Supporting Teachers in Providing Feedback to Students:

A Multifaceted Approach to Skill Development in Teachers

Cristina M. Lopez

Reach Institute for School Leadership

Instructional Leadership Academy

Action Research Project

Abstract

Much research has been done around the effects of non-cognitive skills on student achievement. One non-cognitive skill in particular, student ownership of learning, has been proven to increase academic progress significantly. At Leadership Public Schools, San Jose, many students were failing and were not demonstrating the skills necessary to improve their grades. This action research project focused on one proven strategy that could both increase content mastery and develop ownership of learning: teacher-delivered verbal feedback. I designed this intervention to support a team of teachers to change their practice to include more feedback of higher quality to students as a lever to increase achievement and student ownership. The design included two major teacher support structures: a professional learning community and coaching. The first professional development session sought to both build rationale for the importance of the strategy and teach the strategy to a team of inexperienced teachers. The last session created space for teachers, informed by video data, to discuss their personal growth and the performance of the team, as informed by video footage. In between the sessions, teachers were provided time to practice and receive coaching in order to individualize their support in learning the new strategy. The intervention resulted in an increase of quantity and quality of feedback delivered to students. Additionally, the data suggests that the components and structure of the design—mainly the video protocol, the deconstructed strategy, allowing time for practice and coaching support, and the alignment within the overall professional learning structure—were effective at shifting teacher practice.

Introduction & Context

Leadership Public Schools, San Jose (LPS San Jose) is a 9-12 urban charter high school located in San Jose, California with the mission to prepare every student for acceptance into college. Approximately 93% of the students at LPS San Jose are first-generation college students and 89% are on free and reduced lunch. There were just over 200 students enrolled in the 2014-15 school year, all taking 6 courses a semester in order to ensure graduation with enough credits and requirements to be deemed "college-ready"[1] in California.

LPS San Jose has gone through six leadership transitions in its ten years of existence. Through the transitions, the main goal of developing college-ready students was maintained; however, the priorities and methods to achieve that changed. This is the second year with stability on both the leadership team and the teaching team. The 2013-14 school year focused on creating a positive, productive culture for both adults and students through creating a professional learning community and establishing consistency in classroom management. For the 2014-15 school year, the leadership team set three main priorities: 1. increasing academic habits 2. increasing a college-bound culture and 3. increasing mastery of content. As the Academic Dean, I am responsible for any work in service of these goals, specifically having to do with supporting student learning through developing teacher practice, vetting curriculum, administering assessments, and analyzing achievement data.

[1] "College-ready" in California means that students have completed the requirements to be eligible for the state's public universities, including passing subject requirements with at least a C, passing the California High School Exit Exam, and earning at least the minimum amount of credits.

There are 13 full time teachers, the majority of whom are relatively new to the profession and three of whom are brand new to LPS San Jose for the 2014-15 school year. Due to the collective lack of experience, much time is devoted to professional development and coaching on the topics of basic planning, management, and instruction. Additionally, due to the relative newness of the team, significant time is also spent developing, norming, and monitoring common expectations. Teachers work as a learning community for two hours every week (in professional development sessions, or, "PD" sessions) with the expectation that the key learnings are carried over into planning and instruction. Teachers also receive at least an hour of individual coaching that focuses on planning, data analysis and observation debriefs, in addition to following-up on professional development topics. For the first semester, professional development sessions focused on backwards planning, breaking down daily objectives and developing clear key points of each daily objective. Additionally, because the school places a heavy weight on assessments as part of a student's grade, teachers worked to align their formative assessments to the objectives and assess frequently.

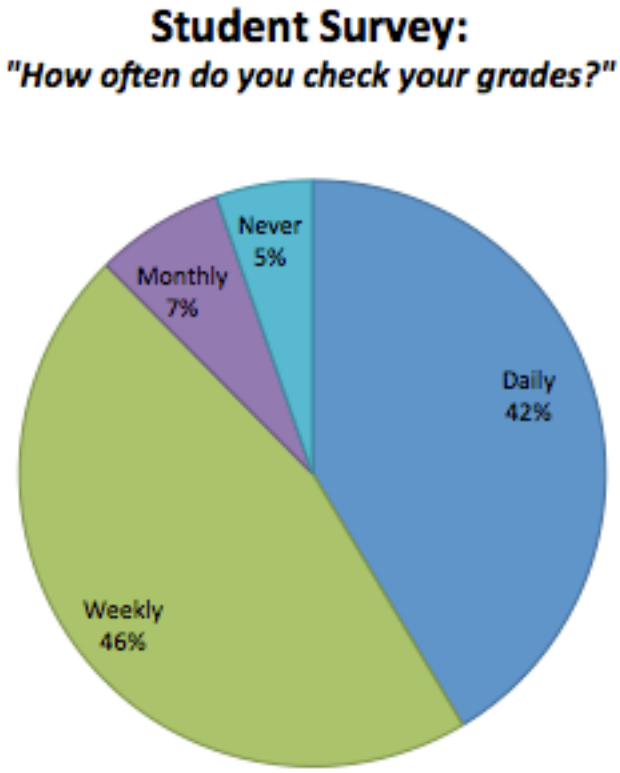
Problem of Practice

Despite teachers improving their practice around planning and assessing, many students struggled to succeed. By the end of Quarter One, 75% of students were failing and 33% had two or more Ds or Fs. This left students neither on track to graduate nor on-track to being college-ready, a reality that was contrary to the mission of LPS San Jose.

When achievement data were looked at more closely, the assessment results were both dichotomous and consistent: students who scored low on end-of-lesson exit tickets

also scored low on the quizzes and tests, and, conversely, students who mastered the material showed high achievement on both exit tickets and larger assessments. There were very few students who scored in the middle range, and also very few students who improved in their achievement over the course of a unit. In order to understand the student perspective, all students were surveyed regarding their grades: the majority of students reported being aware of their grades but unable to explain how they earned the grade or how to improve. 88% of students consistently checked their grades online at least once a week (see Figure 1).

Figure 1. Student Survey regarding grades



Students struggled to identify key next steps that would be imperative to their success, citing only vague answers like “Go to office hours”, “Do my work”, and “Retake tests”, with

the majority of answers being "I don't know". Some students mentioned re-taking quizzes during office hours and not improving in their grade, which corresponded with a theme that arose in teacher survey results: teachers were frustrated with students taking retakes and not improving, with one teacher writing "Why should I offer retakes if students clearly don't study and do worse on the retake?" It became clear that despite knowing that they lacked understanding, as informed by grades, students did not know how to improve their understanding. Without the ability to improve in courses, students would not be able to master content, develop key academic habits, and be college-ready. It became my priority to figure out how to help students take ownership of their learning and take steps to improve their understanding.

I used classroom observations, lesson plan reviews, and coaching conversations to investigate what teacher actions—or inactions—were causing students to consistently fail and lack the understanding of how to improve. This exploration into teacher practice revealed that while teachers had clear daily objectives and frequent, aligned formative assessments (i.e. end-of-lesson exit tickets or topic quizzes), students were not getting a chance to practice during the lesson. Teachers were moving right from instruction to assessment. Even in the classrooms that did provide some element of practice, teachers circulated to ensure on-task behavior or spent the time planning or grading. Research suggests that practice is an important component of the learning process in which students learn that they have the ability to improve with effort (Conley, 2013; Wiggins & McTighe, 2006); however, students can only improve if they are directly informed of their progress (Dweck, Walton & Cohen, 2014; Farrington et al., 2013; Wiliam, 2011). I thus came to the conclusion that teachers at LPS San Jose were not providing valuable practice with targeted

feedback to students prior to assessments, causing students to be unable to understand their level of mastery of the objectives and unable to improve.

For this action research project, I developed a theory of action and intervention plan to address the latter part of the problem: teachers at LPS San Jose do not provide frequent, quality feedback to students before an assessment. While providing student practice is an important missing piece, the combined problem of lacking both practice and feedback was too large to include in this project. Prior to this intervention, semester two PD sessions focused on using the semester one backwards-planning skills in order to design aligned practice tasks. Those sessions provided a strong reinforcement of semester one skills, along with setting the necessary foundation to explore the strategy of providing feedback during practice. Literature and research provided a rationale for the importance of feedback to students, models of effective feedback, and pedagogy on shifting teacher practice that helped to shape a multifaceted plan to support teachers in developing the skill of delivering feedback during instruction.

Literature Review

Introduction

Being college-ready means both knowing key content and developing key learning strategies (Conley, 2013; Dweck et al., 2014; Farrington et al., 2013). In this literature review, I examine the need for students to receive feedback during class in order to master material and to understand how to make improvements, thus building their college-readiness (Harlen & Deakin Crick, 2002; Farrington et al., 2013; Wiggins & McTighe, 2006). I then explore proven strategies for supporting teachers to acquire a new skill, in this case:

providing effective feedback. While this includes research on what quality feedback is (Black & Wiliam, 2010; Clarke, 2005; Dweck et al., 2014; Nicol & Macfarlane-Dick, 2006; Wiliam, 2006), it also includes the research-based methods of how to best develop skills in new teachers. These methods include the overall structure of professional learning (Hollins, 2008; Joyce & Showers, 2002; Shernoff et al., 2011; Wenger, 1998), deconstructed strategies (Ball & Forzani, 2010; Joyce & Showers, 2002; Lemov, 2010), the value of practice and coaching support (Joyce & Showers, 2002; Knight, 2006; Wong, 2004), and the use of objective data in the form of video (City, Elmore, Fiarman, & Teitel, 2009; Knight, 2014; Reitano & Sim, 2010). I argue that if teachers are provided this multifaceted and comprehensive support, then they will better acquire the new skill, in this case: increasing the quantity and quality of feedback given to students. This change in instruction will provide students clarity around their level of performance in relation to the expectation and also how to improve, hopefully increasing both student understanding and improvement over time.

The Importance of Non-Cognitive Skills in First-Generation Students

Knowing that a high school diploma leads to college, higher-skilled professionals, better salaries, and a higher quality of life, it has become a national priority to ensure that students not only graduate high school but make it to and through college. It is estimated that 62% of jobs in the U.S. will require a college education by 2018, and over half of those jobs will require a four-year degree (Dyce, Albold, & Long, 2012). College access, however, is not easily and equally attained by all students.

First-generation and low-income students are underrepresented in higher education institutions. Being a first generation student presents major challenges in achieving academic success and college completion (Bui, 2002; Hsiao, 1992). A 2001 NCES study found that only 54% of students whose parents had completed high school and 36% of students whose parents had less than a college degree enrolled in college, as compared to 82% of non-first-generation students (Choy, 2001). It is clear from the data that these students urgently need extra support in both attaining admittance into college and then succeeding in college.

The first step in getting students college-ready is ensuring that they have a successful high school career. One of the key markers of potential high school failure is a lack of student engagement (Brewster & Bowen, 2004; Tavakolian, & Howell, 2012; Dweck et al., 2014). Engagement, which can be represented by a set of non-cognitive attributes—behaviors, skills, attitudes and strategies that help students succeed and persist in learning (Conley, 2013; Dweck et al., 2014; Farrington et al., 2013)—can sometimes matter even more than cognitive factors like intellectual ability (Dweck et al., 2014) on a student's ability to succeed.

If students are engaged in school, they are empowered and motivated to improve and achieve (Rumberger & Arellano, 2007; Jones, Valdez, Nowakowski & Rasmussen, 1994); however, students need supports in order to build the non-cognitive habits that help them reach high expectations (Conley, 2013; Dweck et al., 2014; Farrington et al., 2013). According to Dweck et al., "[Good] pedagogy and a solid curriculum are vital, but pedagogy requires more than the presentation of academic material" (2014). Teachers must instruct to impact student mastery of content but also to help students develop key

non-cognitive skills that help them become successful long-term learners (Farrington et al., 2013). Just like in the way teachers instruct, support and monitor content knowledge and skills, they can and should instruct, support and monitor the development of non-cognitive skills as well.

Given the large subgroup, the low graduation numbers and the low success in college, it is important that schools focus on supporting their first-generation college students. "Interventions and initiatives that target these psychological factors can transform students' experience and achievement in school, improving core academic outcomes such as GPA and test scores months and even years later" (Dweck et al., 2014). Students, and first-generation students in particular, need to be engaged in school and play a part in their learning and teachers need to provide supports for students to learn how to do so.

Feedback as a Mechanism for Increasing Metacognition

One specific category of non-cognitive factors is termed "learning strategies" which includes the metacognitive strategies that help students leverage their behaviors to engage in the learning process and maximize learning (Farrington et al., 2013). Metacognition, or the ability to understand and monitor one's learning process (Farrington et al., 2013), allows students to engage in the learning process more effectively. Through metacognition, students can identify what they know, what they do not know, choose methods to close the gap, and evaluate progress. In short, metacognition helps students take ownership for the learning process.

Development of metacognition is "an important component in a chain of non-cognitive factors that shape students' academic progress" (Farrington et al., 2013), allowing students to learn more productively and increase their achievement; however, like other non-cognitive skills, it is not necessarily innate to all students. All students could benefit from explicit support around developing metacognition (Conley, 2013; Dweck et al., 2014). Through classroom instruction, teachers can help students develop the ability to own their learning process. The body of research around developing metacognitive strategies in students points to providing feedback to students as way to promote this type of thinking (Blackwell, Trzensniewski, & Dweck, 2007; Farrington et al., 2013). Through delivery of feedback during the learning process, teachers can begin to help students understand their progress to the goal, evaluate their learning strategies, and make action plans to improve. Over time, these skills will become more familiar, more student-initiated, and increase a student's ability to effectively learn (Farrington et al., 2013). Feedback can be an important tool that, when used correctly, benefits students in helping to understand and take ownership of their progress to the goal. This type of classroom strategy can "impact the learner's willingness, desire, and capacity to learn" (Harlen & Deakin Crick, 2002), thus engaging them more fully in school.

The literature makes it clear that teachers need to use feedback not only to help increase content understanding but also to help students develop skills for monitoring their own performance (Dweck et al., 2014; Farrington et al., 2013). Feedback provides information to a student on their current mastery of the objective, and also provides a method of thinking about the learning process that initiates metacognition. This means that teachers, through planning and instruction, need to be purposeful about incorporating

feedback into the learning process if they want to help build students' metacognitive capacity.

Delivering Effective Feedback

Unfortunately, research on feedback makes it clear that not just any feedback causes positive results on student learning. Feedback that merely communicates a score does not promote learning (Butler, 1987; Kluger & DeNisi, 1996), neither does "a grade, check mark or simple evaluation ("good work")" (Dweck et al., 2014). According to Wiliam (2011), "feedback functions formatively only if the information fed back to the learner is used by the learner in improving performance." Studies have shown that there are key factors in both the composition and delivery of feedback that ensure that it is useful for students and, therefore, impactful on student learning.

The method by which feedback is given plays an important role in promoting student improvement. When teachers make time in class for students to receive feedback and adjust during practice, prior to being assessed, feedback is most useful (Wiliam, 2006). During this time, feedback can be delivered both frequently and immediately, two factors that the literature states are important for feedback to be useful for students (Nicol & Macfarlane-Dick, 2006). Because of this ideal method, feedback is most effective when delivered verbally; written feedback days later or published grades are rarely either frequent or immediate enough to qualify as impactful. While to some teachers, providing one-on-one feedback to each student might pose a challenge, the research also finds that it is not necessary to give feedback personally to each student (Clarke, 2005). Giving relevant

feedback to a group of students with the same mistake is just as effective as giving feedback individually.

In addition to the method, the composition of the feedback must meet specific criteria in order to be useful to students. According to Clarke (2005), most often, teachers give feedback on "presentation, quantity, accuracy or spelling, punctuation and grammar, and effort", causing the main idea of the lesson to be lost. Many researchers are in agreement about the qualifications for effective feedback, specifically around expectations of student performance and alignment to the lesson target (Clarke, 2005; Wiliam, 2006; Nicol & Macfarlane-Dick, 2006; Wiggins & McTighe, 2006). In order for students to be able to improve, there needs to be a clear identification of the learning expectation. From there, feedback needs to include a student's performance in relation to that goal.

Lastly, in order to help students grow on the given skill or knowledge, research emphasizes the importance of including specific ways to improve as part of the feedback. If teachers merely provided the goal and the student's performance in relation to the goal, it would be accurate but not helpful because "the learner does not know how to use the feedback to improve" (Wiliam, 2011). Feedback that includes a way for the student to improve helps increase the chances that the feedback will effectively help the student increase in mastery of the objective (Black & Wiliam, 2010; Clarke, 2005). In this way, feedback moves from being evaluative to supporting student improvement and growth.

The criteria that make feedback effective have implications on teacher practice: teachers need to make time to give valuable feedback during student practice, state the criteria for student mastery, identify student performance, and make suggestions for how students can improve. Because the research states that most teachers are used to giving

either no feedback or ineffective feedback (Butler, 1987; Clarke, 2005; Kluger & DeNisi, 1996), teachers need support in order to learn and develop this instructional skill.

Supporting the Development of New Teachers

In today's schools, new teachers come with a range of training backgrounds, yet all often struggle to make the transition to independent teaching (Bransford, Brown, & Cocking, 1999). Most do not arrive at their job with the skills to be effective in the classrooms—either through their training programs or innately (Goldstein & Noguera, 2006). Even at strong teaching preparation programs, there is a gap between "knowing about teaching and doing teaching" (Ball & Forzani, 2010). Teaching is "unnatural" work (Ball & Forzani, 2010), meaning that new teachers need to have explicit instruction, opportunities to practice with support, and time to reflect on outcomes with others.

Deconstructed skills and a shared language. Research that explores effective training for new teachers recommends breaking down the essentials for effective teaching into discrete skills (Ball & Forzani, 2010). In his book, *Teach Like a Champion* (2010), Doug Lemov breaks teaching skills down into steps with video models. He deconstructs effective practices, provides rationale, and shows an exemplar because he believes that "every teacher can improve by using proven, concrete techniques in the classroom". By demystifying best practices into key steps, and providing rationale behind the skill (Joyce & Showers, 2002), leaders can provide clarity around what is both necessary for positive student outcomes and expected at a school, in way that all teachers can access.

Deconstructing a skill and providing time to process it within a professional learning community helps to create a shared understanding and a shared language around school

expectations (Shernoff et al., 2011). By interacting around a shared goal, a professional learning community is strengthened and individuals engage in a deeper understanding of the learning (Wenger, 1998). By creating a shared understanding and language, teachers are better able to look critically at their practice (Wiggins & McTighe, 2006), there can be an agreement regarding what effective instruction looks like, and an understanding of what learning looks like as an effect of teaching (City et al., 2009; Lemov, 2010). Through the use of objective observations and data, City et al. (2009) posit that schools are better poised to have conversations about their performance in relation to the goal. Once new teachers understand the deconstructed skill—why it is important, the steps to implementing it, and the exemplar for success—and can talk about it with their coach and team using a shared understanding of expectations, then they need time and support in order to practice the skill in their classroom (Lemov, 2010).

Practice Supported By Coaching. There is a significant body of research around how to make professional development sessions more effective through increasing how the objectives are aligned to and integrated in other school structures (Hollins, 2008; Joyce & Showers, 2002; Wong, 2004). Once a strategy is taught in a whole-school professional development session, where clear instruction and calibration can take place within the learning community, learning can extend beyond the session through practice and coaching. This comprehensive support increases the likelihood of skill transference (Joyce & Showers, 2002; Knight, 2006).

Instructional coaches are described as those "who work collaboratively with teachers [and] empower them to incorporate research-based instructional methods into their classrooms" (Knight, 2006). It is a practice that directly supports teacher growth and

development, specifically new teachers (Achinstein & Athanases, 2006; Hollins, 2008). If teachers are taught a new skill or strategy, then coaching is presented as an effective method to increase the honing and retention of this skill over time. In Knight's and Cornett's study (2009), teachers who received coaching after a professional development workshop reported continued practice with the new skill "more frequently (15 of 22) than teachers who attended the workshop only (3 of 17)." In the same study, the teachers who received coaching also reported finding higher value in the new skill (20 out of 22) than those not coached (Knight, 2006). Through providing follow-up support, goal-setting (Achinstein & Athanases, 2006), problem-solving, and a source of objective data, coaching emphasizes and extends the learning process from professional development.

Video as Objective Data. The use of objective observations and data to inform reflection on performance aids collaborative discussions about school performance (City et al., 2009; Wenger, 1998), goal-setting for individuals and groups, and helps support transference of skills from a learning environment to sustain in a classroom. While objective data can come in different forms, Reitano and Sim (2010) suggest the use of video footage of classroom instruction as a source of objective observational data. Through capturing teachers' practice on video, teachers can later reflect more objectively on the teacher actions that caused the student actions and outcomes. Additionally, when shared in a professional learning community, others can use the video to inform their own practice. As a team, teachers can then collectively use the observational data to inform their judgment on where the school is in relation to the criteria for that specific focus. According to Knight (2014), "watching a recording of a lesson with focused attention can be one of the most powerful forms of professional learning a teacher will ever experience."

Ultimately, teachers will be able to grow and improve if given the support and time to do so. Additionally, when teachers are given time to grow together in a professional learning community, schools will improve in their ability to support student achievement as a whole (Shernoff et al., 2011). There is significant agreement in the literature connecting schools that prioritize and support teacher learning through professional development and coaching, and schools that are more effective in supporting high levels of student learning (Shernoff, 2011). While professional development can provide both direct teaching of best practices (Ball & Forzani, 2010) and the collaborative learning and norming as a community of practice (Wenger, 1998; Little, 2006), teachers also need individualized support in order to improve and retain their skills. Teachers need to be able to monitor and enhance their own knowledge and practice in order to fully participate in the professional learning community (Hollins, 2008), which can be done through objective data reflection and coaching (Hollins, 2008; Achinstein & Athanases, 2006). Professional development and coaching used together, informed by objective data and operating within a learning community, can strengthen the opportunity for teacher growth, both as a school and as individuals.

Conclusion

The literature shows that student ownership of progress is important for academic success, and that teachers providing feedback to students is a key way to achieve that. I can conclude that by implementing a multifaceted approach to developing this skill in new teachers—one that includes teaching the deconstructed skill, a collaborative learning

community, coaching and practice time, and the use of video as objective data—teachers will expand their practice to include effective feedback during student practice.

Theory of Action

While student achievement and students' lack of understanding of how to improve prompted this action research project, the focus is on increasing teachers' understanding and capacity to plan and implement feedback in their classrooms, specifically during practice, prior to an assessment. The relevant research supports the connection between student ownership of grades and increased achievement with increased quantity and quality of feedback given by teachers.

My theory of action used a pre-existing professional learning community structure and one-on-one, weekly coaching in order for teachers to learn about feedback, plan it into their lessons, implement feedback in the classroom, and reflect on using feedback during their lessons. The general structure is two professional development sessions bookending time for teachers to practice during instruction and engage in coaching. The first professional development session provides rationale, teaches the deconstructed skill, and provides time to plan the strategy into an upcoming lesson. The second professional development session provides time to reflect on our practice and sets next steps. In order for teachers to reflect on objective data, video is used to inform analysis of classroom results and to create a shared understanding of our practice in relation to what research deems effective.

Overview of the Theory of Action

Problem of Practice	Literature Review	Intervention	Expected Outcome
• At the end of Q1, 75% of the students at LPS San Jose, who are mostly first-generation college students, were failing, having at least one D or F, putting them off track to graduate. • The majority of assessments had dichotomous results that were consistent for students: A (<90%) or F (<69%) • According to survey data, students were aware of their grades but did not know why they were failing and or how to improve • **Teachers were not giving effective feedback to students before assessments**	• Non-cognitive skills are important for college readiness, especially for first-generation college students who are at a higher risk for failing • Feedback is a strategy that not only builds content mastery but also develops metacognition, a key non-cognitive skill • Effective feedback needs: a clear expectation, performance in relation to the goal, ways to improve, and must be timely and relevant • New Teachers must be explicitly taught new skills with time and support to ensure transference • Video provides objective data that can help support the transference of PD into practice and support the collaboration around common expectations	1. PD Session that builds on the "designing practice" PD focus of semester II and expands to "providing practice with feedback" that include rationale, the deconstructed skill, and planning time 2. Coaching sessions to offer support as teachers practice the skill 3. Self-video of instruction during practice when teachers are delivering feedback 4. PD session to watch the video clips in order to make observations, analyze results, and reflect on individual and collective practice in relation to the goal	• Teachers will change how they plan to include feedback • Teachers will practice the skill that they learned in PD • Teachers will use a common language when reflecting on our progress with the skill • Teachers will increase the amount of feedback they give during practice • Teachers will increase the quality of feedback given to students during practice

Intervention and Data Collection Plan

My intervention took place with the entire teaching team at LPS San Jose. The 2014-15 teaching team was comprised of 13 full time teachers, ranging in experience (Table 1).

Table 1. Teacher experience at LPS San Jose, 2014-15

Teacher Experience			
Teacher	Total # of years teaching (including 14-15)	# of years at LPS (including 14-15)	Teaching a new course in the 14-15 year?
A	3	1	Yes
B	2	2	Yes
C	3	3	Yes
D	3	3	Yes
E	2	2	Yes
F	2	2	Yes
G	2	2	Yes
H	7	3	Yes
I	5	1	Yes
J	3	2	Yes
K	2	2	Yes
L	2	2	Yes
M	1	1	Yes
Total teachers: 13	**Average years experience: 2.8**	**Average years at LPS San Jose: 2**	**Percent Teaching a new course: 100%**

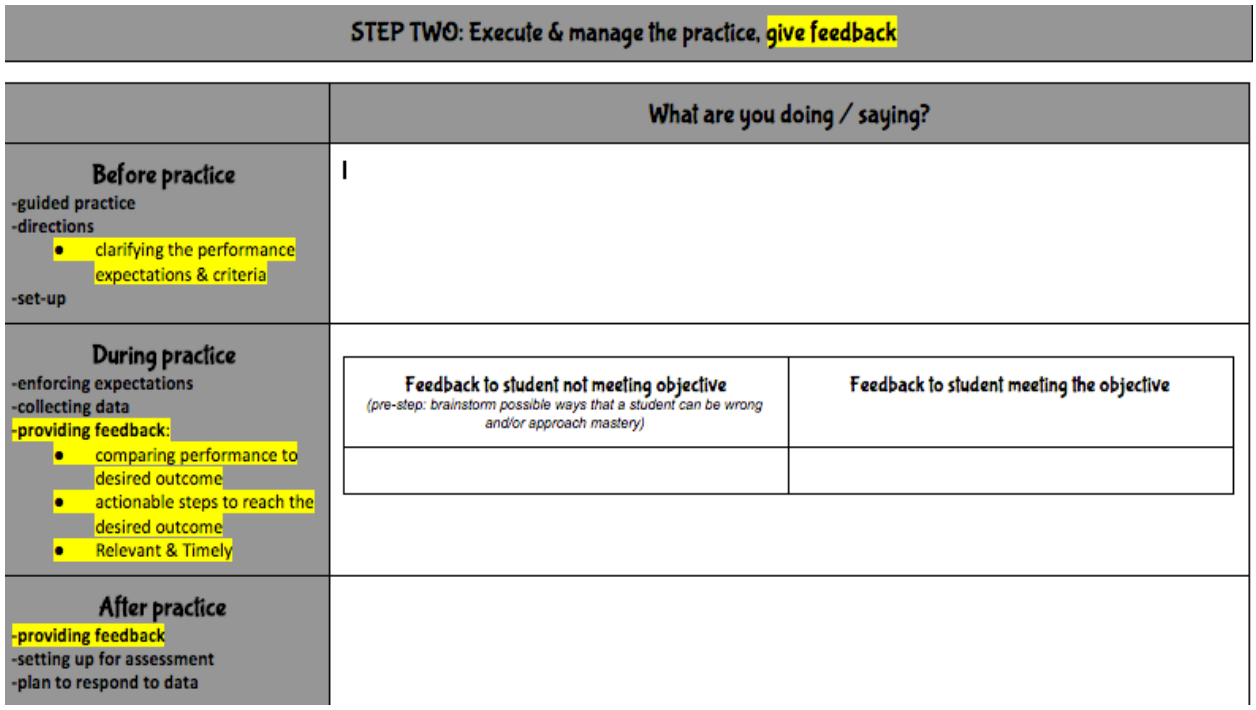
Regardless of years of experience, all teachers were also in their first year of teaching a new course. This meant that even for experienced teachers, each teacher was new to planning and teaching at least one of their courses.

All teachers participated in weekly professional development and coaching, both of which were used as key structures to support this intervention. The foundation for both

structures was built in the previous year and my work with the team was continuous since the 2013-14 school year. A professional learning community was created and strengthened over the course of the 2013-14 year. During that time, the team identified norms, started to build a shared language about best practices, developed common expectations, and practiced using protocols and consultancies in order to improve their practice (City et al., 2009; Lemov, 2010; Shernoff, 2011; Wong, 2004). Throughout the 2014-15 school year, those practices were strengthened and refined, with a professional development focus on backwards planning (Wiggins & McTighe, 2006). Also introduced in the 2014-15 school year was increased consistency in coaching for at least one hour per week per teacher, focused on individual growth goals aligned to the professional development theme of backwards planning (Joyce & Showers, 2002; Knight, 2006; Wiggins & McTighe, 2006).

The intervention existed within the pre-existing structures of professional development and coaching. It began with a professional development session where teachers learned about the importance of feedback and the qualities of effective feedback. They also had time in small groups to plan feedback into a lesson, using support from their peers or coach as necessary. I made the decision to not introduce new support tools, but instead to expand the common LPS-SJ planning template (see Figure 2.) to include prompts regarding effective feedback. The research emphasized the importance of comprehensive professional development programs that were cohesive and ongoing (Wiggins & McTighe, 2006; Wong, 2004), and this decision would help teachers place this session into their schema of learning about backwards planning.

Figure 2. A portion of the LPS-SJ planning template, with highlights showing areas that focused on feedback

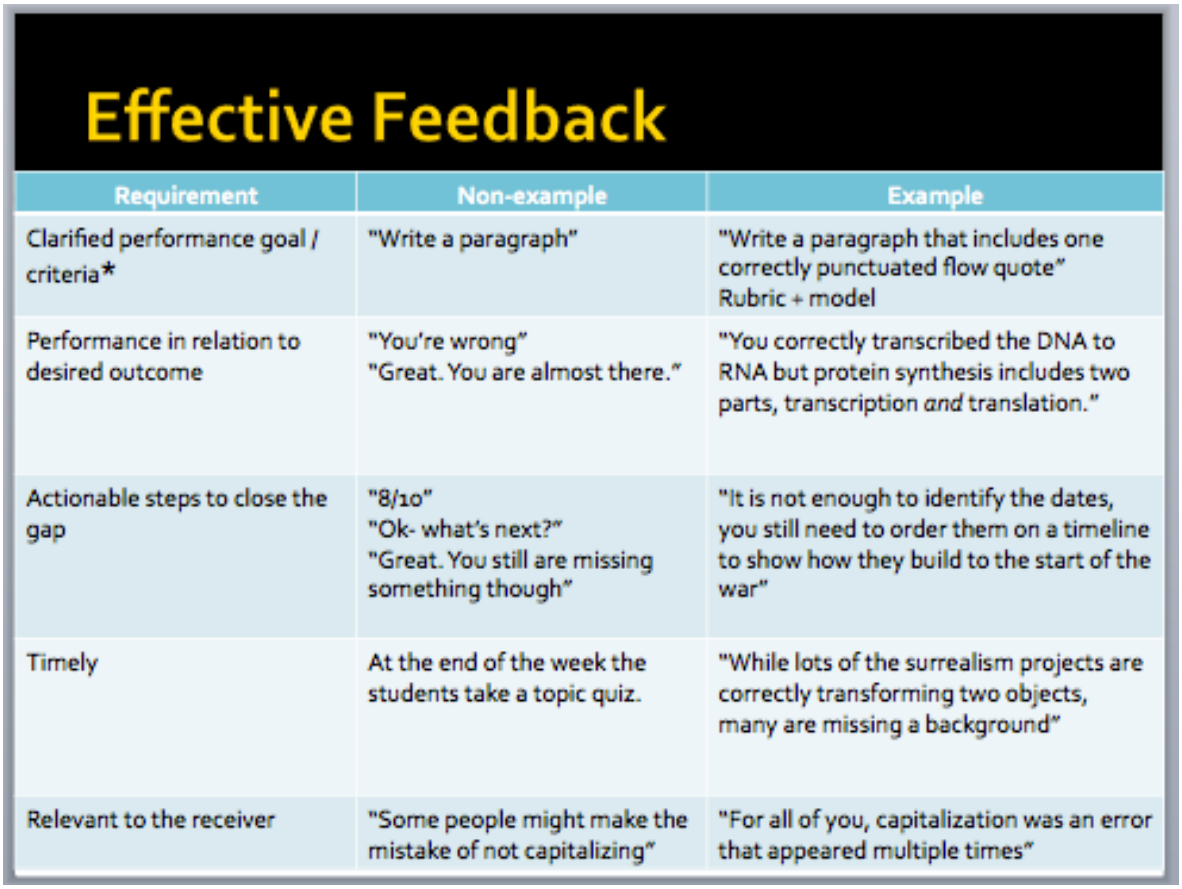


STEP TWO: Execute & manage the practice, give feedback

	What are you doing / saying?
Before practice -guided practice -directions • clarifying the performance expectations & criteria -set-up	I
During practice -enforcing expectations -collecting data -providing feedback: • comparing performance to desired outcome • actionable steps to reach the desired outcome • Relevant & Timely	**Feedback to student not meeting objective** *(pre-step: brainstorm possible ways that a student can be wrong and/or approach mastery)* | **Feedback to student meeting the objective**
After practice -providing feedback -setting up for assessment -plan to respond to data	

Based on the literature, I knew that new teachers needed direct instruction and clear expectations regarding quality teaching. Ball and Forzani (2010) emphasized the "granular" aspect of skills instruction to new teachers, which helped me narrow down the focus of the first professional development session goal to just include a small set of requirements for effective feedback (see Figure 3.), in addition to models and time to plan. Teachers were provided small post-it notes with the check-list of five requirements to attach to their clipboards for an in-class reminder.

Figure 3. PowerPoint slide from PD Session #1 listing five requirements for effective feedback



Effective Feedback

Requirement	Non-example	Example
Clarified performance goal / criteria*	"Write a paragraph"	"Write a paragraph that includes one correctly punctuated flow quote" Rubric + model
Performance in relation to desired outcome	"You're wrong" "Great. You are almost there."	"You correctly transcribed the DNA to RNA but protein synthesis includes two parts, transcription *and* translation."
Actionable steps to close the gap	"8/10" "Ok- what's next?" "Great. You still are missing something though"	"It is not enough to identify the dates, you still need to order them on a timeline to show how they build to the start of the war"
Timely	At the end of the week the students take a topic quiz.	"While lots of the surrealism projects are correctly transforming two objects, many are missing a background"
Relevant to the receiver	"Some people might make the mistake of not capitalizing"	"For all of you, capitalization was an error that appeared multiple times"

After the initial professional development session where teachers learned and planned, a two-week period elapsed that provided time for practice and coaching support. This practice time, paired with coach-supported problem solving and reflection, was designed to encourage skill transfer from the professional development session to the classroom (Knight, 2006). Teachers were encouraged to incorporate the new strategy into their instruction and discuss their feedback practice during coaching sessions. Coaches supported the teachers in a few ways: providing notes on the lesson planning template that included feedback, debriefing class observations, asking about positives and challenges of the new practice, and problem solving obstacles to implementing the strategy.

During this two-week time teachers also captured a portion of their instruction on video during a student practice session. Teachers could choose when to video themselves, and used the Teaching Channel platform to upload and share their video with the rest of the professional learning community. According to Knight's guide, "Using video for high-impact instruction" (2014), teachers get more out of a video if they are able to watch the video multiple times with a focus. Prior to the final professional development session, teachers could view each other's videos, re-video themselves, or seek additional feedback from their coach.

After the two weeks, the teaching team rejoined for a professional development session to observe the growth of our feedback practice using the video footage, reflect on our practice, and set goals for moving forward. In small content-based groups, teachers shared their video clips using a protocol and the group recorded important data using the Feedback Data Collection Tool (see Appendix A.). The tool served as both a quantitative (number of instances of feedback given) and qualitative data (scripted feedback) collection, but also encouraged discussion and norming around practice.

Overview of Intervention

Component		Activities	Purpose	Data to be Collected
1.	Pre-intervention classroom observations	13 classroom visits to collect data of feedback given in the second half of the lesson (when practice normally occurs)	To obtain baseline data about the quantity and quality of feedback given prior to the intervention	•Number of instances of feedback given and to whom •Scripted feedback
2.	Professional Development Session #1: Providing Effective Feedback	2 hour professional development session with the teaching team to learn about feedback	To develop an understanding of the importance of feedback, learn the 5 requirements for effective feedback, & to plan to provide effective feedback in a lesson	•Lesson Planning tool (with expanded Feedback section) •Professional Development feedback and reflection
3.	Coaching Sessions	1 hour coaching sessions for the two weeks in between professional development sessions	To support teachers in developing their skill of planning and implementing feedback	•Coaching notes •Lesson Planning tool (with expanded Feedback section) •Classroom observation notes
4.	Video	Videos of classes during the practice part of a lesson (self-made and uploaded onto The Teaching Channel)	To provide objective data for the professional development session	•Video of classroom practice contains both frequency of feedback given and the quality of feedback given

5.	Professional Development Session #2: Reflecting and Growing in Feedback Practice	2 hour professional development session with the teaching team to share videos and discuss teacher practice	For the teaching team to collect data from the videos, reflect on implementation of the strategy, discuss findings, and set goals for further growth	•Video of classroom practice contains both frequency of feedback given and the quality of feedback given •Professional Development feedback and reflection
6.	Post-intervention classroom observations	13 classroom visits to collect data of feedback given in the second half of the lesson (when practice normally occurs)	To obtain data about the quantity and quality of feedback given after the intervention	•Number of instances of feedback given and to whom •Scripted feedback

Research Methods

This intervention aimed to increase the quantity and quality of feedback given to students by supporting teachers through coaching, professional development, and video sharing. In order to measure the impact of this intervention on teacher practice in the classroom, I planned to collect pre- and post-intervention observation data that counted and scripted feedback given to students during practice. These two pieces of data would determine whether feedback increased in both quality and quantity. Additionally, it was my hope that collecting coaching notes, professional development feedback, teacher reflections, lesson plans, and research journal notes would help to inform and improve the

design of the components of the intervention as a model for supporting new teacher growth.

Impact Data & Analysis Methods

Primarily, the comparison of the pre- and post-intervention classroom observations provided clear impact data that measured the change in both the quantity and quality of feedback given to students by teachers during the practice portion of a lesson. During classroom observations, I used a tool to tally the instances of feedback, differentiated by whom the feedback was given to: individual students, a small group, or the whole class (see Figure 4.). Other pieces of data were collected to set the context of the lesson: the objective and the duration of the observation (see Appendix A.1).

Figure 4. Classroom Observation Tool

Tally the amount of times a teacher does the following:

Feedback Given	**Frequency of Feedback**	**Scripting of feedback**	**Student Response**
As feedback is tallied, sort it by recipient category	*Put a tally each time the teacher gives feedback to the students*	*Script examples of feedback given*	*If possible, describe student reaction or next steps to feedback.*
Whole class			
Small group			
Individual			

The count of feedback given was entered into a spreadsheet to show the growth from pre-intervention to post-intervention, both on the aggregate, by audience, and by teacher. There was checklist on the data collection tool (see Appendix A.2) to identify if a

piece of scripted feedback qualified as having each of the five requirements of effective feedback. Scripted feedback was also entered into a spreadsheet and coded to see if there were any emerging themes beyond the requirements for effective feedback. These codes were then analyzed for frequency.

This data was triangulated with teacher reflections on how their practice had changed and how this change may have impacted students. These were reported at the end of the second professional development session, after teachers had practiced the new strategy, shared their video, and viewed other teachers' videos.

Implementation Data & Analysis Methods

As the intervention was conducted, I collected multiple forms of process data to measure the effectiveness of the project design. These pieces helped me to reflect on the implementation design effectiveness and refine parts of the process, if necessary. These pieces of data were collected into a spreadsheet and assigned a code that aligned with either an intended or emerging theme. These codes were then analyzed for frequency. The data was also organized by implementation component and by teacher so that I could see teachers' reflections over time and by design part. The reflections could also be cross-referenced with the impact data to show common teacher reflections on the implementation as compared to actual growth in teacher practice.

Through collecting professional development feedback, taking research notes, coaching notes, reviewing lesson plans, and observing classrooms, I could ensure the design was having the intended impact and also adjust as necessary. Feedback and reflection from the beginning of the intervention helped to tailor my coaching support.

Then, my coaching notes helped me to refine the video viewing protocol to best support the challenges that teachers were collectively facing in the classroom.

Data Analysis and Findings

The data analysis measured the impact the intervention had on increasing the quantity and quality of feedback given by teachers, and also how the different pieces of the intervention supported teachers in implementing the new strategy.

Impact Data Overview

I collected and analyzed data that measured the impact of this intervention on the quantity of feedback, the quality of feedback, and teacher practice.

Quantity of Feedback. The count of instances of feedback given post-intervention as compared to the pre-intervention numbers revealed that feedback increased both on the aggregate and by individual teacher (see Table 2.). The range of teacher increase spanned

Table 2. Change in Quantity of Feedback given pre-to-post intervention

Quantity of Feedback			
Teacher	Total Instances Feedback PRE	Total Instances Feedback POST	Change in Quantity of Feedback
A	3	11	8
B	5	9	4
C	0	6	6
D	6	11	5
E	3	11	8
F	2	11	9
G	6	14	8
H	0	2	2
I	4	12	8
J	2	12	10
K	4	10	6
L	3	16	13
M	8	12	4
Total	46	137	91

from a change of two pieces of feedback to a total increase of 13 pieces of feedback, with an average increase of seven. As for whom the feedback was delivered to, feedback to individuals increased by 55 instances, while feedback to the whole class and to small groups increased by a smaller amount, 22 and 14, respectively.

Quality of Feedback. Prior to the intervention, out of the 40 scripted pieces of feedback delivered, only 10 pieces of data could be marked as either containing the gap between performance and mastery, or an actionable next step. Additionally, these actionable next steps were often not tied to skill-based steps and instead included learning-strategy-based steps such as "check your notes" or "double check your work". The rest of the scripted feedback presented as either purely positive (25%), such as "Good job", "You are doing really well", and "Perfect"; or, purely negative (43%), such as "That is not it", "No, I'll give you more time", "That's wrong", and "We are not doing what we need to during presentations". These pieces of feedback did not include any next steps, a clarification of the expectation, or performance in relation to the goal; however, they were mostly timely and relevant. Lastly, a theme emerged in 20% of the pre-intervention scripted instances of feedback of using questions in place of direct feedback to students. These questions either prompt the student to do more thinking, such as "What do you need to do after you line them up?" or relied on another student to provide the correct answer, such as "No. Who *does* have one of the correct conflicts?"

Post-intervention, teachers showed an increase in the quality of the feedback they delivered to students during practice (see Table 3.). While teachers still started most feedback with a positive (38%) or negative (60%) introduction, they expanded their feedback to include a reminder of the criteria for mastery (28%), the gap between mastery and current performance (33%), and/or an actionable next step to improve (61%).

Table 3. Change in Quality of Feedback, pre-to-post intervention

Quality of Feedback			
Qualifications	% of feedback pre-intervention	% of feedback post-intervention	Change in Quality of Feedback
Clear Criteria for Mastery	0%	28%	28%
Current Mastery Compared to Goal	18%	33%	15%
Actionable Next Step	8%	61%	53%
*Timely***	n/a	n/a	n/a
*Relevant***	n/a	n/a	n/a
***difficult to confirm through observations; only can be measured in the negative or in absence (see Implementation Data Analysis)*			

Some examples include “Great job stating your argument clearly in this first paragraph, but remember we also need to hook the reader in to have an effective introductory paragraph. Add a hook.”, and “You are missing key components. Look at the rubric here, it says that in order to get a “5” you need to have a background. Talk to your teammates and see how they determined what the background should be. Then add yours.”

A few of the qualifications were hard to measure through just classroom observations of the practice portion. Prior to the intervention, I counted zero instances of

teachers identifying the criteria of expectation for mastery. Using my knowledge from coaching observations I knew that teachers often presented the criteria for mastery at the beginning of the lesson or prior to practice, and not necessarily throughout practice. Criteria for mastery lived in objective presentations, rubrics, or guided practice prior to this intervention, and therefore were not clearly observed during feedback delivery, but also were not necessarily absent from teachers' practice. Additionally, determining if a piece of scripted feedback was relevant to the intended audience was only possible if it presented as clearly *not* relevant. As an example, one teacher gave a piece of feedback to the whole class of "Some of us are making mistakes with our punctuation, watch out!", and I was able to mark the feedback as *not* relevant to all the receivers; however if feedback was given to an individual or to a small group, it was a challenge as the observer to ensure this was relevant to all. Likewise, all feedback given during the practice section, if tied to the task, was timely. Without knowing if feedback was given later in the lesson, or later in the week, there was no way of confirming if teachers were delivering untimely feedback.

Change in Teacher Practice. The data clearly proved that both the quality and quantity of feedback given by teachers to students increased due to the intervention, thus confirming that teacher practice changed. For the most part, teachers noticed these changes and could cite evidence of a change in their own practice. Upon reflecting, nine out of 13 teachers reported noticeable changes in their feedback practice, as collected after the second professional development session. Teacher L experienced the most change, an increase of 13 instances of feedback, and cited this in her reflection: "I know that my feedback has increased in both quantity and quality. I have more of a purpose while I

circulate, and the more I practice giving quality feedback, the easier it is to include all the necessary parts."

Some teachers were also able to connect the change in their practice with specific impacts on students. These impacts ranged from students better understanding the expectations (four out of 13) to an increase in student-to-student feedback (three out of 13), both as a result of increased teacher feedback. The same teacher cited above (Teacher L) reflected on how she knew her own practice had changed: "Students are asking me less questions that have to do with their piece being 'good or not', and instead ask about how to improve. I also see them asking each other for feedback, and they use similar language to my feedback. Overall, the quality of their work as increased greatly."

The only outliers to this trend were two teachers, who, despite showing growth (as measured by the classroom data observations), reported not experiencing a change in their practice or an impact on their students. Teachers E and F, who increased in their feedback counts by eight and nine, respectively, both reflected that they had not noticed a shift in their practice. There are a few possible explanations for this, ranging from their individual skill level in reflection, their attitudes about professional development, to the timing of data collection. Using a greater context of their individual development and their coaching notes, both teachers frequently struggle to apply professional development strategies to their classrooms due to the fact that they believe they already have mastered the skill and implement it frequently or that it does not apply to their type of classroom (self-directed learning or resource support). To emphasize this explanation, in the end-of-year survey, Teacher E responded "neutral" to the question "Professional Development this year helped me grow as a professional to better support my students". Another factor that could explain

this anomaly is timing: the reflections were recorded after the second professional development session while the post-intervention data collection was taken almost three weeks later. So, despite not reporting a change in practice immediately, weeks later when the data showed their practice was impacted, perhaps they would have reported a change. Additionally, despite reporting that their practice had not changed, each still set concrete goals regarding feedback: "I need to follow questions with specific feedback" and "I need to continue to give specific feedback and make sure I give actionable next steps." This emphasizes the need for continued objective data analysis and reflection in order for teachers to see evidence and impact of their growth, rather than reflecting based on a feeling.

Implementation Data Overview

To assess the design of the project, I collected notes, feedback, and reflections after each component of the intervention. I used this data to both inform my evaluation on the effectiveness of each component, in addition to helping shape the intervention going forward.

Professional Development Session #1: Direct Input, Rationale, & Planning Time. After the first professional development session that built rationale for the importance of feedback, presented the deconstructed strategy, and allowed time for planning, teachers were asked to reflect, predict, and set goals. Five out of 13 teachers reflected positively to the open-ended prompt of "What questions or comments do you have about this instructional PD strand?": "I like this!", "I am excited for this :) ", "SO HELPFUL" and "It was straightforward". Teachers (11 out of 14) understood the importance of this strategy and

could use it to identify how they hoped it would affect students, with eight teachers mentioning increased student clarity and mastery and four teachers identifying increased engagement and confidence as hopes for outcomes.

Teachers also identified how the session would cause them to make immediate changes in their classroom—making time for feedback, aligning the language of feedback to the objective, pre-planning feedback, increasing specificity—and what they would need support with in order to make sustained, larger change in their practice—accountability, designing valuable practice tasks, and developing clear expectations in the form of rubrics. This data informed my coaching support.

Coaching Support. Both at the end of the first professional development session and in coaching, teachers had to identify the ways in which they needed support. Teachers understood the new strategy enough to differentiate between what they could implement without support, and what they needed help with. The ability to reflect on what they needed to grow meant that teachers had clarity of the strategy and its importance and felt the accountability of implementation and growth (Shernoff et al., 2011).

The professional development reflections and pre-intervention data helped to tailor my coaching to best support each teacher. While I asked the same general questions about what was working and what was challenging, I focused on specific areas of need for each individual. For example, Teacher A consistently struggled with designing practice tasks and identified that as what she needed help with in order to better deliver feedback. She reported using the strategy to give whole-class feedback on quiz mistakes; however, struggled to include individual feedback since her practice tasks were either nonexistent or not aligned to the objective. Through focusing on her coaching goal, I was able to support

her growth in the area of practice. Six other teachers asked for support and/or focused their coaching conversations on topics that were aligned to their overall growth goals for the year, with the aim of increasing their effective feedback. This confirmed that part of the effectiveness of this intervention stemmed from how it combined multiple structures that all aligned to overall goals (Joyce & Showers, 2002; Wong, 2004). Teachers understood that professional development and coaching worked in tandem to support their growth.

Through coaching, it also became clear that deconstructing a strategy was effective in helping teachers focus on changing their practice. This was confirmed through the coaching notes, as teachers began to use the language from the first PD session. Teachers used the five requirements of feedback as a lens for reflecting on their growth. Teacher G, who increased by eight instances of feedback reflected that she "[used] sentence frames" to ensure that she delivered effective feedback with both the gap and next steps, noticed that "students were mastering content more" due to feedback, and set a goal "to notice [when she is] saying the same thing to individuals [and] take the time to give whole class feedback". Because the strategy was simple and broken-down (Ball & Forzani, 2010), and embedded within the overall professional development focus of backwards planning, teachers were able to focus their practice and reflection (Knight, 2014). They understood how this strategy fit within the larger practice of planning and instructing, and could easily remember and use the five qualifications. By creating a shared language (City et al., 2009), teachers were able to discuss their growth with peers and their coaches.

Support Tools. Through my own classroom observations using the data collection tool, I discovered what pieces of data could easily be collected and others that proved to be more difficult. As stated in the Impact Data Analysis section, it was often hard to judge if the

teachers included the criteria for mastery and if the feedback was relevant. Given the short observation time, it was impossible to observe if teachers were including untimely feedback beyond the practice section. For these reasons, those two requirements were taken off the group data collection tool to be used during the video observation protocol (see Appendix B.1-2).

Because teachers had clearly understood the qualifications for effective feedback, as demonstrated by their language used in coaching sessions that followed the initial professional development session, I changed the video protocol to include only tallying and scripting of feedback and not a comparison of each piece of feedback to the requirements. Instead, I assigned each small group a data analysis task aligned to one feedback requirement. They analyzed the whole set of data collected from the video protocol for their assigned requirement, pulled out positive examples and non-examples, and set possible next-steps. They then presented this to the rest of the group. By reporting on our progress as a whole, the teachers emphasized the professional learning community and our shared responsibility around our growth regarding this practice (Shernoff et al., 2011, Wenger, 1998).

My own classroom observations, data collection and coaching conversations brought up a strong theme of questioning in place of feedback. A few teachers struggled with this, asking “Can questioning be feedback?” and “Can I ask questions to lead students to the next steps rather than say what they need to do?”. I predicted that this pattern would also emerge during the video protocol, and prepared to facilitate a discussion that addressed this topic. Looking back on my research journal notes from March 17, I recorded what happened after the video protocol:

> As I expected, teachers found a lot of questioning in place of feedback while watching the videos. While the groups planned to share their analysis, I encouraged the math team to share this finding, as both of them had asked this question in coaching. They posed the question to the group: Does questioning count as feedback, specifically in place of next steps? There was a 7 minute discussion with the following conclusion: teachers question in place of providing feedback because they don't want to give the answer away, but the student needs concrete feedback on what to do next. Use questioning in other places of the lesson, *not* as feedback. Teachers came to this consensus.

The process data collected throughout the first part of the intervention helped me to prepare for this important discussion; however, the ability for teachers to lead the discussion and form a conclusion speaks to the fact that they were sharing the same language around the strategy and the expected outcome of the strategy.

Another support tool was the expanded LPS San Jose lesson-planning template. Teachers used this template during the first professional development session as a way to pre-plan effective feedback tied to the objective. I did not see any continued use of this expanded template throughout the intervention or remainder of the year. I can conclude that while it was important for helping teachers understand how this strategy fit within backwards planning, and potentially encouraged accountability for trying the strategy in that planned lesson, it was not a necessary part for ensuring that teachers delivered feedback on a regular basis. The post-it checklist that was provided, however, did remain placed in priority spots (taped to clipboards, teacher desks, on laptop desktop) in addition to teacher-created supports like feedback sentence frames.

Professional Development Session #2: Video Protocols. During coaching, I also checked in with teachers regarding videoing their lesson and their feelings on participating in video protocols. 100% of the teachers successfully videotaped a portion of their lesson

and nine out of 13 teachers reported positive outlooks on video protocols, citing either that the act of sharing and watching videos as being "Helpful to get feedback" (Teacher A) or "Helpful to see what others are doing" (Teacher D) or "Helpful for me to reflect and grow" (Teacher G). There were a few instances of obstacles to this exercise: two teachers mentioned the volume quality being a problem (Teachers I and M), one teacher mentioned liking in-person observations better (Teacher C), and one teacher reflected that the group viewing the video impacted the effectiveness of the exercise (Teacher K). When asked for further explanation, Teacher K explained her frustration with working collaboratively with teachers that she had judged as "struggling". In the actual PD session, Teacher K worked productively and reflected positively about her experience: "Today helped me realize that I often give the same feedback to many individuals. I will give common feedback in front of the whole class from now on." In ensuring that groups used the video protocol and only collected objective data, I was able to ensure that the small group video sharing was not evaluative, and instead collected objective data (tallies and scripting) in order to encourage individual reflection (Joyce & Showers, 2002). This helped Teacher K feel the process was useful despite working with a colleague that she viewed as less experienced. By compiling the data into a school-wide set prior to analysis, I was also able to keep the focus on next steps as team, rather than data tied to individuals, thus creating collective responsibility for reflection and responsibility (Shernoff et al., 2011). While it was my hope that this would help create community and support, it became clear to me that video protocols need to be used more in order to continue to build trust and understanding between teachers. It also emphasizes the need for continued team analysis of objective data in order to understand that each teacher has strengths and gaps in every strategy.

After sharing their own videos and viewing other teachers' videos, teachers recorded their reflections. While 100% (13 out of 13) of teachers identified the video protocol as helpful for learning about their own practice, eight teachers on the team noted specific observations about how their practice did not meet some of the requirements of effective feedback, with "actionable next steps" being a significant theme (five out of 13 teachers). Two teachers mentioned that it was helpful to hear how feedback can differ due to teaching styles, but still contain all five requirements. Through using video as an objective piece of data, teachers could reflect, compare, set goals, and understand team-wide performance level. Additionally, it provided information for coaches on how best to provide support moving forward and what future professional development session focus areas could be. In this case, I used the questions that arose to plan another video inquiry cycle that explored how to support peer-to-peer feedback.

While the idea for video inquiry cycles grew out of a time constraint, the inability to complete in-person observations, and the need for teachers to plan during their prep periods, I believe that the practice potentially has more impact than in-person observations. As teachers watched the videos, they stopped, rewound, and discussed in order to collect accurate scripting of feedback. This encouraged authentic norming discussions and helped calibrate teachers' view on what was seen and heard in the video.

Implications and Conclusions

This action research project was designed to support teachers increasing their ability to provide frequent and effective feedback to students so that students could take more ownership of their learning. The support included a deconstructed strategy, rationale

building, coaching support, and video protocols. The data collected confirmed success at meeting parts of the main goal, most obviously in the areas of increasing the quantity and quality of feedback given to students. Other pieces of data confirmed varying degrees of success for the effectiveness of different portions of the support. In the following section, I will present the conclusions along with suggestions for replication and possible improvements.

The literature review revealed the importance of feedback in both supporting content mastery and building students' ownership of learning. Specifically, Clarke (2005) and William (2011) presented requirements in making feedback useful to students: relevance, timeliness, clear expectations, progress to goal, and actionable steps to improve. Knowing that the team was new to either teaching in general or teaching their specific courses, I wanted to ensure a clear, broken down strategy (Ball & Forzani, 2010), coaching support to encourage growth and skill transference (Joyce & Showers, 2002), and collaborative discussion based on objective data to reflect and create a shared understanding of current performance (City et al., 2009; Shernoff et al., 2011). In this case, video (Reitano and Sim, 2010) provided this objective data.

On the whole, the data proves that the intervention worked to increase the quantity of feedback given to students. Feedback given to students nearly tripled from pre-intervention numbers when measured three weeks post-intervention. Teachers, as shown in their reflections and coaching conversations, were focused on practicing the skill of delivering effective feedback. They were able to identify specific ways they changed their practice to include more feedback and the ways it affected students.

In looking at the composition of the feedback delivered, there were 112 more pieces of feedback post-intervention that contained criteria for mastery, progress to goal and actionable next steps. While this clearly shows that teachers worked to include the requirements for effective feedback, it is tenuous for a few reasons. The data collection tool did not require scripting of every piece of data, so the data scripted is only showing a subset of the total pieces of feedback given. There is also some subjectivity in addition to a range of quality regarding if certain pieces of feedback contain the requirements. For example, "Check your notes for the steps" is a next step, but is very different than a next step of "You need to transcribe before you translate the RNA". While this was sufficient for an initial exploration into incorporating feedback into teacher practice, another round of research and teacher video, structured similarly, could further investigate the quality of feedback and its effects on students.

Each component of the intervention played an important role in the outcome. The first professional development session provided the deconstructed strategy, rationale, and planning time so that teachers understood the importance, could learn a discrete strategy, and had time to incorporate it into their lesson. The weeks between the two professional development sessions offered time for teachers to apply the new strategy, reflect on its effectiveness, and problem solve with a coach. The final professional development session provided objective data in the form of a video, which encouraged teachers to reflect on their own practice in comparison to others and discuss our practice as a team. Each component also provided important information to me as I designed support for each individual teacher, and planned the second professional development session.

When considering replication of this intervention, I would stress the importance of not only each component, but also the incorporation of the components within the larger structure of teacher development. At LPS San Jose, coaching and professional development work together to support teacher growth, as do individual and collective reflection and goal-setting. I believe that without their comfort and value in those processes, teachers would not have been able to clearly identify their coaching needs and engage in the series of steps necessary for growth in this intervention. The teachers trusted their coach to support their growth and believed in the idea that effective teachers continuously grow.

Another factor that is vital to the success of this intervention, which I believe we are still working on, is trust and the ability to collaborate and grow as a team and accurate self-reflection. I believe that the effects of this multifaceted approach can only strengthen with more repetition. While most teachers reported experiencing a change in their practice, those that did not or those that were weary of the process may need more exposure to the combination of learning communities, reflecting on personal growth, and analyzing objective video data. The more teachers are exposed to these components, the more they will accurately judge and reflect on their progress in addition to trusting the learning community more.

Part of the success of this project was due to its narrow focus; however, that also posed limitations. The data collection tool did not provide a comprehensive picture of the context of feedback in the classroom. It did not account for how the feedback was initiated, though it would be interesting to analyze if feedback was teacher-initiated or student-initiated. There are many ways that additional professional development sessions could have added to the depth of this project. Since the design of the practice task is key to

ensuring that feedback is valuable and aligned to the objective and future assessment, including a student work analysis after the video protocol would provide information on the value of the task that students are receiving feedback on. Through more comprehensive data collection or collaborative protocols, this project could extend to understand even more about the process of student learning and improvement.

To continue my inquiry into supporting teachers in increasing the quantity and quality of feedback and to explore the effects of feedback on students, there are a few next steps. First, two themes arose from the intervention that could be framing questions for future teacher inquiry cycles: 1. How can questioning be used as an effective tool through a lesson?, and, 2. How do teachers best support the transference the skill of giving aligned, accurate feedback to students to encourage peer-to-peer feedback? Additionally, the collection of student achievement data and survey answers would be helpful in ascertaining the affect that a change in teacher practice has on student achievement and metacognition.

In order to continue exploring how best to support new teacher skill development, I will continue to use the multifaceted structure of this intervention but expand it to investigate teacher-determined questions, add other types of objective data (i.e. student work) to supplement the video, and think about how to continue to monitor growth of a skill past the initial professional development sessions.

Ultimately, this action research project revealed very meta results. Just as providing feedback to students can help them understand both content and develop learning strategies, a multifaceted approach to supporting teachers can help them learn both discrete skills and initiate a learning process as an individual and as a community. For both

groups, teachers and students, learning how to learn is just as important as learning knowledge and skills (Joyce & Showers, 2002; Dweck et al., 2014).

References

Achinstein, B. & Athanases, S. (2006). *Mentors in the making: Developing new leaders for new teachers.* New York: Teachers College Press.

Ball, D. L., & Forzani, F. M. (2010). Teaching Skillful Teaching. *Educational Leadership*, 68(4), 40-45.

Black, P., & Wiliam, D. (2010). Inside the Black Box: Raising Standards Through Classroom Assessment. *Phi Delta Kappan*, 92(1), 81-90.

Blackwell, L., Trzesniewski, K. & Dweck, C. S. (2007). Implicit Theories of Intelligence Predict Achievement Across an Adolescent Transition: A Longitudinal Study and an Intervention. *Child Development*, 78, 246-263.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.) (1999). *How People Learn: Brain, Mind, Experience, and School.* Washington, DC: National Academy Press

Brewster, A., & Bowen, G. L. (2004). Teacher support and school engagement for Latino middle and high school students at-risk of school failure. *Child and Adolescent Social Work Journal,* 21, 47-67.

Bui, K. V. T. (2002). First-generation college students at a four-year university: Background characteristics, reasons for pursing higher education, and first-year experiences. *College Student Journal*, 36, 3-11.

Butler, R. (1987). Task-involving and ego-involving properties of evaluation: Effects of different feedback conditions on motivational perceptions, interest and performance. *Journal of Educational Psychology*, 79(4), 474-482.

Choy, S. P. (2001). *Findings from the condition of education 2001: Students whose parents did not go to college: Postsecondary access, persistence, and attainment.* U.S. Department of Education, National Center for Education Statistics. Washington, D. C.: U.S. Government Printing Office.

City, E. A., Elmore, R. F., Fiarman, S. E., & Teitel, L. (2009). *Instructional rounds in education: A network approach to improving teaching and learning*. Cambridge, MA: Harvard Education Press.

Clarke, S. (2005). *Formative Assessment in the Secondary Classroom*. London: Hodder & Stoughton.

Conley, D. T. (2013). *Getting ready for college, careers, and the common core: What every educator needs to know*. San Francisco, CA: Jossey-Bass.

Dweck, C., Walton, G. M., & Cohen, G. L. (2014). *Academic tenacity: Mindsets and skills that promote long-term learning*. Seattle, WA: Bill & Melinda Gates Foundation.

Dyce, C. M., Albold, C., Long, D. (2012). Moving from college aspiration to attainment: Learning from one college access program. *High School Journal*. 96(2).

Farrington, C. A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T. S., Johnson, D. W., & Beechum, N. O. (2013). *Teaching adolescents to become learners: The role of noncognitive factors in shaping school performance: A critical literature review.* Chicago, IL: University of Chicago Consortium on Chicago School Research.

Goldstein, J., Noguera, P. (2006). A thoughtful Approach to Teacher Evaluation. *Educational Leadership,* 63(6), 31.

Harlen, W., & Deakin Crick, R. (2002). A systematic review of the impact of summative assessment and tests on students' motivation for learning. *Research Evidence in Education Library*, 1.

Hollins, E. (2008). *Culture in School Learning: Revealing the Deep Meaning, 2nd Edition.* New York: Routledge.

Hsiao, K. P. (1992). *First-Generation College Students.* ERIC Digest: EF351079.

Jones, B., Valdez, G., Nowakowski, J., & Rasmussen, C. (1994). *Designing Learning and Technology for Educational Reform*. Oak Brook, IL: North Central Regional Educational Laboratory.

Joyce B., & Showers B.(2002). *Designing training and peer coaching: Our needs for learning*. Crozet, VA: Virginia Association for Supervision and Curriculum Development.

Kardos S. M., Johnson S. M., Peske H. G., & Kauffman D. (2001). Counting on colleagues: New teachers encounter the professional cultures of their schools. *Educational Administration Quarterly*. 37: 250-290.

Kluger, A.N. & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, 119(2), 254- 284.

Knight, J. (2014). *Focus on teaching: Using video for high-impact instruction.* Thousand Oaks, CA: Corwin Press.

Knight, J. (2006). Instructional Coaching. *School Administrator*, 63(4), 36-40.

Knight, J., & Cornett, J. (2009). *Studying the impact of instructional coaching.* Thousand Oaks, CA: Corwin Press.

Lemov, D. (2010). *Teach like a champion: 49 Techniques that put students on the path to college*. San Francisco, CA: Jossey-Bass.

Little, J. W. (2006). Professional community and professional development in the learning-centered school. *Best Practices: NEA Research*. Washington, D.C.: National Education Association.

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education,* 31(2), 199-218.

Reitano, P., & Sim, C. (2010). The value of video in professional development to promote teacher reflective practices. *International Journal Of Multiple Research Approaches*, 4(3), 214-224

Rumberger, R. W. & Arellano B. (2007). *Student and School Predictors of High School Graduation in California*. Policy Brief 5, California Dropout Research Project, UC Santa Barbara.

Shernoff E. S., Marinez-Lora A. M., Frazier S. L., Jakobsons J. L., Atkins M. S., & Bonner D. (2011). Teachers supporting teachers in urban schools: What iterative research designs can teach us. *School Psychology Review*. 40(4), 465-485.

Tavakolian, H. R., & Howell, N. (2012). Dropout dilemma and interventions. *Global Education Journal*, 1, 77-81.

Wenger, E. (1998) *Communities of practice: learning, meaning, and identity.* Cambridge, UK: Cambridge University Press.

Wiggins, G., & McTighe, J. (2006). Examining the teaching life. *Educational Leadership*, 63(6), 26-29.

Wiliam, D. (2011). *Embedded formative assessment*. Bloomington, IN: Solution Tree Press.

Wiliam, D. (2006). Assessment. *Journal of Staff Development*, 27(1), 16-20.

Wong, H. (2004). Induction programs that keep new teachers teaching and learning. *NASSP Bulletin*, 88, 43.

Appendices

Appendix A.1. Classroom Observation Data Collection Tool

OBSERVATION Time in_____ Time out _____

Objective

As communicated in class	As planned in the lesson plan

Tally the amount of times a teacher does the following:

Feedback Given	Frequency of Feedback	Scripting of feedback	Student Response
As feedback is tallied, sort it by recipient category	*Put a tally each time the teacher gives feedback to the students*	*Script examples of feedback given*	*If possible, describe student reaction or next steps to feedback.*
Whole class			
Small group			
Individual			

Appendix A.2. Classroom Observation, Data Quality Analysis

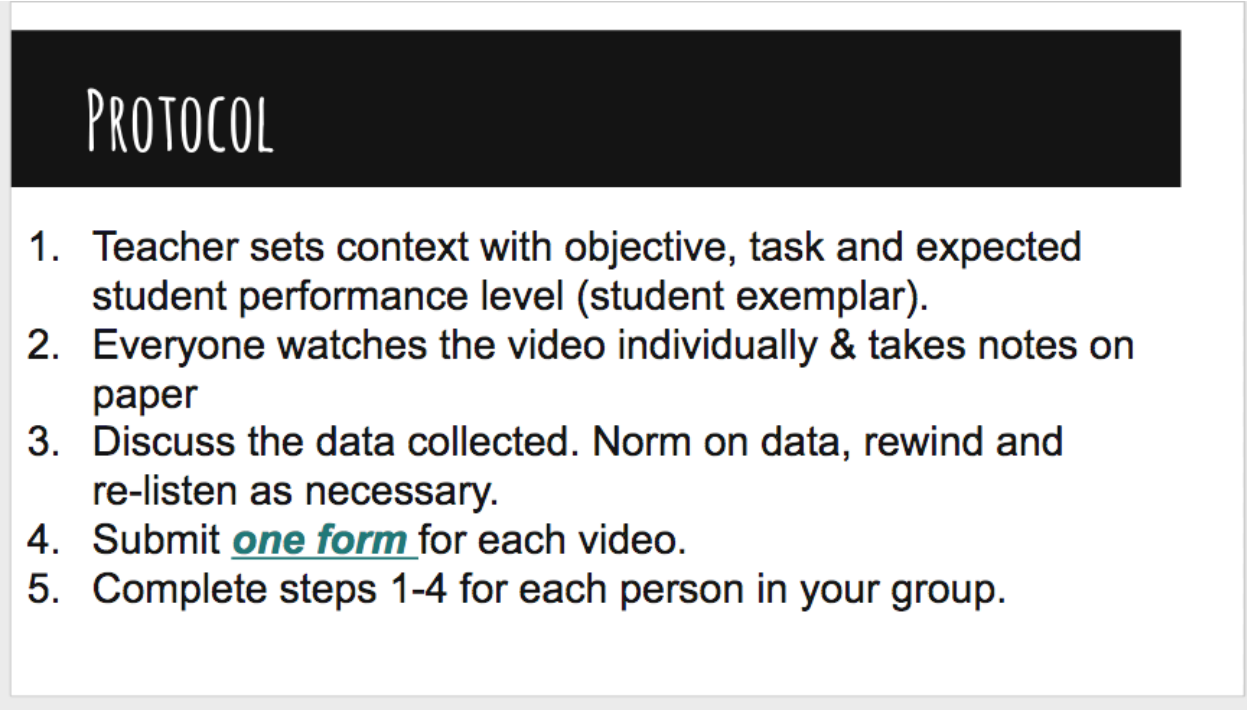
OBSERVATION ANALYSIS

1. View the video or observe the class and fill out the "observation" form
2. Ask a round of clarifying questions from the teacher or seek out additional information (scores, plans, etc.)
3. Analyze the feedback according to the following checklist:

Scripted piece of feedback	To whom	Student Response	Satisfies the following feedback requirements:
			☐ clarified performance expectations ☐ compared performance in relation to outcome ☐ provided ways to close the gap ☐ timely ☐ relevant to receiver
			☐ clarified performance expectations ☐ compared performance in relation to outcome ☐ provided ways to close the gap ☐ timely ☐ relevant to receiver
			☐ clarified performance expectations ☐ compared performance in relation to outcome ☐ provided ways to close the gap ☐ timely ☐ relevant to receiver

Key Takeaways:

Appendix B.1. Professional Development Session #2 Video Viewing Protocol



Appendix B.2. Professional Development Session #2 Group Feedback Data Collection Tool

Feedback Data Collection

* Required

Context

Record the objective: *

Describe the practice task: *

What was the expected student performance?
i.e. student exemplar

Quantity of Feedback

Tally how many pieces of feedback were give to the whole class. *
This question is about quantity, not quality, i.e. "good job class" would be tallied as a piece of feedback.

- none observed
- 1
- 2
- 3
- 4
- 5
- more than 5

Tally how many pieces of feedback were give to a small group. *
This question is about quantity, not quality, i.e. "good job" would be tallied as a piece of feedback.

- none observed
- 1
- 2
- 3
- 4
- 5
- more than 5

Tally how many pieces of feedback were give to an individual. *
This question is about quantity, not quality, i.e. "good job" would be tallied as a piece of feedback.

- none observed
- 1
- 2
- 3
- 4
- 5
- more than 5

If possible, identify the ratio of times the feedback was teacher-prompted versus student prompted.
i.e. 3:4 means that 3 times the teacher initiated and 4 times the student initiated (via calling the teacher, asking a question, etc.)

Quality of Feedback

Script a piece of feedback. If possible, describe the student's next action/reaction after the quote.
Provide important context, i.e. To Julio, pointing at #2 "You still need to use textual evidence in that paragraph"

Script a piece of feedback. If possible, describe the student reaction after the quote.
Provide important context, i.e. To Julio, pointing at #2 "You still need to use textual evidence in that paragraph"

Script a piece of feedback. If possible, describe the student reaction after the quote.
Provide important context, i.e. To Julio, pointing at #2 "You still need to use textual evidence in that paragraph"

Submit

Never submit passwords through Google Forms.