lack both the internal skills and the external tools to effectively and accurately self-monitor their teaching practice

Cornerstone has multiple structures to support teacher reflection and rapid development, including individualized coaching for all teachers, specific indicators tied to the core practices of excellent instruction, and time for collaboration and peer observation. However, the school lacks the necessary coherence and connection between the pieces, and new teachers (fewer than 3 years of teaching experience) currently lack the necessary schema to accurately reflect and self-monitor their practice. This action research will investigate how a coherent model of excellent instruction and coaching support can increase new teachers' ability to assess and improve their teaching practice according to the school framework for instruction, to grow a staff of consistently effective teachers.

Review of Relevant Literature

Context

The challenge of improving our education system brings focus onto both student and teacher learning. Sanders (1998), Akbari and Allvar (2010), and Alexander (2005), focus on teacher effectiveness as a key factor in improving student achievement. Sanders (1998) states that the "single largest factor affecting academic growth of populations of students is

differences in effectiveness of individual classroom teachers.” (p. 27) What makes effective teachers effective? The goal (whether tacit or explicit) of teacher development programs, instructional coaching, or any other educator preparation program is to improve instruction to improve student outcomes. (Danielson, 2011) Great teaching, however, is easier to identify than it is to define: we can remember great teachers, but we struggle to articulate what great teaching is (Lave, 1996). As difficult to describe as they are, the nuances of good teaching are likewise difficult to develop in new teachers. The challenge of becoming great, while daunting for experienced educators, is amplified for schools with high numbers of new, transfer, or novice teachers. These schools then also need systems in place to develop novice teachers into effective practitioners. In order to grow into effective teachers³, novices must be professionally developed into experienced educators capable of driving student achievement toward desired outcomes. New teachers thus must develop specific knowledge of their teaching practice, and the effects of that practice on students. This action research will investigate the extent to which reflection and metacognition enable novice teachers to become better teachers.

For a number of reasons, novice (less than 3 years teaching experience) teachers mis-evaluate their teaching practice according to a framework of instructional practice or rubric. Teachers score themselves too low in some categories, and too high in others. It is evident both in research and in practice that novice teachers lack metacognitive awareness of their teaching practice. Their inability to accurately reflect and assess their teaching practice leads them to inaccurately evaluate their strengths and weaknesses, inaccurately reflect on their lessons, and potentially stymie both instructional improvement and academic outcomes of their students. If new teachers are to become good teachers, they must develop this ability to accurately understand and adjust their teaching practice. This literature review will discuss the need to develop new teachers’ metacognitive skill in order to develop accurate self-assessment and reflective processes, and will explore potential strategies for doing so.

Self-Assessment

The general goal of education, in the current climate at the classroom level, is student learning. Jaeger (2013) asserts that *reflective* teachers focus more on student learning, and non-reflective teachers focus less on student learning. Accurate self-assessment is evidence of both accurate reflection and accurate understanding of the expectations for a task (Sargeant, J., Mann, K., Van Der Vleuten, Cees, Metsemakers, and Job 2008, Bercher 2012). Bercher (2012) explains that individuals who

³ Here, I intentionally use “effective” to denote teaching practice ranked as such per a teaching rubric used at a given school site, not as an absolute definition.

know their level are more able to improve. Further, it is crucial that self- assessment align with external assessment, because, as Sargeant et al (2008) found, external feedback that is inconsistent with one's self-assessment may be discounted and not used to inform practice. Sargeant et al (2008) found this phenomenon throughout studies related to physician preparation programs, but the finding has implications for other professional development programs that are highly dependent on feedback cycles: if a professional does not internally recognize a problem, s/he is less likely to make changes, because s/he will find change unnecessary.

Charles Darwin, English naturalist, once stated, "Ignorance more frequently begets confidence than does knowledge" (Kruger and Dunning 1999). Those with the least experience tend to be the most inaccurate and more frequently overestimate their abilities (Sargeant et al, 2008). In order to facilitate accurate self-assessment, multiple conditions must be met. First, the assessment domains and criteria must be clear. Do teachers understand the rubric or instructional model, pedagogy, and expectations? Were teachers trained directly on that domain? Second, there must be sufficient high-quality feedback and direction given to teachers directly. Are there opportunities for external feedback? How often is it given? How is it delivered? Does the teacher understand the feedback? Third, the context must allow for reflection. Is there time for reflection? Is there space? Is there guidance? Fourth, teachers must also have capacity in several areas of the affective domain: self-efficacy, motivation, competence, relatedness, and reflection. These must be present, to some degree, for a teacher to engage in accurate and meaningful self- assessment. (Kruger and Dunning, 1999; Sargeant et. al 2008; Bercher 2012; Ellis, Denton, and Bond, 2014)

Any school dedicated to continuous learning, for both students and teachers, must create a climate in which all of the above needs for accurate self- assessment are met. Novice teachers operating in the environment where accurate self-assessment is possible are much more likely to take feedback, reflect on practice, and use growth steps to improve their teaching.

Reflection

From the preceding section, it is clear that self- assessment does not occur in a vacuum. In addition to the external circumstances that enable accurate self-assessment, internal factors also play a role. Sargent et al (2008) describe the process of "critical self -reflection" as central to accurate self- assessment. The ability to self-reflect is one of the affective domains necessary to facilitating accurate self-assessment. Akbari and Allvar (2010) borrow heavily from Schon (1987) to argue that the act of reflection is a key component in improving teacher effectiveness. Schon (1987) describes two types reflection: "reflection on action" which happens after a teaching event, in which the teacher reconstructs and analyzes the events and actions , and "reflection in action" which occurs during teaching and involves interpreting, analyzing, and problem-solving

intricate situations in the classroom. Reflection, thus, is a self-examination to assess whether a teacher has acted in an appropriate and realistic way, *and* to go further and examine the motives and attitudes that led to those actions. In a simple definition, reflection means deliberating and engaging in self-criticism with the purpose of refining one's teaching practices (Akbari and Allvar, 2010). Both "reflection in action" and "reflection on action" must occur for teachers to be accurate in their self-assessments of their practice, and this accuracy in self- assessment is of paramount importance to novice teachers' abilities to move from new teachers to great teachers.⁴

Metacognition

The act of reflection is so multifaceted that it bears further exploration. Reflection, frequently, involves dissecting the events that led to an outcome. Ellis, Denton, and Bond (2014) argue that deeper and more meaningful reflection comes through improved metacognition. The operational definition of metacognition for this action research is that metacognition is "what learners do to monitor, control, and regulate their learning." (Pintrich, 2002) Reflection alone, they argue, limits individuals to a "means-end" pursuit: "what did this group of students do or not do to meet an achievement metric of goal?" Teachers, they argue, need *metacognition*, not simply reflective capacity. Metacognition involves reflection, self-assessment, executive function, self-regulation, and sentience. Reflection without the others, lacks critical self-monitoring components that will drive teachers toward more accurate self-assessment. Pintrich (2002) defines metacognition as the knowledge of thinking in general, and of one's own thought process. Recent educational theory espouses the need to help students become aware of their own thinking and learning process, so that they can apply skills they learn to other contexts. (Pintrich, 2002) Ellis, Denton, and Bond (2014) borrow Flavell (1976) to define metacognition as a heightened awareness of one's own thought processes. Teachers also need to be metacognitively aware of their actions *and* thoughts in teaching and learning so that they can have positive effects on student learning and metacognitive development.

Pintrich (2002) explains that when confronted with a task or problem, learners activate relevant knowledge about their level of experience with a task, as well as their strengths and weaknesses pertaining to it, motivation, and strategies they know that may be successful in a particular context. Novice teachers, with little schema and experience with the various "tasks" or challenges that crop up in a classroom, cannot activate this experience. Thus, without metacognition, novice teachers frequently make instructional choices without schema, and cannot later accurately assess the success of their choice. Metacognition allows learners to activate the relevant situational knowledge or strategy to solve a particular problem in

⁴ According to Bercher (2012), individuals who know their level are more likely to improve.

context (Pintrich, 2002). Novices lack metacognition to a greater extent than do experts (Kruger and Dunning, 1999). Thus, novice teachers lack the metacognitive skill necessary to accurately and meaningfully reflect on a lesson to create next steps for their instruction.

The connection between accuracy in self-assessment and metacognition must be made here: individuals who are not metacognitively aware of their actions (how they react in given situations, strategies that they use in certain contexts) are less likely to be accurate in their evaluation of these actions. Additionally, individuals who lack knowledge about their strengths and/or weaknesses (accuracy in self-assessment) will also be less likely to adapt their actions in different situations. Thus, teachers need not only reflective skill, but also competence in the area for reflection. Thus, the major barriers for new teacher accurate self-assessment are two-fold: metacognition and core pedagogical knowledge. Sargeant et al (2008) frame these as “clarity of assessment criteria” and “affective domains: self- efficacy, competence, reflection.” These two areas are particularly salient for young, novice teachers.

Marchel (2007) explains that young teachers (in their 20s) are still in their own process of developing important cognitive skills, such as examining belief systems, questioning assumptions, and analyzing the impact of biases. Young, novice teachers, in particular, need specific development on *how* to analyze assumptions, biases, and beliefs about teaching, and, in some cases, deconstruct them. Ideas about teaching and learning are built early in life (through personal experiences with education, teaching, and learning), and these ideas are difficult to change. An individual’s established ideas also may not be able to reconcile new skills and standards currently in practice (Marchel, 2007).

This practice of reflection is challenging, especially given time constraints, fears of judgment, weak knowledge of content, blindness to personal assumptions, and the simple fact of how difficult it is to analyze one’s own action (Bishop, 2010). Even in contexts where time is given, fear of judgment is decreased through the presence of a growth mindset, and teachers are developing content knowledge, novice teachers still lack skills in reflection. Saccomano (2013) quotes a new teacher, “I ... had no idea how to reflect on lessons” (39). In Saccomano’s (2013) study, she found that pre-service teachers voiced uncertainty about multiple areas of their teaching practice: content and behavior management among them. Novice teachers do not yet know how to manage the multitude of events happening at any given time, they do not yet know how to “think like a teacher” (41). Novice teachers must simultaneously develop both clarity of assessment criteria *and* affective domains such as reflective capacity and metacognition (Sargeant et al 2008). Thus, developing metacognitive strategies will enable novices to not only think retro-actively about what parts of a lesson were effective, and what parts were not, but the

practice will also begin to enable to self-assess their practice in the moment, and use those assessments in order to adjust course during the lesson in order to improve their instruction. Metacognition as a skill then, serves not only to develop post-lesson accuracy in self-assessment, but also mid-lesson self-assessment and lesson adjustment in service of student learning.

Developing Metacognition

Novice teachers must develop metacognitive capacities in order to become more reflective, accurate in self-assessment, and effective. To develop metacognition, novices need three related types of knowledge: few of which novice teachers have upon beginning in the classroom. The first is knowledge of strategy: teachers need to be able to articulate their thought process for a task. The second is knowledge of task: teachers need a clear understanding of the objectives, and how and where to apply newly learned strategies. The third is knowledge of self: teachers need an awareness of strengths and weaknesses so that they can align a strategy with the task (Ellis et al, 2014). When teachers are not able to do the third, the others suffer. As shown, however, novice teachers need development in all three types of knowledge, and any professional development initiative that moves teachers toward accurate self-assessment must consider all three types of knowledge.

Zeichner, Kenneth, and Liston's (1990) research on performance-based teacher education in the 1960s and 1970s highlighted the need to base teacher development on the specific and observable actions in and out of the classroom. In the 1970s, teacher professional development was based in informal learning through observation, demonstration, and mimesis. Teachers learned to use effective practices from watching and mimicking practices they saw (Lave, 1996). Pintrich's research (2002) demonstrates the need to explicitly teach not only specific pedagogical skills and content knowledge, but also metacognition. Ellis, Denton, and Bond (2014) advocate for more specific practices and strategies for developing metacognition, lamenting that the literature is limited to the theory of metacognition. Explicit training in a particular skill helps not only with clear professional development on a specific domain, but Kruger and Dunning (1999) found that people who were trained in the skill they were assessed on were more accurate than those who had no specific training in that skill. Explicit training thus helps individuals both learn the skill, and assess it more accurately.

Saccomano (2013) used a combination of teaching video observation and journal reflection to build teacher reflective capacity and metacognition (what she calls teacher thought processes). Through a focused observation goal, the process also built teacher skill in other pedagogical areas, depending on the teachers' focus area. The teacher identified a behavior in an observation video, noted the number of times the behavior occurred, assessed the behavior, created a plan to change the behavior, and then (through a separate video) assessed the new behavior.

In Saccomano's (2013) intervention, the teacher participants needed the schema to understand and assess the problematic behavior in their videos in the first place. Engin and Priest (2014) used peer observations as a model for new instructors, and combined this peer model with a matrix of focus areas for the observation to give a direction to the new instructors as they observed. Ogan- Berkilou (2014) described scoring teacher portfolios to compare with teachers' perceived reflections to demonstrate how portfolio creation helped teachers clearly assess their practice. According to Saccomano (2013), the journaling process helped teachers in multiple ways. It helped teachers understand the connection between planning and execution, the importance of scaffolding, and how teacher tone and body language impact the classroom.

An effective intervention to build both teacher capacity and metacognition needs to be multi-faceted: a clear understanding the expectation or model, explicit strategy instruction, consistent practice, and opportunities for the individual to verbalize their processes (Ellis, et al, 2014, Sargeant et al, 2008).⁵Metacognition, for novices, must be guided (and explicit) through specific coaching questions and opportunities. Ellis's studies suggest that "divergent" questioning (open ended questions with many possible answers, some with moral implications) force participants to think about biases, assumptions, and reasons for actions. Ellis suggests encouraging self-checking, reflection, and comparing present progress to past progress. Additional strategies for metacognitive development include modeling, think-alouds, diagramming through thinking or concept maps, and ongoing, sustained practice (Sargeant et al, 2008, Pintrich 2002, Ellis et al, 2014). When school conditions enable accurate self-assessment (clarity of assessment criteria, time for reflection, feedback and guidance, motivation), novice teachers explicitly focus on metacognition, and space allows for teacher growth, teacher reflective capacity will flourish, and accurate self-assessment will follow. In order to foster metacognitive and reflective capacities in novice teachers, schools must intentionally set up structures and practices shown to target these skills.

Definitions

Self-assessment is the act of evaluating or assessing one's self. This rarely happens without **reflection**.

Schon (1983) defines **reflection** as thinking about what we're thinking, acting upon thought, rather than stimulus. Reflection is essentially the act of holding up a mirror to an event, action, or occurrence, and seeing it as if from outside. This rarely happens unless one is able to be aware of one's own actions and thoughts, which requires **metacognition**.

⁵ Ellis' discussion about teaching metacognition is focused on student development- however, Saccomano (2013) and Marchel (2007) both highlight the fact that young, novice teachers are still developing the cognition necessary to be an effective teacher. Thus, Ellis' strategies for building metacognition in students are applicable for a professional learning trajectory for many novice adult learners as well.

Metacognition is an awareness or understanding of one's own thought process. Metacognitively aware people are aware of what they do, why, and the impact. Accurate self-assessment depends on a teachers' ability to **metacognitively reflect** about a lesson and its outcomes.

Intervention

In order to improve the accuracy of novice teacher self-assessment, a multi-faceted approach is necessary, in order to build competence in both pedagogy and in metacognition. The goal of this action research is to assess the extent to which a clear instructional model, video observation, coaching conversations, and independent journal reflection improves teacher metacognitive awareness of teaching practice. Improved instructional practice will, ideally, result from the improved reflection (although analyzing that possible correlation would become an entirely separate endeavor in itself).

Reflection allows teachers to become better observers of student behavior, and teachers subsequently improve by analyzing what went well with students (Akbari and Allvar, 2010, Saccomano, 2013). Kruger and Dunning (1999) offer support for explicit development of metacognitive skill: individuals who were trained in the skills they were assessed on rated their performance more accurately than those who had no training. As a result, teachers will more accurately measure their reflective capacity after the intervention. They will more accurately assess the instructional practice that is the focus for the video observation and coaching conversation.

Steps of Intervention:

Teachers will see a model of the instructional practice that is the focus for improvement. This step "clarifies the assessment" (per Sargeant et al, 2008), and sets the bar for teacher practice. Thus, teachers have seen a demonstrated model (Lave, 1996). Teachers will then video their own practice. Then, coach and teacher will watch the video together. The research highlights the need for teachers to be aware not only of their actions during a lesson (a skill developed during co-video observation), but also the need develop the metacognitive awareness about why a teacher made specific choices during the lesson (Akbari and Allvar, 2010, Ellis et al, 2014, Pintrich, 2002).

In a coaching conversation, the coach will guide the teacher through the reflective process using pre-created questions as well as specific contextual questions regarding the lesson. The goal of the coaching session is for the teacher to cognitively reflect, articulate, and analyze the specific actions and choices that s/he made during the lesson. This "reflection on action" encourages teachers to think about their reasons for acting in specific ways, and is the first step in building teacher

capacity to “reflect in action” (Schon, 1976). According to Hager (2012), the conversation *must* be structured toward building metacognitive capacity, including specific prompts and questions (my emphasis). Per Ellis et al (2014), the coaching conversation allows for metacognitive modeling and ‘thinking aloud’ (e.g. the coach giving examples as to how an assumption, bias, or belief system might impact a teacher action in the moment). Reflecting in person with a coach allows new teachers to verbalize a thought process or rationale as well as the effects of that action on student behavior and outcomes (Akbari and Allvar, 2010; Ellis et al, 2014; Saccomano, 2013; Schon, 1976). This also allows new teachers to hear their own thoughts, actions, and processes mirrored back at them from another party. At the end of the session, the teacher will reflect on the video per the rubric focus from the beginning. This process explicitly connects the self-assessment and reflection process process to the metacognitive reflection that the teacher underwent with the coach, which, according to Pintrich (2002) and Kroger and Dunning (1999), is a major step toward improving both skill *and* metacognition. It is important that the metacognitive practice does not stop once the coaching session ends: ongoing reflective practice must be both guided *and* independent. After a coaching session on reflection with a coach, the teacher then reflects independently in writing as part of the next cycle. (Ellis et al, 2014, Saccomano, 2013). Post-intervention, collecting teachers’ reflections will give valuable insight as to the extent of a teachers’ metacognitive capacity (Ogan- Berkilou, 2014, Saccomano, 2013).

Sargeant et al (2014) noted that external feedback improved practice immensely in pre-service medical students, especially when self-assessment aligned with the feedback given, and the feedback was given regularly. Combining video and reflection has teachers tie the practice of metacognition and reflection to their teaching practice, making an explicit connection between teaching and reflection. Video allows teachers to capture and see an improvement in their own practice over time. The un-intended consequence is the development of more self-efficacy (an affect that Sargeant et al (2014) noted as an important part of teacher development). Saccomano (2013) does not, however, describe how her video intervention affected teacher accuracy in his/her own self assessments, but she *does* note an improvement in the thoughtfulness of teacher journal reflection over time.

Pintrich (2002) argues that developing teacher metacognition differs from controlling the process of instruction, which is one focus of instructional coaching. The goal of this intervention and research is to understand the effects of focused metacognitive development on teacher reflection and self-assessment accuracy, rather than to measure teacher improvement itself. The focus for teacher development is on what the learners (novice teachers, in this case) do to monitor, control, and regulate their cognition in teaching. The emphasis in development is on checking, planning and regulating classroom practice through reflection (Pintrich, 2002).

Marchel's (2007) work on coaching with critical dialogue provides a framework for helping teachers to challenge their assumptions about what teaching "looks like" and why they respond in particular ways in given situations. When coached this way, Saccomano's (2013) participant teachers became more introspective, recognizing the connection between teacher action and student action. The clearer thought processes, evident through journal reflection, made it apparent that teachers *had* become more perceptive over the course of the intervention, and that they better understood the thought processes (metacognition) needed to work as an effective teacher.

Developing metacognitive practices must be an ongoing process, over the course of months or a year, so that teachers are sufficiently comfortable in engaging in the process independently (as is the practice for experienced, effective instructors) (Ellis et al, 2014, Saccomano, 2013). The ongoing process structure, including self- monitoring and documentation methods, will help teachers begin to connect the instructional model with their own teaching practice, and the metacognitive practice of seeing current practice in relation to an end goal, and beginning to design steps toward it (Hager, 2012). With the explicit development in metacognitive strategies and use of tools such as video, coaching, and reflection, novice teachers will begin to see a positive correlation between reflection and student achievement (Akbari and Allvar, 2010).

Conclusion

Newmann, King, and Youngs (2000) posit that professional development that focuses solely on teachers' classroom practices is limiting if the end goal is truly improvement in schools, systems, and student outcomes. For this reason, *all* teachers must develop specific knowledge of their teaching practice, and the effects of that practice on students. This action research will investigate the extent to which reflection and metacognition can accelerate novice teacher reflective capacity and metacognition. This research will not directly address the question of whether or not improved metacognition enables novice teachers to be better teachers (per a teaching effectiveness rubric): the argument posited in this literature review is that reflection generates improved practice, and thus coached metacognition is one path in order to improve instruction and student outcomes.

Figure 1 (below) illustrates steps in a facilitated reflection professional development model that serves to inform this action research (Sargeant et al 2014). Coaching is one thing that has been shown to ensure that a teacher takes a practice, strategy, or step, and incorporate it into his/her classroom, yet coaching should not be limited to implementing *instructional* strategies and practices (Joyce and Showers, 2002). Sargeant, et al 2014 have shown that reflection and metacognitive development can be facilitated, and that this leads to improved implementation of feedback. Thus, the action research goal is

to explore the extent to which explicit coaching focused on metacognition and reflection through video provide novice teachers the opportunity to develop an instructional model and articulate their reflections on their teaching practice.

Figure 1: Process of Developing Metacognition via Coaching and Feedback (Sargeant)

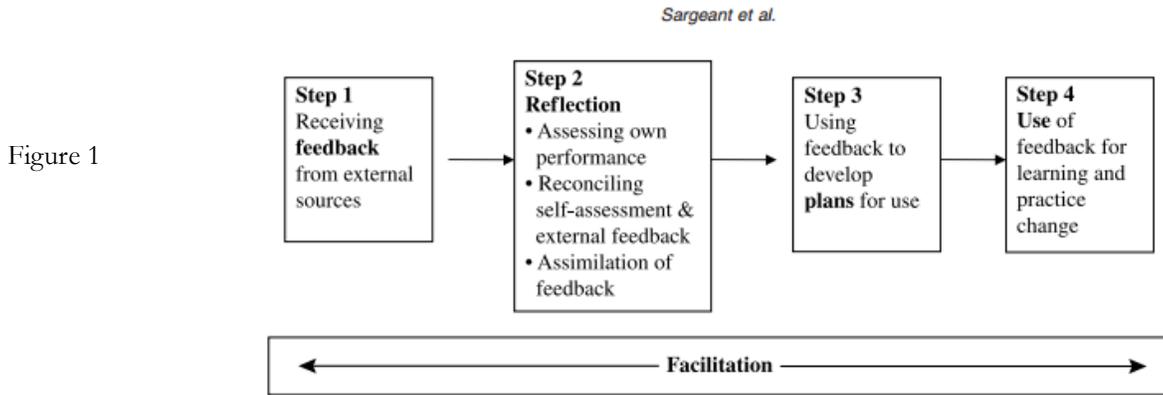


FIGURE 2. Model for “directed” self-assessment within a social context.

Table A: Theory of Action

Theory of Action

Problem of Practice	Literature Review	Intervention	Expected Outcome
Urban schools have many new/novice teachers.	Accurately assessing teaching practice is hard.	Models of instruction: coach teachers to understanding specific components of teaching practice. (Create shared	Novice teachers gain experience reflecting on teaching

<p>New teachers in urban districts need to become good teachers quickly.</p> <p>New teachers need to improve while teaching.</p> <p>Novice teachers do not have an accurate understanding of excellent teaching practices.</p> <p>New teachers don't always know what to change or how to change it in their classroom.</p> <p>New teachers mis-assess their practice, leading them to think they are strong in areas they are not.</p> <p>Novice teachers do not match the rubric terms with the practice, so they do not necessarily address specific areas for improvement.</p>	<p>Self-assessment through reflection takes time and thought.</p> <p>Accurate self-assessment requires a clear mental model.</p> <p>Teachers need models of instruction in order to figure out where they are going with their instructional practice.</p> <p>Accurate self- assessment requires accurate understanding of the complexities of the task/teaching and strategies to use.</p> <p>Teachers need to first understand their behavior in order to change it.</p> <p>Metacognition can be explicitly taught.</p> <p>Feedback from supervisors increases self-assessment accuracy</p> <p>Cognitive coaching can help teachers to reflect on the mindsets behind their instructional decisions in order to make meaningful change.</p>	<p>definition of terms.</p> <p>Explicit coaching on video-based reflection: help teachers develop accurate pictures of their instruction.</p> <p>Explicit coaching on metacognitive strategies: building metacognitive awareness of teaching strategies and practices, so that teachers ask themselves what am I doing? How? Why? Did that work? Why/why not? What other options are there?</p> <p>Intervention Steps: Co-Reflection using Model Video: Teachers describe their definitions of a particular teaching practice. With a coach, watch a lesson that highlights the practice. After, discuss what was different between what the teacher believed and what the exemplar video showed.</p> <p>Reflection on videoed lessons: teachers reflect on a lesson and debrief the <i>reflection</i> with the coach- what did they think happened? What happened on the video? Do those reflections match?</p> <p>Coaching for Metacognition: Effective strategy instruction:</p> <ul style="list-style-type: none"> • Modeling- think alouds with coach • Diagraming – thinking maps/concept maps for instruction • Practice (teacher practices during coaching sessions) 	<p>Teachers will be more reflective and metacognitively aware of their instructional practice- how and why they make particular instructional decisions.</p> <p>Novice teachers develop models of instruction, ideas of what good teaching practice looks like.</p> <p>Teachers become more knowledgeable about teaching practice and more perceptive of how their actions impact their classroom.</p> <p>Teachers and leaders have a more aligned evaluation/ reflection on a teachers' practice.</p> <p>Teachers reflect independently on lessons, and create specific action steps for improving their instruction daily.</p> <p>Evidence of Impact and Process : Initial evaluation (fall) scores- difference between novice teachers and school leaders Videos: Exemplar and teaching Video Based Coaching transcripts) Post-lesson reflections, post-coaching reflections, video reflections from teachers</p> <p>Final evaluation (spring scores)- difference between novice teachers and school leaders</p> <p>Reflection Journal (Research)</p>
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Intervention and Data Collection Plan

Process:

Outlined below is the process, in multiple steps for the intervention I propose to address the problem of practice described above.

Baseline Data Collection:

Teacher Rubric Self-Assessment and alignment with administrator Rubric Assessment

Reflective Practice Survey
 Teacher reflection on instructional practice

Cycle 1:

Teacher teaches a lesson with an area of instructional focus
 Watch exemplar video in coaching meeting, with coach
 Teacher reflects on the exemplar video in relation to his/her teaching practice. Specifically, the teacher considers the question, “what about the video made you think differently about your practice?”

Cycle 2:

Teacher teaches a videotaped lesson with the same area of instructional focus from Cycle 1
 Co-watch video with coach and both engage in a reflective conversation about the lesson, aimed at the teacher’s articulating the reasons for specific instructional decisions, and how those impacted the classroom
 Teacher reflects on the lesson post-coaching

Cycle 3:

Teacher again teaches a videotaped lesson with the same area of instructional focus from Cycles 1 and 2
 Teacher independently watches the video and reflects on the lesson, given a mixture of close ended prompts and open ended prompts.
 Teacher reads his/her reflection through, and watches the video again, and reflects on the *process*, given prompts.

Impact:

Teacher Rubric Self-Assessment and alignment with administrator Rubric Assessment
 Reflective Practice Survey (same survey as was given as part of the Baseline Data Collection process)
 Teacher reflection on instructional practice: the teacher ends all three Cycles considering the process, and his/her ability to think about what s/he did during a lesson, why, and the outcome of the actions.

Table B: Data Collection by Cycle

Overall Data	Cycle 1 Steps	Data from Cycle 1	Cycle 2 Steps	Data from Cycle 2	Cycle 3 Steps	Data from Cycle 3
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Pre-evaluation Pre-survey Post-evaluation Post-survey Teacher documented questions used to reflect Videos Reflections Coaching meeting notes Research Journal	Teach Reflect Coach with model Reflect/ Self- assess	Coaching notes (with exemplar video) Post-coaching reflection (Teacher) Research journal	Teach- videoed lesson Video-based coaching Post- coaching Reflection	Coaching notes (with teaching video) Post meeting reflection (Teacher) Research Journal	Teach- Videoed lesson Video-Reflection Reflect/Self-assess	Pre-video reflection Video Post- video watching reflection Teacher documented questions used to reflect Research journal
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Table C: Data Collection By Component

	Component	Activities	Purpose/Question to be answered	Data to be Collected	Type of Data
1	Pre- Intervention Evaluation Rankings	Teachers self-rate on Cornerstone Teacher Evaluation Rubric	How closely do teachers' self-assessments match the reality of instruction? (per evidence and admin)	Teacher rankings on evaluation (difference between T and A, applicability of evidence) Research Journal	Impact (baseline)
2	Pre-Intervention Reflection	Teachers independently reflect on a lesson or series of lessons	How accurately reflective are teachers in analyzing their own teaching practice?	Reflection assessment/survey tool Teaching video Research Journal	Impact (baseline)
3	Pre- Intervention survey on reflection	Teacher individual survey	Gather information about -how teachers reflect -what evidence T's use to reflect	Pre intervention Survey Research Journal	Impact (baseline)
4	Model Teaching Practice and Coaching (multi-week cycle)	- Coaching session: watch video of exemplar practice	Do models of instruction help novice teachers be more accurate in their teaching practice?	Meeting prompts, questions, and responses (Transcription) Post-meeting reflection Coaching meeting notes Research Journal	Process
	Component	Activities	Purpose/Question to be answered	Data to be Collected	Type of Data
5	Video Reflection (guided)	-Teaching video - T reflection post-video	Does video reflection help novice teachers become more accurate	Meeting questions and prompts (Transcription)	Process

		<p>Teacher meets with coach Specific coaching toward metacognitive awareness of teaching practice Guided Video reflection</p> <p>Post- conference/video reflection/self-assessment</p>	<p>in their self-assessment of teaching practice?</p> <p>Does guided reflection help novice Ts become more accurate in reflection/self-assessment?</p> <p>Does coaching for metacognitive awareness help teachers become more accurate in self-assessment?</p>	<p>Post-video/meeting reflection</p> <p>Meeting notes</p> <p>Teacher reflection (post meeting)</p> <p>Video reflection (Reflect and rate, watch and rate, reflect on changes)</p> <p>Research journal</p>	
6	Video Reflection (independent)	<p>Teaching video - T reflection post-video</p> <p>Ts document the prompts and or questions they used to frame their reflection</p>	<p>Does video reflection help novice teachers become more accurate in their self-assessment of teaching practice?</p> <p>Did the guided reflection help build teachers' independent reflective capacity?</p> <p>Do question prompts help novice teachers reflect accurately as they reflect on their teaching or on a teaching video?</p>	<p>Video reflection (watch and rate, reflect on instruction)</p> <p>Video</p> <p>Research Journal</p>	Process Impact
7	Post Intervention Evaluation	Teachers self-rate on CAPS Teacher Eval Rubric	How closely do teachers' self-assessments match the reality of instruction? (per evidence and admin)	<p>Teacher rankings on evaluation (difference between T and A, applicability of evidence)</p> <p>Research journal</p>	Impact
8	Pre- Intervention survey on reflection	Teacher individual survey	<p>Gather information about -how teachers reflect</p> <p>-what evidence Ts use to reflect after reflection</p>	<p>Post intervention Survey</p> <p>Research journal</p>	Impact (baseline)

Intervention and Data Collection Plan

The action research process and data collection proposed above will take place at Cornerstone Academy

Preparatory School over a period of 2 months in March and April. Cornerstone is the site of instruction of all the study

participants, and thus an applicable site for the research proposed above. There will be three participants, all novice teachers, one first year teacher, one second year teacher, and one third year teacher. Teachers have been selected based on their years' experience, and their initial rubric self-assessment scores that differed significantly from administrators' rankings.

Rubric evaluation scores, reflection surveys, video observations, notes from coaching conversations, teacher written reflections, and other data will be gathered over the course of the intervention by the researcher. Reflection surveys and reflective/metacognition-generating questions and prompts will be the external instruments used to gather information about teacher reflection.

Data from evaluation scores and reflection surveys will be collected and analyzed quantitatively, to assess the extent to which reflection has improved in accuracy and the extent to which rubric self-assessment scores have become more accurate and aligned with administrator scores. Data from coaching conversations and teacher written reflections will be transcribed and coded, to find evidence of reflection and metacognitive awareness of teaching practices used and rationales for those practices. As a whole, data will be used to determine the extent to which participation in specific coaching on metacognition will impact teachers' ability to accurately self-assess.

Research Methods

The ultimate goals of this research related to improving student achievement through improving teacher reflection and self-assessment accuracy, I focused primarily on the relationship between instructional models, metacognitive coaching, reflection, and self- assessment. I considered two primary questions. First, does video-based coaching and reflection help novice teachers become more accurate in their self-assessment of their teaching practice? This is an important question given the time, energy, and resources schools like Cornerstone spend on coaching and developing novice teachers, as accurate self-assessment has been shown to support professional developmental growth in professionals in multiple contexts. Thus, it is crucial to consider the extent to which video can aid in creating shared mental models such that teachers can more accurately understand their teaching practice. Second, does explicit coaching on metacognitive awareness* help novice teachers be more reflective in their practice, such that they are more accurate in their self-assessment? Awareness of one's thoughts and actions (metacognition) is a skill developed over time and through action and practice. Novice teachers have a more difficult time being aware of their thoughts and actions, especially given the multitude of actions, thoughts and processes that occur throughout a given day or lesson. I was curious to see if explicit coaching, modeling, and direction for metacognition and

reflection would help teachers develop this tool, thereby resulting in a more accurate self-assessment at the end of the intervention.

I collected data before, during, and after the intervention process itself. The data consist of: self-surveys of reflective practice (both pre-intervention and post-intervention), coaching meeting notes, coaching meeting transcripts, teacher reflective journals, my own research notes, teachers' beginning of year evaluation self-scores and administrator scores, and teachers' end of intervention self-scores and administrator scores. Each teacher had 3 coaching sessions in which we collaboratively watched instructional videos and reflected. I transcribed these word-for-word in order to both assess the impact of the intervention and to document the process of the meetings and each teacher's coaching and reflection process. After each meeting, teachers reflected on their lesson in writing in a journal entry, and I collected these after our final coaching meetings as a way to examine their process of reflection, as well as to compare the beginning entries to the ending entries.

In order to more deeply examine the impact of the intervention on teachers' self-perceptions of their reflections, I also surveyed each teacher before and after the intervention. The pre-surveys were sent out 2 weeks prior to the start of the intervention, and teachers had a cursory understanding of the focus of our work and the goal of building their reflective capacity. (Part of the process of the intervention involved being explicit about the goals, as a way of building metacognitive awareness of the process of reflection.) Post-intervention surveys were sent out 2 weeks after the last meeting with each teacher, after teachers had completed their reflection journals, self-evaluated on the instructional rubric, and had their last meeting with me. As the goal was to explore the impact of my intervention on the accuracy of teacher self-assessment, I also collected teacher rubric scores. I gathered teacher beginning of the year self-assessments on the Cornerstone Instructional Rubric (a tool of 69 indicators on which teachers rate themselves 1 through 4. 1= "I do this none of the time" to 4= "I am able to serve as a model for other teachers") (see Appendix B), and I gathered teacher end of intervention scores on the same rubric. The timing coincided nicely with our Spring Evaluation process, so I was able to collect the rubric scores from our evaluation process, rather than having teachers do this as a separate step. The surveys and the evaluation data represent the sources of data that were indicative of the impact of my intervention, along with some information from the teacher reflective journals.

I was able to gather the same sources of data for all three participating teachers, although technical difficulties during a coaching meeting cut off our voice recording 3 minutes into a conversation. In this case, my detailed coaching notes served as a proxy for the transcript of this meeting session.

Expected Change	Data Sources	Anticipated Learnings
<p>Teachers will have a more accurate understanding of their teaching practice in relation to an instructional model</p> <ul style="list-style-type: none"> • identify key actions a model teacher took in a video • identify similar practices in their own video/classroom • identify gaps in their instruction in their own video/classroom • accurately scoring their teaching on an instructional rubric (aligned with coaches/administrators) 	<ul style="list-style-type: none"> • Teacher Evaluation Rubric scores (compare teacher to administrator in beginning and end) • Transcripts of coaching meetings • Teacher reflective journals • Researcher notes 	<p>Process: Throughout the intervention, this data show how teachers built their understanding of the instructional model, how they framed their reflection, what coaching prompts led to reflections, and how video was used in the coaching meetings to spur reflection.</p> <p>Impact: Comparing the Evaluation scores from beginning to end shows changes in teacher self- assessment accuracy Comparing the transcripts of coaching meetings and teacher reflection journals from beginning to end shows changes in practice resulting from the intervention</p>
<p>Teachers will demonstrate increased ability to reflect on their lessons independently</p> <ul style="list-style-type: none"> • identify when they do/do not execute a particular action in the classroom • analyze why the above occurred • describe their thought process as they reflect (including focus areas for reflection, the evidence used, and potential adjustments) 	<ul style="list-style-type: none"> • Pre-and Post Survey questions • Teacher reflective journals • Transcripts of coaching meetings • Researcher notes 	<p>Process: The teacher reflective journals showed how teachers described their practice over time, and the coaching meetings also illuminate how a gradual release to independence functioned as a part of this intervention.</p> <p>Impact: The Pre and Post survey questions compare how teachers independently describe their reflective process before and after the intervention.</p>

My first step in data analysis for my research was to begin with the quantitative. I took the evaluation rubric scores (both teacher and administrator) from the beginning of the year and compared them to see how many of the 69 indicators were aligned. This is how I measured the “accuracy” of teacher assessment and reflection. I then compared the teacher and administrator rubric scores from the Spring evaluation (post-intervention) to see how many indicators were aligned after the intervention. Once I made the comparisons for alignment, I compared the number of aligned indicators between the beginning and ending evaluation rubrics to see the change in alignment.

The qualitative data analysis was a more involved process. I began by compiling a list of my research questions and used those as the starting point for creating categories of codes. I broke the categories down into a longer list of more specific codes (to which I added as I began to analyze more data). Using that list of codes (approximately 40), I coded

meeting notes, meeting transcripts, teacher reflective journals, pre and post reflection surveys, evaluation rubrics, and my research notes.

After coding the above data, I again began with a quantitative approach. I used an Excel formula to count the frequency of codes throughout a data set. I also compared frequency between data sets to determine whether or not certain codes appeared more in one set than another. I compared pre- and post- reflection surveys to look for changes in teacher perception of reflection, and to find patterns among data sets. From there, I looked deeper into the significant codes (codes that were more frequent, or codes that I anticipated being more frequent than they actually were). I looked to see if those codes indicated an independent reflection, or if it was one that was prompted. This became a crucial point of analysis in understanding how the teachers were coming to learn to be metacognitively reflective. I also looked to see if the comments came from one participating teacher or if they were dispersed among all three.

Once I reviewed each data set individually, I looked across data sets (teachers, meetings, surveys, journals, and evaluations) for the different areas of expected change and other trends that I had found in earlier analysis. For each major trend that emerged, I focused on first, did the teachers become more accurate in their reflections based on the instructional model, and second, whether the teachers' reflective capacity/metacognitive awareness had changed. I also wanted to know if this change was true for *all* the participating teachers, or if it varied per teacher. I measured change by looking at the frequency and quality of comments (in meeting notes, journals, transcripts, and surveys) and comparing the early stages of the intervention to the ending stages. In these tools, an indicator of change included references to model teacher actions, mention of a need to do something differently in future lessons, self-assessments that aligned closely to my own notes and data from meetings and video observations, and/or the quality and specificity of the descriptions of their teaching practice.

The majority of the data collected for this action research was based on teacher reflection, survey, and recorded reflection. The preponderance of self-reported qualitative data meant that I focused a great deal on what teachers themselves said about their reflective process. While I coded and quantitatively analyzed some aspects of the data, it is important to note that the data collected was mainly from the participants themselves. Perhaps future action research studies with similar focus areas should consider other methods to collect objective data about teacher reflection.

Analysis and Findings

In analyzing the data from this action research, I sought to understand if (and how) the different aspects of the intervention process impacted teachers' ability to accurately self-assess on their Spring Evaluation using the instructional model that we referred to in the intervention coaching sessions. Specifically, I wanted to know how video-based coaching

and reflection, exposure to instructional models, explicit coaching on metacognitive reflection and journal reflection affected teachers' abilities to accurately self-assess. Additionally, components of the process illuminate important considerations for novice teacher metacognition and self-assessment. Engin and Priest (2004) highlighted the importance of approaching a classroom with a focus, and so I also consider how process of the intervention influenced teachers' abilities to create a focused reflection. Last, as the intervention purposefully addresses teacher metacognitive awareness of their teaching practice, I also analyze how teachers' own perceptions of their reflective capacities changed over time. The extent to which these components of the intervention impacted the Spring Evaluation self-assessment can and should inform how schools staffing positions with novice teachers can quickly build capacity in service of improving student achievement.

How do instructional models, video-based reflection, explicit coaching on reflection, and journaling impact teacher self-assessment on a teaching rubric?

In order to analyze the influence of this intervention on the participating teachers, I examined their teacher evaluation data to measure its impact. Of 69 total components on the Instructional Rubric, in the beginning of the year (prior to intervention), teachers and leaders were aligned on 17, 11, and 14 indicators. In the end of the year (end of intervention), teachers and leaders were aligned on 52, 37, and 53 indicators. One teacher aligned on 35 additional indicators, another on 26 additional indicators, and the third on 39 additional indicators. On average at the beginning of the intervention, the group was aligned with 14 indicators. At the end, average alignment was 47 aligned indicators. Overall, the group averaged 47% growth in alignment between the beginning and end of the intervention. For all teachers, their specific areas of focus during the coaching were aligned between teacher and leaders.¹ Overall, there was a marked increase in alignment of rubric scores between beginning and ending evaluations for the focus teachers, demonstrating the significant impact of the intervention on the accuracy in teacher reflection and subsequent self-assessment of their teaching practice as a whole.

Teacher surveys from the beginning and end of the intervention also illuminate the impact of the intervention on their reflective abilities. Between the beginning and end of their focused work on reflection using video, teacher survey responses indicate that the *amount* and *timing* of reflection did not change, however, they felt that the *quality* and the *focus* of the reflection improved as a result of their work with video-based coaching and reflection. One teacher wrote, "*My reflection process is more focused than it used to be. I have questions that drive my reflection time. I used to think about every detail and often times felt overwhelmed. These questions have allowed me to focus on certain aspects of the lesson.*"² Another noted, "... [*When I reflect*] *hasn't changed. Although, I do believe my reflections have become more accurate and targeted by watching the video and through coaching.*"³ Teachers

highlighted the increased accuracy that they felt video allowed them to have, and mentioned the role that coaching played in their reflection process.

How did the use of video aid in developing more accurate teacher reflection?

Analyzing the process of video coaching and reflection illuminates *the process* by which the intervention achieved the above impact. The process of the intervention, documented using coaching notes and transcripts, illuminates the effectiveness of using video as a coaching tool to build reflective capacity. Using video allows teachers and leaders to align their understanding of what happens in a classroom: they share a vision of what a specific teaching practice looks like, and thus can both accurately understand the reality of the teacher's classroom. While video provided a focus and a foundation for reflection, teachers emphasized the importance of the coaching that accompanied the video-based reflection: *"The videos have allowed me to see myself and notice things that I don't think about in the moment. Also, watching the videos with my coach has given me a framework on how to observe myself. She also helps me understand if I reflecting about the things that I should be focused on."*⁴ Feedback and coaching played a crucial role in highlighting the focus areas for teachers to focus on in their reflection-based coaching meetings. As we broke down and discussed the "instructional model" in our initial meetings, we pulled out key actions that the teacher began to focus on in their own reflections.

When they referenced videos in their reflection journals, teachers noted how the video gave them *clarity* on what did or did not happen during their lesson. For example, *"I was focusing a lot on what my scholars were doing. I saw many of my scholars lose focus and quickly regain it"*⁵ and, *"There was a clear moment when I no longer knew what to do. There was a breakdown where all the students were not sure what to do."*⁶ The benefits of the video were two-fold: videos served to provide a clear picture of the teachers' instructional practice so that they were able to see the instruction a second time from a different perspective, and they were able to provide a foundation and focus for a reflective conversation. Using the video, teachers did not have to rely exclusively on memory to recall a lesson or its outcomes. Coach and teacher were able to stop at a given point of the lesson and discuss specific actions that the teacher took. This allowed for specific, action-based discussion was one aspect of an intentional structure to build effective self-monitoring (Hager, 2012), which led teachers to be more accurate in dissecting a video of their own instruction.

Subsequently, teachers with the accurate perception of their teaching are more likely to improve, leading to better instruction in novice teacher classrooms (Bercher, 2012).

How does video-based coaching play a role in more accurate teacher self-assessment?

The process of video-based coaching led to increased and more accurate teacher reflection over the course of the intervention. The process data from reflective journals and coaching meetings illuminates how reflection adjusted as teachers gained experience with the process of video-reflection. Teachers mentioned their coaching meetings more frequently than their videos in their reflective journals, suggesting that perhaps they gained more insight into their teaching from the coaching than the video alone. Entries after the first two meetings generally returned to the focus that the coach brought to the video observation, *“As [my coach] would stop me or I would stop myself, I began to get a clearer picture of my main focus! By the end of coaching session, I walked out with a sense of what I needed to do.”*⁷ Coach prompts and guiding questions throughout the first two meetings directed teachers to certain components of their instructional model to focus on.

The third coaching session required teachers to step outside of their own model of what a coaching meeting was, and guide their own process. Prior meetings had been *“guided by [my coach’s] questioning. [She] started with questions that were broad. Very broad. The questions started with a big idea of what happened in [the] lesson, from there the questions started to get more specific.”*⁸ Throughout the initial two coaching meetings, I had been clear about the types of questions I was asking (broad, then specific), as a way of coaching teachers how to ask questions related to an instructional video. However, even with the gradual release model of the intervention, teachers were still nervous when it came time for them to drive the reflection in the third coaching meeting. *“This session was a scary one. This one is when I had to lead the conversation. I started by watching a few minutes of my video.”*⁹ Despite the discomfort voiced here, and by a couple of sharp intakes of breath from teachers in coaching conversations, teachers listed questions for reflection that followed the model that I had used in the second coaching session, beginning with a broad and goal- oriented focus, then moving to more specific details related to the lesson. After participating in two coaching sessions in which reflection was modeled using driving questions as a focusing technique, teachers began to be more cognizant of how to drive a focused reflection. *“I want to say ... I’ve become more aware of what I need to do [as] I reflect. This does not mean that I have not reflected, it means that I have become more strategic with my reflections and how I implement them.”*¹⁰ Focused questions allow novice teachers to feel less overwhelmed by the amount of information they are consistently processing in the classroom, and to be able to think in more specific terms about an area. *“I have questions that drive my reflection time. I used to think about every detail and often times felt overwhelmed.”*¹¹ Although teachers reported becoming more adept at focusing their reflections through questions, it’s important to return to the role that the initial coaching played in highlighting the areas for focus, *and* in building the teachers’ capacity to ask themselves questions about the instructional focus area.

While teachers became more adept at asking and answering reflective questions after their coaching, they also became more aware of the accuracy of their reflections. Prior to the specific work on reflection, teacher ratings of their own reflections ranged from “Very Accurate” to “Somewhat Accurate”. None of the participants believed that their reflections were “Not at All Accurate”, and only one believed hers were “Very Accurate”. At the end of the intervention, all three teachers believed that their personal reflections were “Fairly Accurate”. The teaching videos and coaching feedback specifically related to reflection (e.g. coach restatements such as, “so, your reflection was X, but the video actually shows Y” or “your reflection was X, which is a very specific and accurate thing to notice, and something I pulled out as well”) helped to provide a framework for reflection, in addition to building their understanding of instruction. One teacher noted, *“The videos have allowed me to see myself and notice things that I don't think about in the moment. Also, watching the videos with my coach has given me a framework on how to observe myself. She also helps me understand if I reflecting about the things that I should be focused on.”*¹² Another noted that the coaching assisted in targeting the strengths and areas for improvement *“... being able to have someone guiding me through my thinking process and allowing me constant feedback and advice has allowed me to have a more targeted next steps. It has been extremely helpful to be able to work with someone on what my strengths and areas of improvement are.”*¹³ One teacher noted that the reflections *“do help me develop next steps. Most, if not all, of our conversations have lead to implementation of procedures that need to happen in my classroom.”*¹⁴ His definition of “reflection” is related to the ability to pull out next steps, which is slightly different than the definition of reflection as the ability to understand the action a person takes in a particular place at a particular time. It may have been necessary to define terms more clearly at the beginning of the intervention, in order for this teacher to be clear on the process. For all three teachers, however, the video coaching process brought a framework for reflection to a process that was otherwise overwhelming and, in all three cases, reliant on memory of the lesson.

The post survey data reveals that each teacher became more aware that their reflections of practice were either not always accurate, or more accurate than they initially believed the reflections to be. All three teachers noted that the validation of their reflection from their coaching sessions were important aspects of the meetings and overall process. However, if this particular group of novice teachers is to become more independently reflective, they will also need to feel able to independently reflect accurately. At the end of the intervention, teachers stated that they found that the coaching sessions validated their reflections, which indicates an increased level of confidence in their reflections after participating in the intervention. Increasing teacher confidence in their ability to reflect removes two of the major barriers to reflection noted by Bishop, et. al (2010): they feel more competent in their reflection (Bishop cites the difficulty of reflection as a barrier) and, teachers are less afraid of being judged on their reflections (fear of judgment is another barrier).

How do independent teacher journal reflections change over the course of specific coaching on reflection using video?

Teacher reflection journals illuminate the intervention's impact on teacher reflection. Teachers themselves documented the course of the intervention through journal entries that they wrote after each coaching session (and sometimes more frequently). These journal entries were one aspect of process data that aids in analyzing the intervention as a whole. Journal entries became more detailed, longer, and more specifically about a certain lesson over the course of the intervention. Teacher reflections, on average, increased in length from half a page to a page or more. Beyond the differences in length from beginning to end of the intervention, entries with later dates had more frequent reflections that were specific to a lesson, as well as more specific next steps.

The journals demonstrated an increased awareness in teacher actions and their impact of teacher action on the end-of-lesson outcomes. In the initial reflections (after Coaching Meeting 1), journal entries focused predominantly on the teacher actions of the model video with little to no connection to how the action impacted students or the outcome of the lesson. One teacher noted, *"Throughout the lesson video I saw Sam taking pauses that scholars had think time."*¹⁵ Another similarly focused specifically on what the teacher in the model video did, *"[she] made connections to past lessons,"*¹⁶ and the third broadly referenced the focus of the video without specific actions or outcomes, *"The teaching channel video we watched allowed me to view how a think- aloud would work."*¹⁷ The three initial reflective journal entries from the participating teachers allowed me to see how they independently thought about a video, reflecting at a distance from coach support. Teachers were previously not able to reflect independently in order to accurately self-assess their practice. Over the course of multiple practice sessions, all three teachers became more adept at thinking about what happened during their lessons, comparing it to a vision of teaching, and identifying areas to improve. The use of instructional models was a key in facilitating the initial stages of reflection.

How does the use of instructional models impact teacher self-assessment?

One key aspect of reflection, according to Engin and Priest (2014), is reflection based on a model. In order to understand how using models impacted teacher reflection, I analyzed how teachers used (or did not use) models in coaching sessions, and how teachers referred to models in their reflection journals. Whether or not teachers have and use an instructional model in their reflection impacts the degree to which they are able to align their reflection to the metrics on which they assess themselves. My theory of action is that with a clear picture of the end goal, teachers will be more able to analyze their practice in relation to it. Teachers used an instructional model in their lessons sporadically, and more often in coaching sessions when the coach specifically prompted it. There were more references to coaching meetings than to videos or instructional models when teachers independently reflected. Teachers more frequently referred to the instructional model

video when it was a peer and when it was a model that the teacher saw more than once. For example, one teacher observed two lessons of a partner teacher, and he more frequently referenced her lessons than the other teachers referenced the instructional models that they saw. In addition to referencing the model, he also began to emulate specific aspects of her instruction, which led him to develop as a teacher. While the focus of this action research was not, necessarily, to measure how teachers improved instructionally while using video based coaching, I believe this is worthwhile to note as a potential further research topic.

Teachers reflected using their coaching meetings more often than they used instructional models alone: they referenced coaching meetings in reflective journals at double the rate of instructional models. Novice teachers in this group were developing their models of teaching *more* from the coaching meeting discussions than from the model videos alone. This process of co-creating instructional models has implications for further study in this area, which I will discuss below. The process of co-creating an instructional model (and the actions that comprise the model) led teachers to more focused thoughts about their own practice. “[having] someone guiding me through my thinking process and allowing me constant feedback and advice has allowed me to have a more targeted next step. It has been extremely helpful to be able to work with someone on what my strengths and areas of improvement are.”¹⁸ The guidance mentioned began in the first coaching sessions, in which we discussed the instructional model video- even the selection of the video played a role in focusing the teacher on a specific aspect of his/her instruction.

Initially, novice teachers are not necessarily equipped with the tools (knowledge and experience) to break down an instructional model into its component pieces and generate next steps using the model. “*Sam's pacing is amazing. It goes at a "just right" speed. My question is "how did she develop that pace"? I often find myself going too fast or too slow.*”¹⁹ While he was able to identify the model, the lesson pacing, he was unable to break the video itself down in order to see the specific actions that the teacher took in order to create the pace that he saw. This led to more vague comments about the models, at first: “*She was amazing! She explained the lesson in multiple ways.*”²⁰ This same teacher also noted later, “*I feel like [my lesson] was pretty good, until i got to like, writing the fraction and explaining it in a different way so that they would understand and then i was like obbbb nooo I don't know how to explain this in a different way.*”²¹ While she was able to identify a specific moment in her practice *in the moment*, she had yet to develop the tools to match the execution of the model. However, despite the lack of skill in execution, the reflective capacity is clearly slowly building. Awareness is the first step toward action and improvement, and so building reflective capacity in this way is a necessary first step toward instructional improvement.

Through specific coach prompting (and, in a couple of instances, direct coaching), teachers were able to move somewhat beyond the feeling of awe they felt in initially observing the instructional model. This was important, because the

teachers needed to feel as though they would be able to act in similar ways in order to demonstrate components of the model themselves. In the first two coaching meetings, I prompted quite heavily. The purpose of the prompts was to have teachers focus on the teacher actions that relate to the instructional model. I used prompts such as “What did the teacher do in that moment?” to help teachers see actions from the instructional model that they may otherwise have missed as we watched the video of the model in our first meeting. In our second meeting, as we watched the participating teacher’s instructional videos, I used prompts such as, “I’m going to pause here. Tell me about those last couple of seconds of video.” and “What did you choose to do there? Why? What did you say?” in order to focus teachers on specific parts of their lesson that related directly to the goal from our model.

T: So this is when I stumbled and I said to say the sound and when I meant to say the word. I feel like I do that a lot though, and that’s something I need to be conscious about that myself.

C: Say more

T: I’ll say something to someone and it will be different in my head, what I say in my head versus what I say out loud...There wasn’t that consistency at the beginning of the sentence, I said “give me sounds” it wasn’t supposed to be sounds, it was supposed to be “give me words” give me 3 WORDS that have the Z sounds. So I omitted that part and kind of chopped it up and said give me three sounds instead of give me 3 words, which makes no sense

C: Thinking about that: part of reflection is digging deeper and thinking about okay, why is that? So, I’m going to be that person asking why right now, but you can also ask yourself WHY as you are reflecting. So, why do you think this pattern happens?

T: ...I’m not too sure- I notice that it happens, and i get frustrated with myself, because i know it happens and I notice it happens, and it stumbles out, and that’s just what comes out. And so it frustrates me, in my head i feel like I say it correctly, then I see it in the video and i hear it and this is what i say in my head it just didn’t come out of my mouth.

C: How do you practice your lessons?

T: I usually just do it by going through it, I’ll read the curriculum, or in this case I’ll read the words that I was going to use already there and this time I tried staying with the script as much as possible and that’s usually how I practice, from the script, but that’s usually what I do

C: Do you practice out loud?

T: Sometimes. there are times that I practice out loud and there are times when I just do it in my head and I’m sitting there and I’m reading it and I’m picturing what else might happen...but out loud, not all the time. that’s something that I should be doing a lot more, the out loud part. ²²

The effect of these prompts (some more direct than others) was that teachers began to list specific teacher actions related to executing a lesson closer to what they had seen in the instructional model. As I tied the goal from the instructional model coaching session to the teachers’ specific goal in the lesson, we were able to discuss the teachers’ lessons with reference to specific parts of the model and the coaching video. By prompting the teacher, I forced the teacher to illuminate many of the key insights from the lesson and help him/her create a more complete picture of the lesson. Teachers ended coaching sessions with a more accurate perspective on their instruction, including gaps and next steps. Specific prompting led teachers to build their reflective analysis skills during these coaching sessions, as evidenced by their comments about their instruction and next steps.

In the end of the intervention, all three teachers independently specifically tied their next steps to a goal from an instructional model. For example, *“In order to [have students talk more in discussion], I need to be extremely explicit in my instructions and make sure I save time by having S apply their knowledge (rather than read the chapter and then answer questions).”*²³ And, *“Finally, my main goal is to model expectations and call out positive behavior This will help me create high expectations an increase engagement.”*²⁴ Last, *“In the first group, I spent too much time trying to figure out what they knew instead of pulling from what I already knew about their data and process. This was not effective in group 1. This was effective in group 2 however because of the process of regrouping.”*²⁵ After the weeks of coaching on the specific components of the instructional model and how those either did or didn’t manifest in their instructional videos, teachers clearly felt more confident in articulating what they could potentially do in order to reach the model. This indicates that teachers were increasingly aware that they were *not* yet at the level of the model, and the depth of their reflection also indicated their understanding that they were making progress toward it in some way.

Of the three teachers, only one related her video observation directly to a next step in the same comment in a journal, *“It was really evident how much time was geared towards something we didn’t really need to focus on and it definitely could have been used for real time practice and feedback.”*²⁶ Next steps are clearly still an area that these three teachers can focus on, but their ability to discern the need for specific action steps indicates increased awareness, and an increased understanding of what those steps may be in order to get closer to the actions of the instructional model. Although the intervention group became more adept at noticing and naming a particular area of their instruction to improve, they still struggled to name the specific action to take to address it. Novice teachers, it became clear, still need support in ascertaining the most effective next step to take once they have reflected on a lesson and found a gap in instruction.

Reflective journal entries referenced the coaching meeting or the teaching model video more frequently than the rubric or their own teaching video. The contents of the coaching meeting, the focus and specific reflections arising in that meeting, perhaps impacted teachers’ independent reflections more so than their lesson video. Another explanation for this could be that the teachers did not watch the video prior to journaling, but rather just reflected from memory of the video or coaching session.

Teachers were previously not able to reflect independently in order to accurately self-assess their practice. This initial problem of practice limited their abilities to grow as educators, because they did not have an accurate understanding of their starting level in relation to the goal. Through working with instructional models and structured reflection, all three teachers demonstrated increased capacity to reflect accurately on their level of practice. This finding supports the work of Ellis et al(2014), which asserted the benefits of reflecting in relation to defined evaluation criteria as a method of self-assessment. As teachers were exposed to the models, they had a more accurate picture of the goal for their practice, which

helped them to begin to see their practice more accurately. Kruger and Dunning (1999) likewise stated that individuals who had been trained in the area on which they were assessed scored more accurately than in areas in which they hadn't been trained. Watching and discussing instructional models served as a type of "training" for the novice teachers, as they began to familiarize themselves with the rubric and practices in it.

How does explicitly coaching teachers to reflect metacognitively affect the accuracy of teacher's reflections?

One of the focus questions that I considered was how explicit coaching for metacognition impacts teacher reflection and accuracy. The essential theory guiding my research was that if teachers are more aware of what they are doing and thinking in the moment, or the more aware they are of how their brain is working as they are teaching, the more accurate their reflections will be.

The teacher's longer and more reflective/insightful reflection journals were one indication that they were more aware of their actions and thoughts over the course of the intervention. The reflection journals all showed similar trajectories in reflection. After the first session (watching the instructional model) the teachers voiced feelings of inadequacy (compared to model teacher video), one teacher wrote about her own lesson after watching a model of a peer teacher, "*I think I could have been more successful as I'll have to go back and rely on heavy remediation...*"²⁷ There were few instances of actual reflection (what the participating teacher did, how, and why) in the first journal entry series. However, this was not necessarily expected after watching the model video. Teachers needed to build their understanding of the model, and the reflective journals show the process of how the teachers did that by noting the actions the model teachers took. While there are not yet specific references to brain processes/awareness of that, the teachers did begin to engage in the process of understanding the model as they listed what the model did, in many cases.

After the second coaching session (watching their own video and reflecting with me and my prompts), their journals recorded more changes in thinking and/or specific adjustments than after the first coaching session. The reflections were clearer and more specific about the teacher actions. One teacher took the actions that she saw in her video, and used the model she had watched to reflect on what she had done in the video: "*While watching the video of my guided reading I was able to see and hear the questions I was asking my scholars. I recognized that Ss need to have more responsibility and leadership in their learning- I'm leading too much.*"²⁸ She used the video to articulate what she did, and compared her actions to that of the model to identify a gap in her instruction. This realization happened in our coaching meeting as a result of my prompting her and stopping at a specific point in the video, and she later recorded it in her journal.

The second coaching meeting transcripts were sprinkled with specific coaching on reflection: this metacognition illuminated what the coach's brain was doing. One example is of a more specific definition of reflection, "*That's what we mean when we talk about reflection IN action and you're constantly thinking about what you just said and how it lands and then adjusting. That's what we're thinking about when we're talking about how things go in the moment and then using them to make the adjustments.*"²⁹ Another example is how I was asking questions, "*Thinking about that: part of reflection is digging deeper and thinking about okay, why is that? So, I'm going to be that person asking why right now, but you can also ask yourself WHY as you are reflecting. So, why do you think this pattern happens?*"³⁰ These specific coaching moves prepared teachers to ask themselves questions at the beginning of the third and final coaching meeting of the interventions. They asked themselves targeted questions to focus their reflection on a particular aspect of their teaching.

After the third coaching session (watching the video and driving the reflective process themselves) the reflective journals contained more general reflections about what could have/should have done differently in their lesson as compared to the ideas they had in their head. One teacher noted her focus questions in addition to her reflection, "*This week a big piece of my reflection was on whether I'm honing in on the main objective or getting side tracked. ...I think i spent a part of my lesson today on a part that wasn't my main focus Because of that, it took time off of vital practice they could have been doing.*"³¹ Another teacher explained a gap in her instruction with the rationale for why it was an important action to take, "*I did not give kids the objective beforehand. This would have been helpful so they could see a roadmap.*"³² The third teacher focused on a key action to continue, "*maintaining the expectations and modeling are going to be important. Its something that I will keep up!*"³³ All three journals evidenced specific pieces of their instruction, including how or why it affected their classroom. This reflection *on* action was related to the coaching meeting reflections that they had with their video. It is also important and interesting to note that, as I observed the lessons as I filmed, I noted down reflections that I had on the lesson, including focus areas and next steps. As all three debriefs occurred, I found the teachers *all* listing the same key focus areas and similar next steps that I had written down. This alignment indicates a clear alignment between teacher and coach on the instructional model and areas for reflection and subsequent action. Whereas prior to the intervention teachers were not naming the same areas for growth as the instructional leader, the intervention led teachers to clearly see and name a gap in their practice that was the same as the observer. This finding occurred in *every* participant, regardless of the experience level or prior instructional focus areas, indicating a significant shift in skill and reflective capacity.

Does video coaching with an instructional model change what teachers focus on for in reflection?

The process of the intervention yielded insight as to how using instructional models throughout the coaching series influenced how teachers thought about their lessons. Prior to their video-based coaching series, teachers reflected using various tools: memory of the lesson, student work and student actions, and coaching sessions were the listed tools. When asked for an example of a reflection that they have had, one out of the three participating teachers gave an example of a specific lesson, what happened, and the resulting steps he took to bridge the gap he noticed. Another teacher noted, “*__did __, so I __, when I might have actually __.*”³⁴ While potentially a helpful frame, this is not actually a specific metacognitive reflection, which perhaps is evidence that this particular teacher may be unable to think of a specific reflection in a particular instance in which she analyzed her actions and reasons for acting. Without metacognitive awareness, the teacher is unable to recall a specific instance in which she thought about her class, their actions, and what she thought about it. The third teacher similarly did not reference a specific lesson or event during a lesson, she referenced a group of students whom she is concerned about. This teacher said, “*... They don't just need a scaffold, they need to be retaught material that has been missing for years.*”³⁵ This comment, while important because it addresses significant gaps that the teacher notices, is not necessarily a metacognitively reflective comment either. Even though the teacher is thinking deeply about her students' needs (to some, this may satisfy the definition of “reflection”), she is not necessarily analyzing the actions that play a role in that outcome, which is a more metacognitive practice.

Over the course of the intervention, teacher next steps became more instructionally focused (for example, after the first coaching meeting, one teacher wrote in his journal that his next step was a co-observation with his coach. After the third meeting, the same teacher's self-created next step was to choose words that were more aligned to the objective and easier for scholars to decode. The other two teachers demonstrated a similar trend: next steps after the third session focused on specific teacher actions to take to move closer to the instructional model.

Responding to the same question (what is an example of a reflection that you have had) after the intervention, all three teachers gave examples that included three components: something they noticed, the challenge that arose or a missing teacher action, and the subsequent step to perhaps address the situation. All three comments demonstrated a significantly increased awareness of that particular aspect of the instructional model: teachers had the ability to analyze the event and their actions, think about the goal instructional model, and suggest potential alternatives based on the model that they had seen. These reflections were also more focused than the beginning of intervention responses. Rather than a sentence frame or a noticing about a whole group of students, teachers referenced specific portions of their practice using language that is present in our instructional model and rubric. For example, “*...I noticed that my students were feeling overwhelmed in our writing lessons. I*

realized that this was because they were receiving more than one objective. Because of this, my coach was able to give me tools to help make my teaching in this area more streamline and bit sized for my students.”³⁶ It is important to note, however, two of the three teachers (including the one above) cited their coach’s feedback as an integral part of their reflection.

Assistive feedback is, more often than not, essential for novice teachers to build metacognitive reflective capacity in service of accurate self-reflection and self-assessment. Pintrich (2002) highlighted the critical nature of explicit coaching in the skills of reflecting metacognitively: being metacognitively aware of the practice is different from simply controlling the process of teaching. Teachers must be aware of what, how, and why they act. Coaching specifically for planning, checking, and regulating one’s actions allows teachers to think more critically about the actions they take, which subsequently allows them to reflect more accurately on those actions and where they might fall in relation to a rubric and model.

How do teacher perceptions of their reflection change over the course of an intervention using video based reflection and coaching?

Over the course of the intervention, teachers practiced both analyzing videos of teaching (building an instructional model) and reflecting metacognitively. The process illuminates the potential in the intervention to create significant shifts in teacher reflective capacity. At the end of the intervention, all three teachers noted that the coaching aspect of the intervention not only gave them more skill, it gave them more confidence in their reflective capacity. Lack of teacher self-efficacy is an oft-cited barrier to novice teacher improvement. Over the course of the intervention, coaching inadvertently served to build teachers’ confidence in their reflection, whether positive or negative. Coach encouragement when teachers reflected accurately led to continued reflection during coaching sessions, even when the teacher was reflecting on an action that had a poor outcome. While all three described coaching sessions as “validating”, one teacher noted, *“I feel that my reflections are very accurate but I have not yet built the confidence in being sure. This has made my coaching sessions super helpful because I am validated in the reflection process and slowly building this confidence.”³⁷* Teachers were surer in their reflections at the end of the intervention. After the reflection, teachers also completed their Spring Evaluation self-rankings. As noted previously, all three teacher’s rankings were significantly more accurate than their prior rankings. The teachers’ confidence in their own reflective capacity may have led to a more specific understanding of their practice, and also may have decreased any fear or anxiety attached to a particular rubric ranking, leading to more accurate self-assessment. This intervention was designed to address the fact that novice teachers were inaccurately assessing their teaching practice, and the fact that the intervention addressed some of the possible

root causes of inaccurate assessment suggests that this type of explicit coaching using models, video, and reflective prompting would be a promising solution to this problem of practice.

The way that teachers use the instructional rubric as a model for both instruction and reflection, however, did not change as significantly as their metacognitive reflective capacity for all teachers. When asked if they use the instructional rubric as a model or tool for reflection, one teacher said she “rarely” does this in both pre- and post- surveys, another said “almost always” in the beginning, and “sometimes” at the end, and the third teacher responded “rarely” in the beginning and “almost always” at the end. The teacher who responded that the amount she used the instructional rubric as a model less in the end than in the beginning was a teacher who’s coaching sessions took multiple turns throughout our time together.³⁸ We did not return to the tool frequently in our meetings, and this may be related to her response. Additionally, the transcripts of her coaching meetings show less focus on one particular area than the transcripts of the other two teachers. Her meetings tended to bounce focus areas, making a more aligned conversation difficult.

The instructional rubric was not a focus tool in the execution of the intervention, we used it infrequently to reference specific actions, and rarely did we refer to it explicitly in order to describe teaching. We used it as a goal setting tool to narrow our focus for our coaching series, but this was not frequent enough to create significant changes in perspective for how teachers use this tool. Teachers used the language from the rubric in their reflective journals and in their coaching meetings, but did not explicitly tie the language to the tool. In order to more effectively have teachers use an instructional rubric as an instructional model, coaching sessions must explicitly refer to the tool as such, and employ it regularly as part of the conversation on reflection. Thus, the design of this intervention should take this into account and future iterations of the intervention should incorporate the instructional rubric explicitly as an additional tool

Did teachers’ reflections extend to their changed behavior? Were teachers aware of changes in their reflective abilities?

In order to consider the full impact of the intervention on teacher metacognitive awareness, it became important to also consider how teachers ended their coaching series: were they aware of how much more reflective they became? Had they built sufficient metacognitive abilities to assess their own reflective capacity? One interesting consideration is how broadly explicitly coaching metacognition affected teacher awareness of their development. In the beginning of the coaching series, I shared a goal with teachers: the goal was to specifically build their own reflective capacity through our work with video and journals. Making the goal transparent was the first step in building metacognitive awareness of their own reflection for the novice teachers. Once they knew what they were working toward, they were able to see the purpose in the different steps, and potentially apply the steps independently (although this was beyond the scope of my research at this time). When asked,

all three teachers had clearly understood that they were changing the way they think about their lesson. One teacher noted that the videos helped her to realize that she does not always see the full picture, and so needs to be able to look back, and another noted that the work on reflection has narrowed her focus, and she is more aware of when her reflections become tangential to her overall goals. This, she noted, mirrored her classroom at times, and she needs to be aware of the importance of focused time. The third teacher captured his learning in this way, *“I learned how to find a focus in a lesson. Within a few seconds of watching the video, I found what I needed to do, I also found I can find my own focus.”*³⁹ Each teacher gleaned slightly different reflections after thinking about their own thinking, but each teacher was able to articulate how thinking about thinking (metacognitive reflection) impacted their awareness of their own classroom. This progress resulted from using video to see and discuss teacher actions in relation to a model, and explicit coaching on *how* to reflect using the personal videos to create a focused reflection. Teachers emerged from their coaching series with a more accurate picture of their teaching practice, and a renewed sense of urgency and empowerment to continue to create change to move closer to the instructional model that they had seen. For schools who need to quickly develop excellent teachers in high-need communities, this instructional model-based coaching on reflection can become an important tool in teacher training and school improvement.

Implications and Conclusions

In a school with eight of fourteen teachers with either less than 2 years of classroom experience *or* experience at the school, it is crucial for school leaders to be able to train effective teachers in a relatively short amount of time. This action research highlights the importance of reflection for novice teachers as they attempt to quickly become highly effective educators. As I worked with the teachers in this study, I began to realize how crucial the feedback and coaching aspect of the intervention was. I chose the focus skill and aligned the instructional model video to that need, and I also prompted them to analyze specific aspects of the model video. I did the same with their own instructional video in the second session. Had the intervention started with the teachers independently reflecting on a model video or their own video, they likely would not have the schema or framework for the type of session that the metacognitive reflection required. All three teachers referenced the importance of the focus that they gained from this coaching series, and it is important that any coaching on reflection and metacognition have a focus, and that the focus is clear to the teacher throughout the intervention. In analyzing the data, the importance of a focus area became even more salient. The teacher whose self-assessment accuracy grew the *least* had the *most* instances of an off topic conversation tangent in her coaching meetings.⁴⁰ The variety of topics in her meeting detracted from our ability to clearly analyze and reflect on her instructional video in the second coaching meeting. Without

this experience, her reflective capacity was slightly lower than the other two teachers in the third meeting- and thus our meeting became more directive rather than reflective. Thus, streamlined goals that are the focus of a meeting series seem to have an impact on the teacher's ability to later reflect on those objectives independently. Pintrich (2002) described the importance of explicitly coaching for metacognitive awareness, and this explicit goal became muddled when the discussion with this particular teacher traveled across multiple topics and foci.

This intervention shifted our coaching paradigm slightly, and over the course of the coaching series, I began to realize how impactful our traditional coaching paradigm was on teacher' mindsets and expectations of coaching. Participating teachers came to the coaching meetings ready to receive feedback, tools, and knowledge, and were somewhat discomfited when I described the gradual release model of the intervention, stating that they would be the driver at the end of the cycle. One teacher even noted that the third session was "scary" in his journal.⁴¹ Traditionally, coaches of novice teachers take a more directive stance through giving specific action steps rather than pushing the teachers toward a more reflective state. In this intervention, I shifted the focus from directive about instruction to directive about reflection. Initially, teachers were uncomfortable in this space, and kept trying to ask questions to prompt me to be more direct instructionally. This was somewhat of a surprise during the course of the research, but it resonates with the insecurity in their reflective capabilities that teachers noted as part of their reflection journals. It is possible that novice teachers who are accustomed to a particular type of coaching are nervous to transition to a more independent model, and are unsure of how to proceed. School leaders looking to build reflective capacity must then attend to this mindset and structure in a similar gradual release model in order to effectively build teacher confidence and capacity, if teachers are experienced with a directive model of coaching.

Teachers references to coaching meetings in their reflective journals was double that of their references to video based instructional models.⁴² This leads me to believe that the novice teachers in this group were developing their models of teaching *more* from the coaching meeting discussions than from the model videos alone. The teachers alluded to the fact that they had previously been unable to think about a lesson and create specific next steps because of a feeling of being both overwhelmed and unskilled. Coaching meetings mitigated the feeling of being overwhelmed and alone in the process of reflection, which may be why teachers tended to use those meetings as a starting point for their independent reflection. This process of co-creating instructional models has implications for further study in this area, which I alluded to above. It may bear further study into how co-created instructional models differ from solo-created instructional models- what is the difference in reflective ability or self-assessment accuracy between teachers who co-create an instructional model through dialogue with a coach and those who create an instructional model independently through video observation?

All of the teachers articulated increased confidence in their reflections after being coached explicitly on metacognitive reflection.⁴³ This increased confidence correlated with increased accuracy of self-assessment scores. Perhaps the initial “inaccuracy” of self-assessment scores was fueled by a combination of insecurity about their own reflections, *and* the unfamiliarity with the instructional model (and actions that lead to that model becoming a reality). If this is the case, novice teachers need both exposure to a model *and* specific coaching in both dissecting the teacher actions in an instructional model, and in their own instruction. As this intervention showed, video played an important role in grounding the coaching conversations, but it was these meetings themselves that led teachers to understand the model at a deeper (more actionable) level, see how it related to their practice, and ultimately to reflect more specifically and accurately.

School leaders working with novice teachers must be aware of the knowledge and skill gaps of novice teachers, but also aware of the potential tools that lead to rapid growth. Reflection *is* one such tool, but, like our traditional aspects of instructional coaching, this skill must be coached in order for teachers to leverage reflection more strategically in instructional improvement. Schools with evaluation rubrics have a built in structure in order to facilitate reflection, and this rubric/instructional model can become a vital tool for teacher development. However, as Bercher (2012) states, individuals must accurately know their level in order to improve. To facilitate this accurate reflection, metacognitive awareness *must* be explicitly coached, as Pintrich (2002) stated, and as this action research demonstrates in practice. The *structured* reflection that was the key component of this intervention led this participating group of novice teachers to become more aware of what occurred in their classroom as they taught; it led them to become more focused and capable independent reflectors; and it led them to more accurately self- assess their practice. Jager (2013) referred to Schon when considering the impact of reflection on educator development: reflective practitioners bring multiple types of knowledge to their lessons, leading to more adept instruction. For schools to meaningfully develop novice teachers, instructional leaders must create systems that can develop the metacognitive awareness that leads to accurate reflection to inevitably improve instruction rapidly for students in high-need neighborhoods. This action research effectively demonstrated the possibilities that explicit coaching for metacognitive awareness can have on novice teachers and their teaching over a short period of time.

Limitations and Considerations for Future Research

One limitation of the intervention data is that the beginning-of-year evaluation scores were taken at the beginning of the *year*, and not the beginning of the intervention. As a result, many of the rubric scores may have also been more aligned as a result of the teachers’ ongoing experience in the school environment, in addition to the specific intervention process. This yields an interesting consideration regarding acclimatization to a school environment, and the impact that this may have

on new teacher development and alignment to an instructional model. An intervention such as mine might also be a catalyst for what may indeed also happen organically over an extended period of time. Of the participating teachers, two of them are in their first year at the school, and the third is in his second year at the school. Despite being at the school for a year, the longer-term teacher *still* had a large gap between his self-assessment and the self- assessment of the school leaders prior to beginning this intervention. Since his coaching until this intervention was very similar to the coaching he received in his first year at the school, it is evident that the intervention *was* an important catalyst to his metacognitive awareness, reflective development, and self- assessment. For this reason, explicitly teaching metacognition (Pintrich (2012)) led to a more substantive growth than the non-explicit coaching that he participated in during his first year at the school. This outcome serves to highlight the assertion that Bercher (2012) made, that teachers who know their level are more likely to improve.

The intervention was designed to pay close attention to the individual teachers and their metacognitive processes. Each of the processes of the three participating teachers needed to be responsive to the individuals that participated. For example, one teacher needed more time to watch the video, while others dug right into the conversation about the video. While interesting to consider the implications of this data for whole subgroups of teachers, an instructional leader looking to create a similar program within their school should attend to the fact that the individual teacher personalities, needs, strengths, and areas for growth must be attended to throughout the program. Even within the group of teachers that participated in my study, there was significant variance in their years of experience, the number of schools teachers have worked in, the amount of time in our particular school, the focus area for their coaching sessions, and the type of instructional models that each person used. This variation, along with some of the data and findings in this research illuminate other intriguing questions that may be useful for further study in the area of instructional models, metacognition, and reflection. The two that bear the most on action research studies that should follow this one are: does the background and experience of the teacher matter? And, does the type of instructional model video matter? These questions are worth exploring in order to create the most targeted and impactful type of reflective coaching possible to build the teacher's accuracy in self-assessment.

Does the background and experience of the teacher matter?

On an individual level, the teachers varied in both their growth and experience levels. It is interesting to consider the relationship between reflective instructional model alignment and teaching experience through this intervention. The teacher with the most growth is a first year teacher, a Teach for America Corps Member. She grew from 17 indicators aligned to 53 indicators aligned, a growth of 53%. The teacher with the least growth is a teacher who previously taught at another school, with a different instructional model. She began with 11 aligned indicators and finished with 37, a growth of 38%. The

third participating teacher is in his second year at Cornerstone, and this is the only school in which he has taught. He began with the 17 aligned indicators (the highest starting point in the intervention), and finished with 52 aligned indicators, growing 51% in alignment. ⁴⁴

One possible explanation that may have impacted the outcomes of my research is that teachers transitioning schools in the early years of their teaching careers must adapt to and learn new instructional models, and as this study shows, clarity of focus is crucial, and this may be lacking through a transition to a new instructional rubric and teaching model. One question this explanation raises is, "do teachers who spend more time in an environment have more consistent mental models that result in more aligned evaluations?" Further research into this question may illuminate the effect that time exposed to a school model impacts teacher self assessments.

Does the type of instructional model video impact the results of the intervention? (e.g. a peer at the school, an "expert"/ coach, or an external video?)

The first grade teacher watched a video of her partner teacher teaching a lesson that she herself had taught. RA had more scattered goals: our conversation ranged between and within strands (objective alignment, using schema, clearly presenting material), which led to a less distinct focus area. This led to more disjointed reflection meetings, less clear next steps, and less clear alignment on instructional model, because her video focus areas did not closely mirror each other throughout the intervention. One of her videos was a whole group lesson, and the other was a small group.

The kindergarten teacher had the benefit of seeing the instructional model in person, teaching *his* class. His partner teacher taught lessons on alternate days, with the specific intention of modeling specifically so that he could see the pacing and explicit word choice in her lesson. We debriefed *both* lessons as part of our work together. For the remainder of the intervention, his specific focus areas stayed consistent and were referenced throughout the rest of the intervention.

The fourth grade teacher watched an instructional model that was *not* another Cornerstone teacher. I selected a particular video from Teaching Channel to align to her particular goals based on a prior conversation. Her video focus stayed consistent throughout the intervention, and was returned to in both reflection meetings and journal entries.

Thus, my study also raises the question, "does the type of instructional model impact the amount of reflective capacity that a teacher develops?" and, "is it more helpful to see a peer or an "expert"?" Additionally, it may be interesting to consider, "is it important that the teacher consider the model an "expert"?" Future exploration into the most effective manner in which to use an instructional model provides a rich and promising follow- up to this action research.

In the review of literature above, I noted that several researchers highlight the fact that several conditions must be met in order to facilitate accurate self-assessment, all of which were present in this action research. First, using a video

instructional model clarified clear assessment domains and criteria. This helped teachers understand the instructional model and expectations, and served to train them directly on the practice. Second, the multiple repeated coaching sessions (each 45 minutes minimum) meant that there was high-quality feedback and direction given to teachers directly. Coaching sessions allowed teachers to clarify and understand the feedback. Third, the context of the intervention allowed the time, space, and guidance for reflection. Fourth, the researchers noted the specific areas of affective domain that teachers must possess: self-efficacy, motivation, competence, relatedness, and reflection. These must be present, to some degree, for a teacher to engage in accurate and meaningful self-assessment, and the analysis above demonstrates that the process and structure of the intervention allowed teachers to improve these areas: teachers were more confident in their reflections, they were more competent in their discussion about their instructional practice, and they built their reflective capabilities. (Kruger and Dunning, 1999; Sargeant et. al 2008; Bercher 2012; Ellis, Denton, and Bond, 2014) While this action research illuminated the potential for significant improvement in teacher reflection and self-assessment accuracy, it also highlights the potential in exploring the most effective way of developing shared instructional models in service of facilitating swift and effective development for novice teachers.

This compiled action research answers the question, what is the most effective way to build novice teachers' metacognitive and reflective capacities such that they have an accurate understanding of their instructional practice and an ability to design specific steps to improvement? My research has explored how video-based coaching can be used to develop an instructional model to generate more accurate self-assessment. There is meaningful work in creating shared mental models and explicitly developing metacognitive reflection, and school leaders, teachers, and students stand to benefit from teachers who are clear and well-versed in both areas. I have shown that specific attention to developing teacher metacognitive awareness leads to significant improvement in teacher self-assessment accuracy and reflective capability. This research suggests that specific attention to developing awareness and action in both areas (the model and reflection) can indeed lead to more accurate self-assessment and an increased self-efficacy in teaching practice. Schools looking to effectively develop novice teachers must consider creating the time, space, and framework for explicit video-based coaching that led to teacher growth and intentionally cultivate teacher metacognitive awareness and reflective capacity in order to ensure all students have an effective teacher.

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Appendix A: List of Data Sources (Analysis)

1. Teacher Evaluation Comparison

2. RA Post-Intervention Survey
3. NY Post-Intervention Survey
4. RA Post- Intervention Survey
5. EQ Reflective Journal 3/24, line 18
6. RA Reflective Journal 3/18, line 10
7. EQ Reflective Journal 3/20, line 19
8. EQ Reflective Journal 3/20, line 8
9. EQ Reflective Journal 3/24, lines 1-2
10. EQ Post-Intervention Survey
11. RA Post-Intervention Survey
12. RA Post-Intervention Survey
13. NY Post-Intervention Survey
14. EQ Post-Intervention Survey
15. EQ Reflective Journal 3/10, line 7
16. RA Reflective Journal 3/11, line 27
17. NY Reflective Journal 3/11, line 9
18. NY Post-Intervention Survey
19. EQ Reflective Journal 3/12, line 28
20. RA Reflective Journal 3/11, line 26
21. RA Coaching Meeting 2, line 25
22. EQ Coaching Meeting 2, line 66
23. NY Reflective Journal 3/20, line 9
24. EQ Reflective Journal 3/20, line 40
25. RA Reflective Journal 3/27, lines 27-31
26. NY Reflective Journal 3/26, line 11
27. RA Reflective Journal 3/11, line 54
28. NY Reflective Journal 3/20, lines 3-6
29. EQ Coaching Meeting 2, line 139
30. EQ Coaching Meeting 2, line 86
31. NY Reflective Journal 3/26, lines 3-6
32. RA Reflective Journal 3/26, line 14
33. EQ Reflective Journal 3/26, line 38
34. RA Post-Intervention Survey
35. NY Post- Intervention Survey
36. RA Post-Intervention Survey
37. RA Post-Intervention Survey
38. Teacher Evaluation Ranking Comparison
39. EQ Reflective Journal 3/24, line 24
40. Analysis of RA Evaluation and RA Coaching Meetings
41. EQ Reflective Journal 3/26, line 1
42. Teacher Reflective Journals
43. Teacher Post-Intervention Surveys
44. Teacher Evaluation Ranking Comparison

Appendix B: Cornerstone Teacher Evaluation Rubric

Evaluation Rubric			
<p>The following rubric will be used to evaluate teachers in three domains: Instructional Planning/Delivery, School Culture, and Technology. Each domain has several subdomains. Examples are included in the rubric to provide clarity for the subdomains, but are not intended to be all-encompassing. There are strong examples here, but teachers should not feel limited to the listed practices. Additionally, there are many more practices listed than are feasible for one person to master all at once. Teachers will be given a ranking of 1-4 by their coaches, using data and evidence from their self-evaluation, classroom observations, coaching notes, and other relevant pieces of information. Rankings are interpreted as follows:</p>			
1	2	3	4
The teacher does not demonstrate this skill at this time.	The teacher is beginning to demonstrate this skill, but it does not happen consistently.	The teacher is regularly and consistently (approximately 70% of the time) demonstrating this skill/practice.	The teacher is performing this skill/practice at an exemplar level (approximately 90% of the time) and could serve as a model for other teachers if asked.
Instructional Planning and Delivery			
Objectives			
Plan, post, teach and review rigorous, measurable, bite-sized, clearly sequenced, Common Core aligned objectives			
Include and teach meaningful content and SIOP language objectives			
Assessment			
Use daily, weekly, and unit-based Common Core aligned assessments and data to determine mastery and plan instruction and remediation			
Use Checks for Understanding (CFU) regularly and strategically throughout the lesson			
Track and analyze data individually, with team, and with coaches			
Rigorous Questioning			
Plan and ask rigorous, scaffold questions sequenced towards scholar mastery of the objective			
Choose questions that require scholars to use details from text, visuals, and other media to demonstrate understanding and support their ideas			
Scholar Response			
Plan, model and require high quality, grammatically correct, evidence-based, oral and written responses			
Circle back to scholars who respond incorrectly			
Use different input protocols to insure equitable participation			
Teach, model and require active listening			
Provide opportunities for scholars to explain thinking			
Planning			
Determine and use scholar schema to plan lessons			
Identify key content vocabulary and academic vocabulary in order to maximize scholar understanding			
Create/gather appropriate anchor charts, visuals and realia			
Use appropriately leveled, complex texts			
Create accurate, structured lessons that allow all scholars to move to mastery of grade level or above Common Core objectives			
Coordinate lesson and unit planning with GLT and vertically, as appropriate			

Create and teach cross-curricular unit plans
Delivery
Develop and implement consistent, highly efficient grade-level and classroom procedures to maximize learning
Clearly present academic content in multiple ways and uses a variety of strategies to engage scholars in intellectually challenging content
Pace lessons appropriately for content and to maximize use of instructional time
Adjust lesson plans and delivery based on emergent scholar needs
Address scholar misconceptions as they occur
Provide multiple opportunities for purposeful practice of lesson objectives
Engagement
Create ways to invest scholars in the material they are learning
Use precise praise strategically and effectively to motivate, encourage, and give feedback
Model, require and reinforce active listening
School Culture
Community and Climate
Build and work toward a clear and concise classroom vision of high expectations for achievement and behavior for all scholars
Build positive and professional relationships with all scholars
Empower scholars to form positive relationships, support each other, and resolve conflicts independently
Empower scholars to take academic risks, learn from their mistakes and support growth
Embed PRIDE values and character education in classroom lessons and routines
Be authentically joyful and positive with a warm/strict tone
Treat all scholars as “our scholars” and give appropriate feedback and praise
Actively participate in one or more Cornerstone committee or event
Systems/Routines/Procedures
Effectively and appropriately model and enforce school-wide and grade level systems
Recognize when systems and procedures are needed in the classroom and create/execute/reinforce system
Develop scholars’ abilities to implement systems independently and describe academic and behavioral expectations
Strategically implement differentiated behavior plans for struggling scholars
Track behavior infractions in Kickboard in a timely manner (by the end of the school day) and communicate with scholar families and/or other as needed
Family Connections
Interact with parents in a timely, professional, appropriate, and proactive manner
Consistently available for conferences and meetings
Establish connections with families in a variety of ways
Value home culture and language

Professionalism
Dress professionally and appropriately for the school setting
Punctuality - Arrive at school and meetings on time and adhere to school schedule
Be present and engaged during school hours whether in the classroom or in meetings
Meet all deadlines and respond promptly to all requests
Keep ongoing and accurate records of scholar performance and share as requested
Send and respond to email during appropriate times of the day and adhere to the Cornerstone policy of not sending/responding to email during off hours (7:30 PM - 6 AM)
Manage time effectively by prioritizing and understanding locus of control
Use professional language and conduct conversations with the appropriate participants in the appropriate places
Keep classroom and common areas clean and organized and return borrowed materials
Mindfulness
Consider the needs of others by being positive and helpful and seeking to understand their point of view
Assume the best and be solutions oriented
Communicate: take and implement feedback immediately, ask for help if needed, communicate concerns and go to the source, if necessary, and do not gossip
Engage: actively participate and show your interest through positive voice tone and body language
Collaborate: Show humility, be team-oriented, open-minded, patient and persistent
Technology
Curriculum Integration
Facilitate blended learning using appropriate technology tools to enable all scholars to achieve higher levels of learning
Use programs such as Raz-Kids, Reading Plus, and ST Math in a rotational model to differentiate instructions
Implement the Wonders curriculum online components, including assessment
Facilitate scholar use of technology tools to access information, solve meaningful real-world problems, collaborate with others, and publish findings
Create and provide varied learning activities, monitor progress, evaluate results, and revise as necessary to meet scholar needs
Follow school-wide technology structures, routines and procedures
Teach scholars to evaluate how media messages are constructed and understand legal issues surrounding access and use of information
Use technology scope and sequence consistently in lesson planning
Consistently model and reinforce digital citizenship
Be knowledgeable about the sites and information students will use

Appendix C: Surveys

1. Pre-Intervention Survey

Teachers completed an online Google Form Survey with the following questions before the intervention began.

How often do you think about how a lesson went?

- Never
- Rarely
- Sometimes
- Almost Always
- Always

When do you usually reflect on a lesson?

How often do you think about where a lesson or a teaching practice would fall on an instructional rubric or teacher evaluation rubric?

- Never
- Rarely
- Sometimes
- Almost Always
- Never

Please explain your answer above.

What tools do you use to help you reflect?

- Memory of the lesson
- Student Work
- Video
- Student Surveys
- Assessment Data
- CAPS Instructional Rubric
- Coaching Session
- Other

Which of the above is most helpful and why?

What is an example of a reflection that you have had?

What do you do after you reflect?

What part of your classroom or teaching practice do you focus on as you reflect?

- Student Behavior
- Lesson- Objective Alignment
- Differentiation
- Teacher Actions
- Instructional Decisions and Rationale
- Other

How accurate do you feel your reflections are?

As in, do your reflections lead to next steps that would help you move to an improved practice on an instructional rubric?

- Not Accurate at all
- Somewhat Accurate
- Fairly Accurate
- Incredibly Accurate
-

Why do you feel this is true?

2. Post- Intervention Survey

Teachers completed an online Google Form Survey with the following questions after the intervention ended.

How often do you think about how a lesson went?

- Never
- Rarely
- Sometimes
- Almost Always
- Always

When do you usually reflect on a lesson?

Has this changed since beginning to work on reflection through video and coaching? If so, how?

How often do you think about where a lesson or a teaching practice would fall on an instructional rubric or teacher evaluation rubric?

- Never
- Rarely
- Sometimes
- Almost Always
- Never

Please explain your answer above.

Has this changed since beginning to work on reflection through video and coaching? If so, how?

What tools do you use to help you reflect?

- Memory of the lesson
- Student Work
- Video
- Student Surveys
- Assessment Data
- CAPS Instructional Rubric
- Coaching Session
- Other

Which of the above is most helpful and why?

What is an example of a reflection that you have had?*_

What do you do after you reflect?

Has this changed at all during your process of coaching on reflection?

What part of your classroom or teaching practice do you focus on as you reflect?*_

- Student Behavior
- Lesson- Objective Alignment
- Differentiation
- Teacher Actions
- Instructional Decisions and Rationale
- Other

How accurate do you feel your reflections are?

As in, do your reflections lead to next steps that would help you move to an improved practice on an instructional rubric?

- Not Accurate at all
- Somewhat Accurate
- Fairly Accurate
- Incredibly Accurate

Why do you feel this is true?*

Appendix C: Prompts for Reflection Journals

After each coaching meeting, teachers reflected on one or more of the below prompts in a notebook.

General:

- Why did I chose to _____?
- What happened when _____?
- What were other options?
- What questions do I still have?
- How can I figure out next steps?
- What are my next steps?

When Reflecting on a Particular Lesson:

- What was my goal of this lesson? (*can be academic/ can be behavioral/ can be teacher focused/ can be scholar focused*)
- Did students meet the goal? Did I meet the goal?
- What happened during the lesson?
- What allowed students to be successful?
- What inhibited student success?
- What would I do the same or differently if I could reteach this lesson? Why?
- What root cause might be prompting or perpetuating this student behavior?
- What do I believe about how students learn? How does this belief influence my instruction?
- What questions do I have about the lesson?
- Where can I find the answers?

When Reflecting on a Coaching Session:

- What did you learn in this coaching session?
- What were the focus areas?
- What were the next steps?
- What changes in thinking occurred?