

Increasing Novice Teachers' Planning Capacity
Using Co-planning, Master Teacher Observation, and
Video Reflection

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August 2016

Abstract

Novice teachers enter the classroom after pre-service programs with expectations to perform the same duties as veteran teachers. Among the demands on all teachers is the nuanced skill of lesson planning. Improving novice teachers' planning capacity is an overlooked component of most professional development. The purpose of this action research was to improve novice teachers' planning capacity and, in turn, their classroom instruction. After co-planning cycles, master teacher observations, and a master teacher's reflection on her planning, novice teachers reflected on their learning. Data collection included pre- and post- intervention interviews, pre-and post-intervention surveys, targeted classroom observations, and a researcher reflection journal. The overview of my findings is as follows and is discussed and supported in this report:

- The intervention increased novice teachers' planning knowledge about specific planning strategies
- The intervention had the most significant impact on two areas: teachers' knowledge and skills of how to use data to drive instruction and how to use questions as an instructional tool
- There was no impact on the specific areas in which teachers' were strongest to begin: planning from Learning Targets and thinking through directions.
- The least impact was felt on planning "with targeted students in mind to make sure I am making directions and content accessible to all students."

Findings from the data suggest that novice teachers planning capacity does increase with focused professional development strategies and, as a result, classroom instruction improves. There are implications for targeted coaching cycles, educative mentoring, and master teacher reflection interviews to increase novice teachers' knowledge and skills.

Problem of Practice

Teaching is a practice much closer to an art or craft than a technical or routinized career. At the heart of the art and craft of teaching is the planning process, which is a personal endeavor. Although technical aspects exist in quality instructional planning, methods that teachers use to plan daily lessons are highly individualized. Additionally, teachers' depth of understanding about how elements of planning interact (year scope, unit plan, weekly plan, daily plan) and inform one another is extremely variable and individual. Regardless of the pre-service program, teachers enter the world of full-time teaching with relatively little experience.

Nestled within the heart of each novice teachers' craft is the instructional planning process. The planning process is the first step to quality instruction in the classroom and outcomes for students. Yet, this foundational element of the work of teaching remains functionally invisible from most professional development. We simply expect that novice teachers will "get it" and bloom into talented instructional planners on their own. Maybe it is the individualized nature of each teacher's own learning process or the inevitable personalized process through which teachers plan that has led to this gap in teacher development. Regardless, novice teachers deserve training in the art of instructional planning that goes well beyond that in teacher preparation programs. Without it, the implementation of any plan is sure to fall short of what our nation's children deserve. This action research aims to unpack the most

effective differentiated method to improve teachers' instructional planning capacity and skill set.

Remyly Academy was founded by highly skilled and well-trained educators. "Teacher quality is the most significant school-based factor in determining student outcomes," (Ibrahim, Aziz, and Nambiar, 2013). The founders' theory of action was that if you brought the best teachers you could find together, supported them with a school environment that was open and structurally flexible, then good work would happen for students. This philosophy of school design resulted in a powerhouse school of practitioners tied together by the school mission and best practices. However, Remyly Academy has exhausted the life of this model. When the school dropped a partnership with Expeditionary Learning teachers' core practices became more personalized. With the push and pull of No Child Left Behind legislation, the school's focus veered from its core of authentic student learning. Additionally, over time many of the best teachers stepped into leadership roles or left the profession, and the school hired new teachers. This round of hiring illuminated a problem: there are very few teachers in the Bay Area.

Hiring quality, experienced, transformational educators has been very difficult for the past five years. The pool of Remyly Academy applicants is indicative of the national crisis: a shortage of quality educators. The pressure of punitive NCLB legislation, the economic recession, and subsequent shifts to the structure and climate in our public schools has burned out many quality educators and scared away new

innovative minds from even trying. Teach For America's (and other similar programs) work in schools with the most need, although rooted in the ideals of doing important work, has served as a band-aid to the problem; many smart and caring teachers are depleted after their two years of service and change professions. Couple these factors with "successful" charter schools that function by cycling through teachers in three years and you have a new epidemic on your hands. These conditions are not fostering smart, driven, innovative thinkers to become teachers in our nation. As a result, over the past five years Remyly Academy has hired mostly new, inexperienced, and beginning teachers.

Currently, our instructional planning quality varies greatly by practitioner. Teachers with fewer than five years of experience compose over 75% of our 5-12th faculty at Remyly Academy. These instructors teach from both unit plans and daily plans. Novice teachers collaborate with veteran teachers to write unit plans that serve as the curriculum. Teachers craft their weekly and daily plans out of these unit plans. However, these weekly plans are being constructed in silos: our novice teachers are planning alone. This leads to very slow progression in novice teachers' planning capacity and subsequently, their classroom instruction is inefficient, reactive, and unfocused. Currently, most novice and intermediate teachers' daily instruction is "delivered" and is somewhat disconnected from proactive, carefully constructed daily lesson plans that include anticipation and pre-thinking. Currently, classroom time is

spent clarifying and re-clarifying directions, questions are peppered at students, and students are not consistently engaged in meaningful learning for the duration of class.

Currently, Remyly Academy's daily instruction does not create conditions for *all* students to meet authentic cognitive demands of the Common Core State Standards and Next Generation Science Standards in *every* classroom, *every* day. At the root of this is teachers' instructional planning capacity. Novice teachers, by no fault of their own, do not yet have the skill to craft a plan that is proactive, differentiated, and engaging. For example, the following nuances of accomplished instructional planning are absent:

- What are the highest leverage thinking questions? When do I ask them?
- What logistical moves (directions, supply distribution, transition systems) need to be made to minimize confusion about the task and maximize student thinking?
- How will I check for understanding? How will students check their own understanding?
- What will move specific students' thinking?
- What are the likely student misconceptions? How will I proactively dispel these?

Without a comprehensive plan and thorough pre-thinking, our teachers are set-up to deliver lessons that are less than excellent. After all, the first step to great implementation is great planning. Our current lack of planning capacity is resulting in

lessons that are often fragmented, jumbled, confusing, and mundane. It stands to reason, then, that our most struggling and disengaged learners are at the biggest disadvantage. They are not receiving the quality instruction that they so desperately need and deserve. The accomplished students are making adequate progress despite the conditions in their classes. However, our English language learners, retained students, students with special needs, and most disengaged students—all of whom are students of color and many of whom are African American males—are the most impacted and their learning is compromised. They deserve engaging, differentiated, and well-crafted lessons. Without this, the systemic inequity of our current community continues and Remyly Academy is complicit in the process. “Just as the teacher plays an important role in social reform in this orientation, so teacher education is part of a larger strategy to create a more just and democratic society” (Feinman- Nemser, 2012, 88). We must do better for our students.

The planning process and instructional planning is defined in this research as “preactive decision making that takes place before instruction” (Panasuk, Stone, and Todd, 2002, page 2). This includes the lesson design, student outcomes, anticipated student misconceptions, calculated materials management, differentiation, anticipated engagement hurdles, and additional nuances of the craft of planning and is not simply a typed weekly plan. Novice teacher is defined as a teacher in the early stages of the career (years 1-4) who has an emerging teaching practice as measured by the classroom observations and supervisor evaluation.

We have begun to focus on lesson planning broadly at Remyly Academy. Our novice teachers write broad components of daily lesson plans and submit these weekly lesson plans for review and comment by the Director of Instruction or instructional coach. However, the production of these skeletal plans falls short of the robust exercise that is instructional planning. Currently, novice teachers are not anticipating moves, questions, and individualized circumstances as a part of their planning process, which clearly impacts the quality of lesson implementation. When novice teachers do not make appropriately responsive moves in the class (eg. reading the students), student learning is stunted. Most pre-service teachers learn to plan in a linear fashion, which breeds a lack of proficiency and confidence to flex instruction during class. Further, novice teachers are not improving their instructional planning capacity because they are primarily planning lessons alone. Our small school's schedule assigns each teacher one class, which results in no teachers being able to plan for the same class in teams.

My action research seeks to discover effective methods to teach novice teachers the art of nuanced lesson planning. It goes significantly beyond the written plan and into the personal, gray, critical areas of the process of lesson planning. Without a system to develop novice teacher's planning capacity, the instruction in novice teachers' classes will not improve, and student achievement will not increase.

Literature Review

Introduction

At Remyly Academy, and across Oakland, we have an urgent need for quality teachers. However, the school is currently undergoing an extreme teacher shortage. The confluence of these factors calls for us—experienced educators and leaders—to do something. My action research seeks to understand the path to accelerating novice teachers' planning skill and capacity in order to improve the quality of classroom instruction for our students today. During this action research project, three novice teachers engaged in an intervention with three components: a three week co-planning cycle with a master teacher, an observation of the master teacher teaching, and an interview with a master teacher about her planning practice.

The number one enemy of education is ineffective instructional practice, which Frudden and Stow have coined "Dysteachia," (Frudden and Stow, 1985). One nearly invisible component of effective instructional practice that gets frequently overlooked in educational research is teacher planning, as most educational research has explored easily observable activities like classroom management and pedagogical strategies (Frudden & Stow, 1985). Although planning is clearly valuable, an exploration of instructional planning as key lever to improving student has been largely ignored (Frudden & Stow, 1985). In the following review, I argue that analyzing the most effective methods to improve teacher planning capacity is necessary particularly those of novice teachers (Moline, 1973).

Understandably, novices need to spend more time preparing to teach lessons than veteran teachers. However, over time with focus and reflection, quality instructional planning moves can become a mental habit (Norman, 2011). Increasing teachers' planning capacity in turn will improve the quality of teaching and learning that ensues. Unfortunately, there is an incredible lack of research that offers insight on the connection between quality lesson planning and strong classroom instruction (Morine, 1973). My action research serves as one piece that is currently missing from the instructional planning puzzle.

For the purpose of this literature review, I define lesson planning as "preactive decision making that takes place before instruction," (Panasuk, Stone, & Todd, 2002, p. 2). This includes, but is not limited to, anticipating student misconceptions, building the daily lesson arc, preparing for materials distribution, articulating questions to be asked during instruction, grouping students, and articulating anticipated student achievement on a given task. The nature of planning as a very individualized activity that is iterative has caused it to be an invisible part of the craft, while more easily observable actions in classrooms are focused upon in evaluation processes (Ball & Forzani, 2009). Even the National Board Council does not articulate standards for quality lesson planning, rather assumes the connection between quality planning and implementation (National Board for Professional Teaching Standards, 1989). Without a focus on instructional planning as a discreet suite of skills, we fail to provide professional development and feedback to improve teachers' instructional planning capacity (Morine, 1973). This hole, in turn,

leaves teachers' growth as instructional planners to chance, which then delays high quality instruction from occurring in many novice teacher's classrooms (Ball & Forzani, 2010). When novice teachers are left to develop as instructional planners on their own, the result is frequently that students who need the most get the least. For example, pedagogical moves to differentiate instruction, which engage learners who are frequently underperforming, happen inconsistently (Morine-Dershimer, 1978).

Novice Teachers

When a novice teacher does not figure out how to effectively teach, students lose out. But we have the opportunity to change this (Ball & Forzani, 2010). Novice teachers do not plan instruction with an inquiry mindset: by forming hypotheses and testing them, following the logical steps of problem-solving (Morine, 1973). Instead, novice teachers regularly plan in a linear, teacher-centered fashion (Findell, 2009). Even when novice teachers focus on a specific small group of students for which to plan instruction, many find it challenging to master the complexities of lesson planning (Feiman-Nemser and Beasley, 1997). This is understandable, given that new teachers really have two jobs to do—they have to teach, and they have to learn to teach (Feiman-Nemser, 2001; Wildman, Niles, Maglario, & McLaughlin, 1989). And, given the nature of the task, no amount of preparation can prepare a new teacher fully; several aspects of teaching can only be learned on the job (Feiman-Nemser, 2001).

One element of pre-service programs that is consistent is the student teaching experience, where novice teachers learn under the wing of an experienced teacher (Norman, 2011). However, pre-service teachers generally become too focused on the content they are teaching and do not plan what will actually work in their classroom with their students (Knobloch & Hoop, 2005). Once teaching in her/his first year, the social organization of schools and professional norms of politeness and non-interference often leave teachers isolated in the privacy of their own classrooms (Lortie, 1975). This means that teachers rarely have opportunities to observe colleagues teach or to talk collaboratively about teaching in sustained and rigorous ways (Little, 1993). Moraine refers to this ironic phenomenon as the "paradox of planning": there is little research that informs pre-service programs and school leaders about how to plan to improve novice teachers' planning skills (Morine, 1973). How to plan well is a critical, yet understudied element of teacher development (John, 2006).

We know that instruction is inherently unpredictable, uncertain, and messy in nature, yet teacher prep programs teach pre-service teachers how to plan in a linear fashion (Norman, 2011). Although lesson planning is the most pervasive instructional activity used in teacher education programs (Lederman and Niess, 2000) the mere definitions of "planning" are as diverse as the teacher education programs that exist in our country (Lederman and Niess, 2000). Further, according to Jarchow, (1984), pre-service teachers do not understand and appreciate the reciprocal relationship between instructional planning and actual teaching (Jarchow, 1984). Consequently, it is essential

that we teach pre-service teachers how to translate a lesson plan to successful instruction (Dorovolomo, Phan, and Maebuta, 2010).

Creating quality instruction on the spot is very difficult, and leaves student's learning to chance, whereas delivering quality from a well thought-out plan is certainly easier, especially for a novice (Lederman and Niess, 2000). Perhaps the first step to improving novice teachers' instructional planning skills lies in novice teachers' understanding of the relationship between lesson planning and implementation (Wilkerson and Scheffer, 1992).

Lesson Planning & Student Learning

Lesson planning is considered a central task in "the work of teaching" (Ball & Forzani, 2009) because lesson planning has an impact on classroom instruction (Dorovolomo, Phan, and Maebuta, 2010). A good lesson plan is a key component of every lesson. Recent research supports the efficacy of this practice; there is a clear link between teacher planning and students' achievement (Knobloch & Hoop, 2005; Frudden, 2001, Darling-Hammond, L., Berry, B., & Thoreson, A., 2001). Carnahan documented that students spent more time on task (a proven attribute to pupil gain) when their teachers had a well-designed lesson plan (Carnahan, 1980). Another study by Morine (1976) substantiated the use of more precise instructional planning to achieve increased pupil gain. Hattie illuminates with his analysis of hundreds of meta-studies, that specific strategies, which are deliberate, planned, and are explicit in the

learning activities have a positive influence on student learning (Hattie, 2008). Teachers who plan are more effective, regardless of the outcome measure, than teachers who do not plan (Lederman and Niess, 2000).

No lesson ever unfolds exactly as the teacher planned it (Morine, 1973). But, as Ibrahim, Aziz, and Nambiar's study shows (2013), a master teacher who has planned her lessons or unit thoroughly is able to responsively revise her original plan and replace it with a contingency plan. A teacher who has anticipated and considered several alternative paths before the lesson begins has multiple responses available at his fingertips when unpredicted events suddenly occur during instruction, which positively impacts student learning (Morine, 1973). In sum, expert teachers make careful plans and, in turn, are able to remain flexible and responsive to students' needs in service of student learning (Findell, 2009).

Lesson planning is an essential facet of teacher preparation, necessary for even the most experienced teachers in order to ensure confidence and quality in the classroom (McCutcheon, 1980). However, most teachers do not have a clear method for effective planning and develop understanding through a loose trial and error cycle (Frudden & Stow, 1985). In the United States, planning and preparation are considered important, but lesson plans themselves seldom consist of more than a list of activities (Dorovolomo, Phan, and Maebuta, 2010; Shen, Poppink, Cui and Fan, 2007).

Developing lesson plans is not often considered a worthwhile professional-development experience for individuals (Shen, Poppink, Cui and Fan, 2007). Lesson

planning is frequently overlooked as a source of professional development and, consequently, the opportunities for both personal and collegial reflection are missed (Shen, Poppink, Cui and Fan, 2007). Teachers' schedules in the United States leave very little time during the school day to undertake intellectual activities, including lesson planning, that improve teaching practice (Shen, Poppink, Cui and Fan, 2007). Teachers' individual and collegial planning and working time could be a necessary condition to improve the quality of teaching in American schools, and detailed lesson plans provide a way for American teachers to better understand content, student learning, and pedagogical content knowledge (Shen, Poppink, Cui and Fan, 2007).

Collaborative Planning & Effective Mentoring

It is critical to have an instructional plan that is responsive to the classroom environment (Lederman and Niess, 2000). Given this reality, pre-service teachers should be taught to plan in a way that prepares multiple pathways to a day's lesson goal (Morine, 1973). As noted earlier, this level of instructional planning instruction is missing from current pre-service programs (Morine, 1973). As Feiman-Nemser and Beasley 's study highlights a novice teacher does not have a complete picture of what the planning process entails, and is not taught to conceptualize planning in a responsive or iterative way (Feiman-Nemser and Beasley, 1997). Fixed models based solely on planning in reverse order (backwards planning) with a myopic lens on the day's outcome do not create room for the iterative nature of the exploration of content,

student response, or classroom culture as part of the planning process (Feiman-Nemser and Beasley, 1997). One means to mitigate this reality is co-planning. When teachers plan together they learn from one another, and the planning process comes alive as a dynamic, responsive, creative element of the profession (Shen, Poppink, Cui and Fan, 2007). Effective co-teaching promotes collegiality, personal and collaborative reflective practice among pre-service teachers, and reciprocal teaching between practitioners (Dorovolomo, Phan, and Maebuta, 2010).

There is a lack of research that prescribes a clear direction to improving novice teachers' instructional planning capacity (Moraine, 1973), but studies highlight the efficacy of co-planning (Moraine, 1976), and the urgent need at Remyly Academy and beyond to support novice teachers, is the context in which my action research sits. My research seeks to address this problem and answer the following questions:

- Can we help a novice teacher to make accelerated growth as a planner, and in turn improve instruction for students?
- Can a proficient instructional planner help a novice teacher learn how to plan?
- What is the most effective professional inputs to teach a novice teacher how to plan more effectively?
- What are the highest leverage moves to improve novice teachers' planning skills and capacity?

My research does not explore the structure of the written lesson plans, rather is grounded in requisite moves to any quality lesson: timing, materials management,

evidence of student learning, use of questions, and anticipating misconceptions prior as part of the planning process. Kagan's research that shows one format of written lesson plans does not work for everyone informed my focus area: the mental planning involved with instructional planning (Kagan, 1992). Given that our novice teachers turn in weekly lesson plans, and they have reflected that the written feedback is most helpful when accompanied by an in-person coaching conversation, I seek to explore the efficacy of co-planning cycles.

The conditions of effective co-planning are complex. In order to teach others how to effectively plan, master teachers must possess conceptual and practical knowledge of instructional planning, how novices learn to plan, and how to teach planning (Norman, 2011). Teachers, like students, have zones of proximal development; they too require scaffolds and differentiation (Feiman-Nemser and Beasley, 1997; Tharp and Gallimore, 1998). As we know from Vygotsky's pivotal work, children and apprentices learn all kinds of skills by participating in authentic activities with more capable others who tailor assistance to fit the development level of the learner (Feiman-Nemser & Beasley, 1997). By extension, a mentor can help a novice perform at a more complex level than he or she could on his or her own (Feiman-Nemser and Beasley, 1997). Effective mentoring, when both a mentor and novice engage in an authentic component of the profession, differs from conventional views of "mentoring," which connote offering emotional support or solely passing on local knowledge and practical advice (Little, 1990). Little (1990) distinguishes between

emotional support that makes novices feel comfortable and professional support that fosters a rich understanding of teaching. She argues that the promise of mentoring lies not in easing novices' entry into teaching, but in helping them confront difficult problems of practice and use their teaching as a site for learning (Little, 1990).

Unfortunately, by underestimating the guidance that novices need in learning to plan, cooperating teachers frequently do not give interns access to the internal cognitive work that they engage in while planning for student learning (Norman, 2011). When mentoring provides an opportunity to collaboratively participate in an authentic task, like lesson planning, a novice learns from authentic participation alongside the mentor (Feiman-Nemser and Beasley, 1997).

Collaborating teachers prepare for instruction differently than their interns, given that collaborating teachers often combine cognitive steps or accelerate parts of the planning process (Norman, 2011). Unlike novices, veteran teachers rarely write extensive plans. In her ethnographic study of twelve elementary teachers, McCutcheon (1980) found that teachers only recorded their planning to meet administrators' demands or create guidelines for substitute teachers. Most teacher planning is done mentally rather than on paper (Morine-Dershimer, 1978; Clark & Yinger, 1977) and most teachers do not follow a prescribed model when planning (Clark & Yinger, 1977). However, within this mental planning, experienced teachers asked many more questions before they began planning than did inexperienced teachers (David C. Griffey & Lynn Dale Housner, 1991). Experienced teachers' plans embedded contingencies in

response to situations that might arise during instruction, whereas inexperienced teachers' plans did not (David C. Griffey & Lynn Dale Housner, 1991). This thinking is what novice teachers need to learn to do. Veteran teachers can think more deeply and anticipate circumstances that novice teachers can not; and it is critical that teachers draw on their knowledge of students, content, and pedagogy when entering into complex, unpredictable interactions with a particular group of children around a particular concept given a particular context (Ball & Cohen, 1999; Ball & Forzani, 2009). In other words, quality teaching depends on teachers being able to make sound decisions “in the moment” of the dynamic classroom (Lampert & Ball, 1998).

Veteran teachers often take these decisions for granted. As Feiman-Nemser and Beasley's study highlights (1997), veteran teachers “know in [their] bones how long it will take, how the children will respond, how to manage the transitions and how the lesson will flow” (Feiman-Nemser and Beasley, 1997). However, being a strong teacher of children does not automatically translate into being a strong teacher of teachers; being an effective classroom teacher is not an automatic indicator of being a strong mentor (Feinman-Nemser, 1998; Koerner, 1992). Frequently, mentor teachers do not view themselves as teachers of planning or understand the nuances involved in teaching a novice to plan (Norman, 2011).

Historically, cooperating teachers have received little to no formal preparation for their dual role as a teacher of teachers, especially around lesson planning (Sparks & Brodeur, 1987). Among the daunting challenges mentors face in strengthening novice

teachers' capacity to plan, is one of helping mentor teachers to develop a new vision for their role as teachers of planning and to expand their capacity in guiding, supporting and assessing interns' learning to plan (Norman, 2011). Because experience has often been their best teacher and they have "learned the ropes" on their own (Lortie, 1975), cooperating teachers may believe that they should stay out of the way so that novices can learn on their own, much like many cooperating teachers did (Feiman-Nemser & Beasley, 1996). They may not provide guidance and support to novices throughout the planning process (Norman, 2011). This is for good reason, because most teachers do not think about how they plan, let alone how they might teach planning to a novice (Norman, 2011).

For one thing, planning is usually a private, mental experience, which teachers carry out individually (Feinman-Nemser, 1998). Moreover, the kind of planning that works for experienced teachers may not be adequate for novices (Feiman-Nemser and Beasley, 1997). Experienced teachers have deeply developed frameworks for understanding, prioritizing, and organizing academic content and learning activities, more knowledge of students as learners, and a broader, clearer picture of the overall curriculum (Feiman-Nemser and Beasley, 1997). Currently, we know relatively little about what deliberate mentor teachers do, how they think about the work, and what novices learn from their interactions with them (Feiman-Nemser, 2001). This underscores the need for mentors to understand what effective instructional planning entails and simultaneously develop their capacity as instructional planners/curriculum

developers (Norman, 2011). Mentors have to examine their vision of good teaching in relation to their views about planning in order to adequately support novice teacher's lesson planning growth (Norman, 2011). This work is crucial to the educative mentor model's efficacy at increasing novice teachers' planning capacity.

Intervention

My intervention is a combination of ideas that have been explored in this literature review. Although there is no research about a specific instructional planning capacity program for novice teachers, I am seeking to combine the effective elements of educative mentoring, adult learning, and co-planning to improve novice teachers' planning skill at Remyly Academy. I have not focused on discreet mentoring or coaching practices, rather a combination of interventions that utilize the best practices of educative mentoring and adult learning.

The ugly truth is that we do not know the best way to train novice teachers to do this work skillfully and this is a serious collective problem. Banking on untested approaches to teacher education, which rely primarily on common sense and experience, is a risky formula for the education of our nation's youth. When a beginning teacher does not figure out the job, students are the losers. But we now have the opportunity to change this (Ball & Forzani, 2010).

Professional Development

Research about the elements of effective professional development framed my intervention. Many experts currently agree that traditional approaches to professional development simply do not work: one-off professional development sessions that do not connect to teachers' professional goals and allow for learning over time do not impact teacher practice and, in turn, do not improve student achievement (Feiman-Nemser, S., & Norman, P.J., 1997). A one-size fits all professional development without content integration is ineffective (Birman, B., Desimone, L., Porter, A., & Garet, M., 2000). In contrast, we do know what works to move teachers' practice. Effective professional development includes the following:

- meaningful, sustained engagement with colleagues, ideas and materials
- opportunities for teachers to place new learning in relation to their current practice
- opportunities for teachers see their individual work in relation to the work of others and to consider leadership roles beyond the classroom
- opportunities for teachers to be actively learning
- collaborative problem-solving (Feiman-Nemser, S., & Norman, P. J.,1997; Birman, B., Desimone, L., Porter, A., & Garet, M., 2000).

More specific to this project is research that highlights engaging in lesson planning and practicing in simulated situations as one way to improve teacher's craft (Birman, B., Desimone, L., Porter, A., & Garet, M., 2000). We also know that teachers learn more when the school culture fosters a collaborative environment (Hollins, 2008). My

intervention includes a three-pronged approach to improving novice teachers' planning capacity: co-planning cycles with a master teacher, master teacher observations, and an interview with a master teacher about her planning process. Each of these components includes the elements of productive professional development for teachers.

Co-planning

Experience alone—especially unreflective, isolated experience—does not spontaneously yield growth (Feiman-Nemser, 2012). The early years of teaching are a time of concentrated and intense learning, and are commonly time of intense loneliness (Feiman-Nemser, 2012). In far too many schools novice teachers must 'learn the ropes' by themselves, working in their room alone, which results in high rates of teacher attrition and lowered effectiveness of practice (Feinman-Nemser & Norman, 1997). Most of the time, in the United States, the status quo norms of autonomy and non-interference prevent novice teachers from soliciting help and perpetuate the view that good teachers 'figure things out on their own' (Feinman-Nemser & Norman, 1997). A partnership between a master teacher and novice, with a targeted focus on instructional planning, is one way to prevent novice teacher isolation from occurring.

Many leaders in education have long advocated the value of including novice teachers in collaborative professional learning communities (Feiman-Nemser, 2012). When teachers work together, they are more likely to identify student misconceptions and plan a lesson sequence that maximizes opportunity for student learning (Findell,

2009). More specifically, when a novice teacher co-plans with a master teacher she will learn nuances of lesson planning; master teachers make careful plans, yet remain flexible and responsive to student needs (Findell, 2009). Simply put, working with other teachers to refine lesson plans leads to better learning for students (Findell, 2009).

Co-planning, as a form of mentoring, works when the mentor is actively supporting a novice teacher in the hard intellectual work of teaching, and not merely providing context or reactionary emotional support (Feiman-Nemser and Beasley, 1997). When working with a veteran teacher in the “educative mentoring” model that includes co-planning, a novice teacher begins to form a picture of what planning involves, including the questions a teacher has to ask herself, moments she needs to anticipate, and the breadth of knowledge she has to acquire about her students, curriculum, pedagogy (Feiman-Nemser and Beasley, 1997). Participating in a serious mentoring relationship is likely to make the first years of teaching more strenuous in the short run, while promoting accelerated, targeted growth, and in turn, greater rewards for teachers in the long run (Feiman-Nemser, 2001). This is not a comfortable notion for all school leaders, mentor teachers, or novice teachers. However, the idea of educative mentoring is; it builds on Dewey’s (1938) concept of educative experiences, which are experiences that promote, rather than stifle, future growth and lead to richer successive experiences. Educative mentoring relies on an explicit vision of good teaching coupled with an understanding of teacher learning (Feiman-Nemser, 2001).

Educative mentoring is similar to other forms of practice-centered, inquiry-oriented professional development that are connected to a vision of powerful learning for all students supported by a collaborative professional culture (Feiman-Nemser, 2001; Ball & Cohen, 1999; Hawley & Valli, 1999; Little, 1990). Co-planning is one form of educative mentoring, as a way for mentors to induct novices into the intellectual work of teaching. Through joint planning, a mentor models her planning process, making explicit her thinking and decision making, and sharing practical knowledge about students, subject matter, and teaching (Feiman-Nemser and Beasley, 1997). This deliberate modeling and sharing of ideas is critical to effective educative mentoring. A novice gradually constructs a framework for her own planning, with a deeper understanding of what is involved in effective planning, because of this collaborative planning experience (Feiman-Nemser and Beasley, 1997).

The number of novice teachers who are planning lessons alone at Remylyu Academy necessitates the use of co-planning with novice teachers. An analysis conducted by Joseph F. Johnson Jr., Cynthia L. Uline, and Lynne G. Perez found that in high-performing urban school one of the main reasons for success was regular, collaborative planning (Joseph F. Johnson Jr., Cynthia L. Uline, and Lynne G. Perez, 2014). Deliberate, purposeful, regular collaborative planning results in the most effective methods, materials, and content to lead urban students to mastery (Joseph F. Johnson Jr., Cynthia L. Uline, and Lynne G. Perez, 2014). A consistent co-planning cycle (with structured dialogue and a shared model of good teaching) provides the necessary

structure for teachers to improve student outcomes (Hollins, 2008). Hollins asserts that collaborative relationships between teachers allow teachers to better understand the relationships among instruction, students, and learning outcomes, which leads to teachers accepting responsibility for student learning outcomes because they believe all students can learn (Hollins, 2008). This is the goal of my research. Skilled teachers must be diagnosticians of students' prior knowledge and abilities and must anticipate the concepts and activities students may find problematic when planning ((National Board for Professional Teaching Standards, 1989). This is why in the first arm of my intervention, a three week co-planning cycle between a novice and master teacher, novice teachers focused on either target students or using questioning.

Observation

Another effective method to transform professional practice is expert observation (Hollins, 2008). Indeed, most teacher preparation programs include veteran teachers observation as a core component of teacher training because it is so effective. Feinman-Nemser articulates:

I would place clinical experiences at the center of strong teacher preparation—the opportunity to observe teachers engaging in effective practice within the contexts where candidates will be teaching, the opportunity to connect new knowledge and understandings about teaching, subject matter, learning, etc. to real and virtual models of powerful teaching and learning, the chance to learn alongside skillful and reflective experienced teachers who can induct novices into

the intellectual and practical work of teaching and help connect their visions of good teaching with reality (Feinman-Nemser, 2001).

Master teacher observation provides a non-threatening opportunity to discuss and analyze classroom practice, while simultaneously allowing the novice to reflect on her own practice in relation to an expert (Hollins, 2008). My second intervention is an observation of a veteran teacher modeling quality instruction followed by a debrief. Watching the ability that the master teacher has to plan learning experiences that link with what students already know and develop a supportive context for learning and then implement these plans gives the novice a focus on the role of effective planning in the art of instruction (Hollins, 2008).

Interview

Master teachers regularly reflect on the efficacy of their instruction (Hollins, 2008). During class, they comfortably flex between fidelity to the day's plan and response to student need and can articulate these micro-adjustments afterwards (Findell, 2009). What makes this possible in part, is that expert teachers can anticipate student misconceptions and know how to use students' existing knowledge to move student understanding while monitoring their own approach to problem solving, without effort (*How People Learn*, 2000). The third arm of my intervention is an interview with a master teacher wherein she reflects upon her planning for a lesson and the articulation of that plan. After watching this video, novice teachers reflected on

their learning. This provides an opportunity for novice teachers to learn from “inside the head” of a master teacher while also affording the master teacher an opportunity to be a teacher leader, simply by sharing her thought process as a professional development tool. The master teacher interview is an opportunity to improve practice in a deliberate and thoughtful way that is a combination of collegial collaboration, self-reflection and documentation of practice (Hollins, 2008).

Conclusion

Given the teacher shortage in our country, and the urgent call to guide our nation's youth to their fullest potential, it is irresponsible to rely on the old belief that good teaching is either innate or learned through hard knocks (Ball & Forzani, 2010.) We must work to improve novice teachers' skill and capacity with targeted, supported novice teacher development programs (Feiman-Nemser, 2001). “If teaching is the profession that shapes America's future, (National Commission on Teaching and America's Future, 1996), then investing in new teacher development and the development of teacher mentors in an investment in the future (Feiman-Nemser, 2001).

Teacher preparation is directly connected to student learning. The more prepared and skilled novice teachers become in planning instruction, the more our students will learn. My intervention, with the co-planning, observation, and planning

reflection, aims to improve novice teachers' planning skills, in service of increasing the quality of instruction and student understanding.

Theory of Action

Theory of Action: if novice teachers plan lessons collaboratively and participate in targeted professional development then their planning capacity will improve. Stronger conceptual and holistic lesson planning will allow for improved implementation of the lesson plan. As the quality of instruction improves student achievement will rise.

Table one presents my problem of practice and research about the problem and effective interventions to date. Table two presents my intervention and research about similar intervention strategies. Finally, table three presents an overview of my findings.

Table 1:

Problem of Practice	Literature Review	Literature Review
What is the context? What is the problem in that context?	What do you know about the problem?	What has been tried in the past to address the problem? What was successful and why?
Teachers plan weekly, daily (and most unit) plans independently	Pre-service teacher programs include lesson planning instruction, yet many novice teachers report it is largely a compliance activity and not instructive	Educative mentoring has been successful to improve novice teachers' planning capacity
Teachers plan expedition content and some assessments collaboratively in spots, not everywhere (Chem, 9 & 10 th Hum, 11 th Math)	Novice teachers see different things in a classroom than accomplished novices/veterans	Teachers in Japan and China plan collaboratively through the lesson study and built-in collaborative planning models
Many teachers report that weekly lesson plan deadlines does not teach them to be better at planning	Effective professional development must be sustained, allow time for reflection and feedback, have an element of choice, be content related, and be collaborative	One-off Professional Development experiences do not yield long-term results
Teachers turn in weekly lesson plans for comment & review	"Educative mentoring" is a skill that requires training and professional development	
Remyly Academy has no programmatic strategy for improving novice teacher instructional planning capacity; we rely on inconsistent one-on-one coaching which does not offer novice teachers consistent mentoring in planning		
Remyly Academy des not have instructional anchors for quality lesson plans		

Table 2:

Intervention	Literature Review	Expected Outcome	Research Methods/Data Collection
What are you going to try? Why do you think it will impact the problem? What is your rationale?	What do we know about quality interventions of this kind?	What do you think will change/ improve?	How will you measure change?
A combination of the following: 1. Three weeks of collaborative planning with a trained mentor or coach 2. Master teacher observation 3. Master teacher interview about her planning process	Mentoring takes skill and does not work as effectively without training and attention on the part of the mentor	Novice teachers' knowledge of the components of planning will deepen	Novice teachers' lesson planning skills will improve as measured by surveys, interviews, and researcher notes
Three weeks of collaborative planning with a trained mentor or coach	Collaborative planning is different from written feedback—the ability to reflect and learn in real time is a best practice for professional development	Novice teachers' lesson planning capacity will grow because novice teachers will think through and plan questions, directions, or use target students to anticipate	
Master teacher observation	Novices and accomplished novices see the world differently; my hypothesis is that learning from an accomplished novice will help a novice to learn elements of quality lesson planning	Novice teachers' lesson planning capacity will grow because novice teachers will think through and plan questions, directions, or use target students to anticipate misconceptions when planning	Novice teachers' instruction will improve (because of increased lesson planning capacity) as measured by observations and researcher notes
Master teacher interview about her planning process	Focused collaboration results in effective learning for teachers	Increased planning capacity will have a positive impact of lesson implementation and instruction will be tighter and reach more students	

Table 3:

Data	Data Analysis
What were your results/ findings?	What do those findings mean? What implications do your results have for practice? How does it contribute to the larger body of knowledge (from your Literature Review)?
The intervention increased novice teachers' planning knowledge about specific planning strategies	Focused professional development (co-planning cycles, watching a master teacher teach, and listening to a master teacher reflect on her planning of a lesson) increases novice teachers' planning capacity
The intervention had the most significant impact on two areas: teachers' knowledge and skills of how to use data to drive instruction and how to use questions as an instructional tool	Teacher choice of their targeted focus area increases buy-in and, in turn, increases the efficacy of professional development (this is consistent with Hattie, Feiman-Nemser, Darling-Hammond, et al's research on adult learning)
There was little growth after the intervention in the specific areas in which teachers' were strongest to begin: planning from Learning Targets and thinking through directions.	Collaborative planning with a master teacher increases novice teachers planning capacity and confidence (this is consistent with Feiman-Nemser, Ball, and Shen et al's research on collaborative planning)
The least impact was felt on planning "with targeted students in mind to make sure I am making directions and content accessible to all students."	Increasing novice teacher's planning capacity improved implementation in the classroom
	Implications:
	Reflection videos by a master teacher about her planning decisions and lesson implementation are the easiest to take to scale, and were the most helpful (as reported by teachers)--> creating a bank of these interviews for use in coaching cycles, novice teacher training, and individual learning is one of our next steps
	Collaborative planning positively impacts practice→ creating structures and accountability to collaboratively plan is one of my next steps

	Rethinking the expectations for weekly lesson plan submission is another next step→ what written plans need to be submitted? Can unit plans and assessment guides be submitted quarterly with weekly reflection on one a targeted area of daily lesson planning (eg what questions will move <i>all</i> students understanding?) submitted weekly? (This is my next area of future action research for the 2016-17 school year).
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Research Objectives

- Identify effective practices to support novice teachers' professional growth, specifically with lesson planning.
- Confirm that better quality planning yields improved implementation and ultimately improves student outcomes.

Hypothesis

- When novice teachers plan collaboratively (with a skilled mentor or instructional coach) or when they directly learn from (observation or planning reflection) a master teacher, a novice teacher's planning capacity increases more than when planning alone.

Overarching questions

- How do teachers learn to plan lessons?
- How do novice teachers become quality accomplished veterans?
- Can strategic professional development improve teachers' instructional planning capacity?

The veteran teachers who participated as mentors in this action research are all accomplished teachers who have demonstrated mastery via their classroom practice over an extended period of time. In addition to myself, the mentor teachers are both on our master teacher/teacher leader team at Remyly Academy. All of the mentor teachers have taught for over ten years and have consistently tight, learner-centered, relationship-based, rigorous learning environments that provide students the tools and conditions to success. In addition to multiple observations of their practice, their student outcomes are above average performance on external measures (CAHSEE, SBAC, SAT) and norm-referenced tools (Amplify Interim Assessments).

Intervention and Data Collection

Does educative mentoring improve novices' planning capacity significantly? What are the most effective practices to novice teachers' planning capacity? Does this improved capacity improve novice teacher implementation in the classroom?

Intervention Arc: Scope and Sequence

My three-part intervention is summarized in the table below, including the steps of each intervention, data collected, and the research questions that each of these steps answered.

Question to be answered	Activities/inputs	Data to be collected	Component	Process or impact
<p>What is our novice teachers' planning process? Do teachers plan collaboratively or alone? What components of the daily plan do teachers think through (ie anticipate student misconceptions) in the planning process? What components of the daily plan do teachers write down? What obstacles to teachers encounter when planning? How do teachers overcome these obstacles?</p>	<p>1. Interview novice teachers (3) about their planning process 2. Survey novice teachers (3) about their planning process 3. Record researcher notes</p>	<p>1. Interview notes 2. Survey Results 3. Researcher journal notes</p>	<p>Current reality: baseline data of novice teachers' planning practice</p>	<p>Process (method of planning) Impact (discreet planning skills)</p>
<p>What is the quality of instruction in novice teachers' classrooms? How do daily lesson plans inform instruction?</p>	<p>Teacher observations</p>	<p>1. Baseline observation on one focus area 2. Narrative researcher observation summary</p>	<p>Baseline data of novice teachers' implementation practice</p>	<p>Impact</p>
<p>What impact does co-planning lessons with a master teacher have on a novice teacher's planning capacity? How did the lesson plan inform instruction? What worked in the lesson? What new insight do</p>	<p>1. Mentor and novice plan novice teacher lesson together 2. Novice teacher teaches the lesson with mentor and researcher observing/ video the lesson</p>	<p>1. Post session debrief survey (novice T) (Use the same survey after each intervention) 2. Researcher journal reflection notes</p>	<p>Intervention: #1 Co-planning cycles</p>	<p>Process</p>

<p><i>you have about components of planning and the impact of planning on instruction? (Throughout this process teachers will focus on one area of improvement)</i></p>	<p>3. Mentor and novice teacher debrief lesson *Repeat this cycle three times</p>			
<p>What impact does observing a master teacher's instruction have on a novice teacher's planning capacity? <i>What moves did the master teacher make teaching the lesson? How did the lesson plan inform instruction?</i></p>	<p>1. Novice teacher observes mentor teacher teaching 2. Novice and mentor have a formal debrief of both planning moves and teaching moves</p>	<p>1. Post session debrief survey (novice T) (Use the same survey after each intervention) 2. Researcher journal reflection</p>	<p>Intervention: #2 Master teacher observation</p>	<p>Process</p>
<p>What impact does listening to a master teacher's reflection on planning have on a novice teacher's planning capacity? <i>How did the lesson plan inform instruction? What components of the lesson are core to a master's planning process? What new insight do you have about components of planning and the impact of planning on instruction after hearing a master</i></p>	<p>1. Video an interview with a veteran master teacher about her planning process overall and the process with one lesson 2. Video interview debrief of lesson 3. Novice teachers and researcher watch interviews (pre and post) and instruction 4. Novice teachers engage in a</p>	<p>1. Debrief notes from the protocol 2. Post session debrief survey (novice T) (Use the same survey after each intervention) 3. Researcher journal reflection</p>	<p>Intervention #3: How does a veteran master teacher plan instruction?</p>	<p>Process</p>

<p><i>teacher's reflection?*</i>Novice teachers' questions will be a component of the interview questions</p>	<p>protocol to make meaning and debrief</p>			
<p>What is our novice teachers' planning process? <i>Do teachers plan collaboratively or alone? What components of the daily plan do teachers think through (ie anticipate student misconceptions) in the planning process? What components of the daily plan do teachers write down? What obstacles to teachers encounter when planning? How do teachers overcome these obstacles?</i></p>	<p>1. Interview novice teachers-as a group-about their planning process 2. Survey novice teachers (3) about their planning process 3. Record researcher notes</p>	<p>1. Interview notes 2. Survey results 3. Researcher journal notes</p>	<p>New reality: data of novice teacher's planning practice after interventions</p>	<p>Process (method of planning) & impact (discreet planning skills)</p>
<p>What is the quality of instruction in novice teachers' classrooms after the intervention?</p>	<p>1. T observations 2. Researcher notes</p>	<p>1.Post-intervention observation 2.Narrative researcher observation summary</p>	<p>Data of novice teachers' implementation practice</p>	<p>Impact</p>
<p>What element of educative mentoring is most effective in improving novice teachers' planning capacity?</p>	<p>Interview novice teachers (3)</p>	<p>Interview notes</p>	<p>Analysis of three interventions</p>	<p>Process & Impact of intervention</p>

The overall intervention outcomes are as follows:

- Increased teacher planning capacity (which in turn leads to improved quality of instruction)
- Data about effective teacher interventions will be used to inform professional development in the future

By the end of this intervention, teachers will be able to:

- Plan and implement quality instruction more effectively for *all* students
- New teachers will spend less time on transitions, directions, low level thinking, and/or use checks for understanding to inform instruction

Data Collection

The three participants in my intervention are all novice teachers. One, Teacher A, is in her first year and was trained by TFA. The other two, Teacher B and Teacher C, are in their third and fourth year (Teacher B is new to Remyly Academy this year) and were trained by UCLA and Mills respectively. Teacher B is a Math teacher and Teacher A and Teacher C are Humanities (English & History) teachers. Each of these teachers is new to the craft of teaching. They are novice in their consistency to plan and implement quality relationship-based, learner-driven instruction as evidenced by classroom observations, instructional rounds walk-throughs, student grades, and lesson plans. I have worked closely with Teacher C for two years as her instructional coach and department lead; I know her practice and student achievement data well. Each

participant was enthused about participating in this action research as a focused extension of on-going coaching cycles.

Before the intervention began, I collected three points of data for each of the three teachers: baseline observation data, pre-intervention interviews about lesson planning, and pre-intervention surveys about lesson planning. I calculated the baseline observation data as an average score after three- five short (fifteen- twenty minute) unannounced observations over the course of one week using the same observation tool for all participants (see appendix 1). I conducted a pre-intervention interview with each teacher individually over the course of two weeks. Lastly, the three participating teachers completed the pre-intervention survey electronically over a two-week period. This same survey was administered at the end of the intervention process to ensure accurate analysis of the intervention's efficacy.

During the intervention process, each teacher completed the same post-intervention survey immediately following each intervention. For example, after the initial co-planning session each participant completed the post-intervention survey. Each of the three novice teachers engaged in the following intervention process:

- Three-week co-planning cycles between a novice and a mentor teacher. Each planning session lasted forty-five minutes.
- Forty-five to sixty minute observation of a master teacher teaching.

- Twenty-minute video of a master teacher reflecting on her planning process for one class and the implementation of that plan, followed by a thirty-minute group debrief of this video.

After each of the interventions concluded (the three co-planning sessions, master teacher observation, and the interview with a master teacher), each participant completed the post-intervention survey about lesson planning; I collected post-intervention observation data, and conducted a post-intervention interview with the group of teachers. I conducted regular (one- two times per week) informal observations of the novice teachers throughout the intervention process. Throughout the entire process, I kept a researcher's journal about both the impact of the interventions and the process of the interventions.

Once the data was collected, I coded and analyzed the intervention data in three big buckets: intervention impact of planning, intervention impact on lesson implementation, and efficacy of the intervention process. Once sorted into three categories, I analyzed the data in the following ways.

Impact on lesson planning skill, knowledge, and capacity

I conducted a pre-intervention interview about lesson planning with each teacher in this action research study. In addition, each teacher completed a pre-intervention survey about lesson planning. During the intervention, each teacher

completed the same post-intervention survey after each individual intervention and I kept a researcher journal throughout the intervention process. Each of these survey results were coded using specific skills of effective planning (i.e. anticipating misconceptions, leveled questions). After coding the data I analyzed it in several ways: the overall increase in teacher use of effective planning methods, greatest improvement in a specific planning method, and the individual teacher's improvement in each planning method.

Although I initially planned on the written lesson plans serving as a data point, once the study began I stopped collecting data about written plans. Given the need for novice teachers to increase their knowledge, skill and capacity in the nuances of lesson planning, the structure of the actual written plans is not fully representative of teacher's thinking about planning. Rather, the thought process and pre-thinking involved in planning was the focus of this research. Kagan highlights that the format of lesson plans does not impact the quality of the instruction and that master teachers regularly plan mentally without writing these plans down (Kagan, 1992). I initially began tracking and coding participant responses about written plans, thinking through parts of the lesson plan, and what was written down versus thought through. I shifted away from this broad focus and turned toward the more specific skills of each lesson to gather more useful information about how to increase novice teachers' planning capacity after several rounds of intervention. The nuances of the planning process were the focus of my data collection.

Impact on lesson implementation

I collected focused baseline observation and post-intervention observations on a targeted observation tool (see appendix 1). After an initial reflective conversation with each teacher, Teacher B and Teacher A chose to focus on their use of questioning in class and Teacher C chose to work on her clarity of directions for learning activities. For both the baseline and post-intervention observations, I observed for more than ten minutes for three- five classes in a week and assigned one score on the observation tool. These observations, coupled with my researcher notes, are the three sources of data used to measure the impact of this intervention on actual lesson implementation.

Efficacy of the intervention process

In addition to the impact of this intervention on planning capacity, I measured the efficacy of this entire intervention process with a post-intervention process survey, a post-intervention process interview, and my researcher journal notes. Although my research question was not directly connected to the efficacy of each of the three interventions, I extended my inquiry in an effort to directly inform our work at Remyly Academy. Knowing more about which intervention helped each novice teacher the most and why this intervention was effective will help me to shape professional development programs at scale in our current climate of a teacher shortage. (Next year alone, Remyly Academy's high school faculty is 60% teachers in years 1-4 of their practice.) I assigned a value to the efficacy of each intervention and analyzed the most effective intervention method for the entire participant group and for the individuals.

Analysis and Findings

Impact on lesson planning skill, knowledge, and capacity

The overview of my findings is as follows and is discussed and supported in more detail in subsequent sections:

- The intervention increased novice teachers' planning knowledge about specific planning strategies
- The intervention had the most significant impact on two areas: teachers' knowledge and skills of how to use data to drive instruction and how to use questions as an instructional tool
- There was no impact on the specific areas in which teachers' were strongest to begin: planning from Learning Targets and thinking through directions.
- The least impact was felt on planning "with targeted students in mind to make sure I am making directions and content accessible to all students."

Increase in novice teachers' planning knowledge about specific planning strategies

All of the novice teachers involved in this intervention increased their capacity to plan effective lessons. The participating teachers all gained knowledge about specific planning strategies. The composite score of all three novice teachers on the ten question survey about specific planning strategies was 101 and the post-intervention score 130 (see appendix 7). (These scores were obtained by assigning a point value of

1-5 to each of the Likert scale responses and calculating the sum of the participants' responses.) Given the increase of 29 points, it is clear the intervention positively impacted teachers' planning capacity as a whole. This survey data is consistent with the interview results and my researcher notes.

Teacher A reflected to me midway through our co-planning cycle, "TFA taught me a lot of things, but did not really teach me how to plan like this. I do not know how to do this yet. Planning with you is really helpful." Additionally, after the master teacher observation of her own class of students Teacher A shared, "[the master teacher] should teach every new teacher's class a few times a semester because I learned so, so much. I see, more than ever, the importance of tight planning, turning in written lesson plans, and the specific practice of rapid redirection followed by specific praise." Mid-way through the co-planning cycles, Teacher B reflected to me about her growing knowledge of questioning, "I never thought of it that way. I had never considered using questioning--and pre-planning of questions--as a tool for differentiation. I am excited to work on it more with [her master teacher]."

Individually, each teacher's capacity to plan instruction grew. Measured by the same survey pre- intervention survey and the post-intervention on the five-point Likert scale, the average composite score of the novice teachers who participated increased by an average of nearly 1 (0.97).

Teacher A, who is the most novice teacher and also very eager to improve, increased by 1. Teacher C, who is the most seasoned Remyly Academy teacher and most comfortable and familiar with her mentor (me) made the most growth at 1.1. Their raw scores are below:

	Pre Intervention	Post Intervention
Teacher C	3.3	4.4
Teacher B	3.6	4.4
Teacher A	3.2	4.2

The final result of this intervention is that the participant use of best practices when planning increased to “almost always” from “occasionally”. This is likely due to the focus on thinking and reflecting involved in lesson planning throughout each component of the intervention. Novice teachers were able to ask questions to the master teacher after watching her teach. This allows for individualized learning for the novice teacher in her target growth area as defined by the participant’s self-assessment and researcher’s observations. Additionally, the master teacher video reflection was replete with nuanced best practices in the pre-active thinking involved with lesson planning. Perhaps the targeted interview questions solicited this thinking. I generated the interview questions from the participant questions I gathered during the pre-

intervention interviews and the post-intervention survey questions after each of the co-planning cycles and the master teacher observation. It is likely that the efficacy of the video reflection was due to the individualized and personalized questions. Lastly, these results are in alignment with the research about co-planning; co-planning is a very effective method of teacher development when the mentor teacher is skilled as a teacher of planning and committed to the growth of their partner teacher. This includes opening up the conversation to collaborative idea generation when appropriate and being attuned to the learning needs of their co-planning partner. The fact that two master teachers are trained instructional coaches and all three master teachers are trained facilitators who hold a growth mindset for adults might explain the intervention's efficacy as well.

Increase in data driven instruction and use of questions as an instructional tool

The intervention had the most significant impact on teachers' knowledge and skills of how to use data to drive instruction and how to use questions as an instructional tool. In response to the question: "I plan how I will shift the day's lesson in response to the data collected during the day's lesson" the increase in collective score was 7 points. The average score on this question before the intervention was a 2.7 (between "almost never" and "occasionally/sometimes") and after the intervention the average score was a 5.0 (every time). The focus of data to drive instruction that is shared among the master teachers who served as educative mentors is one possible

reason for this significant jump. Additionally, hearing mentors talk about the many kinds of data that they use might have demystified the concept of “data driven instruction,” which is sometimes overwhelming to novice teachers. During the interview with a master, the master teacher spoke about “thinking about where students might get stuck” and planning “hints and scaffolded questions” to help students to make meaning at these points. Additionally, in the debrief of the master teacher observations, each master teacher explained how she “planned instruction based on what she already knew about students” and debriefed the “thinking through individual check-ins before and after class to support them with more private redirections. Part of this also includes very tight planning so that the flow of the lesson doesn’t get lost.” This is a specific step in lesson planning. The clarity of this practice and singular task involved with collecting student data at the end of a lesson is accessible to novice teachers. Likely, the growth in this area is due to the clear, actionable practice that the master teachers used.

Each of the participants cited specific practices as examples in their reflections after the master teacher observation and master teacher planning reflection video. Teacher A reflected, “using data and observation to drive future lessons” is one way her lesson planning improved. In sum, although her focus area was giving clear and concise directions, Teacher C reflected overall:

Better and more clear planning leads to much stronger and more engaged students, where students are actively making meaning of their learning. When

they are actively engaged in their learning, there is less time for students who are off-task, or not spending their time learning. When my lessons are strongly planned for student thinking and engagement, the culture is much more positive and focused on learning because there is not enough space for non-educational behaviors or interactions.

Each of the participants grew in their knowledge and capacity to “think about and plan the questions I will ask while circulating.” The increase in their collective score was a 4, with the average moving from a 2.7 (between “almost never” and “occasionally/sometimes”) and after the intervention the average score was a 4.0 (“almost every time”). Overall, each of the participants gained a deeper understanding of the complexity of questioning in the classroom as a tool for engagement, differentiation, data collection, and well-planned steps to foster student understanding. After the master teacher observation of her class, Teacher A reflected, “I am going to center my planning on what questions are going to drive the instruction of the day, and how these are linked to the goals of the course.” Teacher C reflected, “I have gotten better at planning the questions for students to support them in more independent meaning making, and to lead them deeper into their thinking and understanding, letting them dig deep on their own.” And Teacher B summarized, “careful questioning and thinking through the resources and direction of the lesson is the best way to manage and gain the best learning for the students in the classroom.” Teacher B’s growth in her

understanding of questioning, and planning questions, really stands out. In her pre-intervention interview she explained that

“If things are not working out I will explain it further if things are not going well- another example or problem. I circulate and look at work—based on what I see I know when to jump in and do more explanation or ask more questions. All teachers do this—circulation is management and checking for understanding. I do not like lingering. I do not want to walk through the steps with a student & if I am with them for too long others do not get me. I need to spread myself out evenly. I walk off quickly---go back to clarify at times. I ask a question- fire it- and then retreat. When I plan I think about questions- how will I engage students here. Then I have them in my head. I think about misconceptions that I anticipate will happen & how to address them. “

Likely, the specific references to questions in the master teacher reflection video and the focus on questioning that Teacher B and C held explains this growth. When learners engage in a cycle of targeted practice, feedback, reflection, and analysis, they increase their skill and knowledge of this focus area. Asking questions was the focus for two participants and the entire master video reflection.

Teacher B began this intervention with a strong practice of anticipating student misconceptions in Math, and a strong practice using daily essential questions to guide her instruction. However, her use of questioning as a method for building opportunities for students to make meaning, specifically with differentiated questions,

was absent. After working with her master teacher in co-planning cycles she made a breakthrough in her understanding of questioning. This is evidenced in the transcript of our conversation that follows. (I am DB, Teacher B is D.)

D- so then I started typing out the questions for the higher kids and then I was thinking, you know, I can ask the lower kids these questions too, I just need to tweak them a little bit. So then, I actually asked the lower kids more specific questions. [Master teacher] said you can ask more vague questions to the higher kids and see what they come up with. So....I asked more specific questions for my lower kids. I gave the higher kids more vague questions. During the process itself, I asked them more specific questions to add to that answer.

DB- had you thought through those more specific questions with [Master teacher]?

D- Yea! Cuz I think the thing you were talking about before was 'how can you plan for these' and at first I was thinking ' **I think I do a pretty good job like questioning on my feet, but, thinking about it before hand and embedding it into my lesson itself I think it really refocused my attention on certain things I want them to focus on. Because, usually my goal isn't that, usually it is something else, because they are able to answer those questions they are better at achieving the goal I set out beforehand.** Does that make sense?

DB- I hear you saying that students are driving to conceptual understanding and not algorithmic understanding.

D- yea! It is awesome!

DB- You have leveled questions, different scaffolds, and coached different students to use the language. Three differentiation strategies which all came out of your focus on planning questions.

D- It is! In the past I was just focused on just the math thing. All of this happened because of working with [Master teacher].

Little growth after the intervention in the specific areas in which teachers' were strongest to begin: planning from Learning Targets and thinking through directions

The two areas where novice teachers made little growth were planning from Learning Targets and thinking through directions. "I use Learning Targets to anchor my daily planning had a total difference of 1. The average moved from a 4.3 to 4.7- a slight increase in the "almost every time" range. "I think about and plan what directions I will give to students in class" had a difference of 3, and the average moved from a 4.0 to 5.0. This movement from "almost every time" to "every time" is likely due to Teacher C's focus on directions in her co-planning cycles. Overall, the relatively little growth in these areas is likely due to the fundamental nature of these skills; planning from Learning Targets and thinking about directions are areas that are generally a focus in pre-service programs, which explains these teachers' baseline capacity in these areas.

Effectively, teachers A, B & C were proficient and consistent in these areas at the start of the intervention, so there was no need to focus on improving these. The intervention did not focus on these areas. Not surprisingly, there was not growth made as a result.

Least impact on planning with targeted students in mind

Overall, participants made the least growth planning with targeted students in mind. "I plan with targeted students in mind to make sure I am making directions and content accessible to all students" is the only area that did not end at a score above 4. The total difference was 1, with movement from 3.3 to 3.7 (a slight increase in the "occasionally/sometimes" range). This could be due to the quality of the question as written. It is broader than the other questions as it includes multiple skills: planning using target students, directions being clear, content being accessible, and all students being reached. Given these four skills that are wrapped into one, it is likely a failure in the quality of this question rather than an indicator of teacher growth. If I were to repeat this intervention, I would re-write the question to focus on single skills, rather than this broad question.

Aside from this researcher error, it is possible that the next step in the progression of the skills of planning and implementation is to consider all students- the nuanced and sophisticated skill of differentiation. It is unexpected that teachers' did not improve more in the area of using targeted students to plan, as considering target students was a skill that two of the three teachers practiced in co-planning cycles and

reported in those post-co-planning surveys that “thinking about focus students helped me to plan clear directions” and “zooming in on a specific student, and focusing not only on the strategy, but also how to use it with a specific student to preemptively address misconceptions was very helpful.” Perhaps the fact that using focus students was not anyone’s prime area of focus also explains this low growth. Or, perhaps the frequency of the use of focus students in each of these teachers’ practice effectively became habit for the teachers, resulting in them not identifying it as a growth area. What is more likely is that the question wording, “targeted students,” did not match the language teachers were using to think about specific students ahead of time. Focus students, specific students, and small groups are words which teachers A, B & C used in their reflections. Symantec differences may explain this data.

Components of the Intervention

When analyzing the overall participant reflections over the course of the intervention, several notable points emerged. First, in the initial individual interviews about planning, there was a more equal distribution of categories of planning than in the subsequent reflections and final post-intervention group interview. Participants discussed 14 different elements of lesson planning in the initial interviews. This could be in response to the nature of the interview questions or suggest that at the start of the intervention, with no area of focus selected, participants were thinking more broadly (see appendix 8).

During the co-planning cycles (the first of three interventions), participants mentioned planning questions and using target students to plan at the same rate. Given that these were two strategies within the participants' focus areas, it stands to reason that the reflections would mention these. However, as previously explored, using focus students did not stick as a strategy for participants. Only Teacher A mentioned it in her final reflection: "my planning has gotten more focused on individual students & more on questioning- it has shifted the learning onto students versus on me doing the thinking work." This is aligned with her increase in implementation score from a 1 to a 2, with her questions being targeted and connected to the day's learning goal (see appendix 9).

After the master teacher observations and master interview about planning, participants mentioned thinking through elements of planning, planning questions, and had a significant focus on efficacy of planning (fifty-eight % of responses mentioned the efficacy of planning).

The following quotes serve as evidence of participant reflection on planning questions:

-Teacher A: careful questioning and thinking through the resources and direction of the lesson is the best way to manage and gain the best learning for the students in the classroom. During the master teacher observation, it was clear that based on feedback from me about the students, what to focus on, and the problem areas we might run

into, the lesson was carefully planned and executed with these in mind, which helped have one of the smoothest class lessons of all time.

- Teacher B: I have gotten better at planning the questions for students to support them in more independent meaning making, and to lead them deeper into their thinking and understanding, letting them dig deep on their own. I think that I have also improved in how the lessons that I have planned and taught impact future lessons, and using data and observation to drive future lessons, allowing students to make much more growth in their learning in the final quarter of the year.

- Teacher B: I thought more about how I can differentiate for my students using questions. I also thought about the assignments/assessments given to them. It allowed me to think more about the students' misconceptions.

Sixty-five % (11/17) responses in the final interview mentioned questions and the efficacy of planning. Again, it is clear that participants increased their knowledge and capacity about these key elements of planning as a result of the intervention (see appendix 8).

The one variation that is notable is the declining discussion of collaboration. Initially, eight of the initial interview responses discussed collaboration. This was two more than any other element of lesson planning that participants mentioned.

Participants said:

-Collaboration helps me to plan more effectively. Planning alone is the hardest part of planning. Organic collaboration have been some of the best moments and given me

the most learning. (Teacher C)

-I would love to have a partner T teaching the same content as me – to talk about strategies and exchange lessons. Ideally have two preps in a day- two preps lesson planning, my best lessons are the ones that I spend a lot of time making materials.

(Teacher B)

-The most useful part of lesson planning for me is a combination of talking with colleagues and planning together, which this does not happen that often right now.

(Teacher A)

Notably, one teacher mentioned collaboration during the co-planning cycles, then there was no mention of collaboration at all. One possible explanation for this variation is that participants were engaged in collaborative planning cycles and thus did not feel compelled to mention co-planning as a strategy, rather they shifted their focus to more specific elements of lesson planning (eg questioning). Collaboration, on its own, was not a focus of this intervention, rather a structure used to facilitate novice teacher learning.

Another variance in this research was a significant shift from my initial plan for the master teacher observation intervention. Initially, I planned to have the master teacher teach the novice teacher's class. The design was as follows:

1. Novice and master discuss day's lesson plan
2. Master revises the lesson plan to positively impact student understanding

3. Master teaches the revised lesson plan (to the novice teacher's class) and the novice teacher observes
4. Master and novice debrief both the lesson and the lesson plan revisions

A combination of scheduling conflicts (including SBAC testing and interviews for new hires), personal issues for a teacher outside of school, and unexpected urgent student needs interfered with this plan. Teacher A is the only teacher of the three who observed the master teaching her own students. Indeed, she expressed that it "was amazing to see what she taught to my students. My same class!" during the debrief of the observation. This supports my hypothesis that removing extraneous explanations of why a master teacher delivers quality instruction is one important element of effective teacher observations. When novice teachers see master teachers making instructional moves with their students, they are more likely to deconstruct the skills involved (with a focus on planning in this project) and learn them, rather than feeling defeated. If I were to do this research again, or extend this to another year, I would plan the master teacher observation (of the novice's class) intervention first, then the master teacher planning interview, and lastly the co-planning cycles. All participants named this a preferable order citing the "opportunity to see it and hear it first" as important before "trying it on my own" (Teacher B).

Impact on lesson implementation

Most relevant to a Remyly Academy's lack of a programmatic strategy for improving novice teacher instructional planning capacity is the impact data that reveals an increase in the quality of instruction in each of the participating teachers classes. As a result of this intervention about lesson planning, all of the participants grew in the quality of lesson implementation. I observed each teacher between three and five time in a week for at least ten minutes and assigned a baseline score using a targeted observation tool (see appendix 1). The results are in the chart below:

	Baseline Rating	Post-intervention rating
Teacher A	1	2
Teacher B	1	2
Teacher C	1	3
Sum	3	7
Average	1	2.3

Teacher C increased from a 1 to a 3 on the 4-point scale, while Teacher B and Teacher A each increased from a 1 to a 2. The average growth was from a 1 to a 2.33, which is clear evidence that a focus on improved lesson planning skills positively impacts implementation. This is, of course, consistent with the research that shows a positive correlation between planning and implementation (Dorovolomo, Phan, and Maebuta, 2010; Moraine, 1973). Each participant in this research improved the quality of her classroom instruction.

Most promising is the increased participant awareness of the efficacy of lesson planning. 58% of the responses in the final reflection of the intervention discussed the efficacy of lesson planning. Participants said:

-When I plan, there is way less me talking, WAY more students doing and grappling. (Teacher C)

-When I carefully planned my questions, I thought the students were more engaged and excited about they were learning in class. It also allowed me to just circulate more. (Teacher B)

- I also really want to talk and record my own planning and watch it to see what I AM doing and what I need to be doing. My own reflection is powerful. I really, really, really want to keep a teaching journal next year. (Teacher C)

-Better and more clear planning leads to much stronger and more engaged students, where students are actively making meaning of their learning. When they are actively engaged in their learning, there is less time for students who are off-task, or not spending their time learning. When my lessons are strongly planned for student thinking and engagement, the culture is much more positive and focused on learning because there is not enough space for non-educational behaviors or interactions. (Teacher A)

-The observation was inspiring and helped me think about how much more I would like to tighten up my lessons, continue to make them more clear and less hinged

on teacher direction. I want students to own their decisions and learning even more.

(Teacher C)

These direct quotes serve as evidence of the participants' increased knowledge of the value of lesson planning and their ongoing commitment to increasing their lesson planning capacity. In the initial interviews, participants mentioned that when they are well-planned class "runs smoothly" and the classroom remains "calm." The shift in participants' understanding of lesson planning as a nuanced component of the craft of teaching is very promising. Shifting the discourse from planning as something that leads to compliance to that about students doing the heavy lifting and all students making meaning is a necessary step to ensuring all students are getting the quality instruction they deserve.

Efficacy of the intervention process

Overall, when the co-planning cycles are grouped as one intervention (eg three weeks of co-planning = 1 intervention), the master teacher reflection video had the greatest impact on novice teacher's planning capacity. With an average score of 4.3 (on a five point Likert scale of efficacy), the video reflection scored slightly more effective than the master teacher observation (4) and co-planning cycles (3.9). However, all three intervention methods scored "very helpful" for novice teachers in this study. (The co-planning cycles each scored fours or fives, with one three on a very tough day for

that teacher. This three pulled the average rating to a 3.9). The result of this process data about the impact of the interventions is that we will use a combination of the three when coaching novice teachers and building our new novice teacher development program at Remyly Academy. This is summarized in the chart below:

	Co-planning #1	Co-planning #2	Co-planning #3	Master Observation	Master Video
Teacher C	4	5	4	5	5
Teacher B	4	4	3	3	4
Teacher A	4	4	4	4	4
average	4	4.33333333	3.66666667	4	4.33333333
sum	12	13	11	12	13

A solid theory of action creates a through-line to the instructional core and creates accountability relationships in the organization (City, Elmore, Fiarman & Teitel, 2009). The throughline from lesson planning to classroom instruction to student achievement is what this research articulates, and the accountability for student achievement lies in the implications for the future. The instruction in all of the participating teachers' classes improved as a result of their instructional planning capacity growing. Collaboration with the master teacher, an opportunity to listen, watch, and learn from a master teacher, and time to reflect and focus on a single element of lesson planning all had a positive impact on novice teacher learning. Given that we have collaborative PD time, a coaching program, and open planning time at Remyly Academy, I am very optimistic that I can create systems and structures to

improve novice teachers' planning capacity. The results of my research illuminate a clear path to quality instruction and increased student achievement.

Implications and next steps

Hattie's meta study that resulted in the book *Visible Learning for Teachers* (2008), asserts that the biggest effects of student learning occur when teachers become learners of their own teaching. This intervention created conditions for teacher learning to occur. Several new initiatives are in our future at Remyly Academy due to my action research.

First, we hired a new teacher development coach at Remyly Academy. Given the importance of supporting novice teachers and our need to do so, we created a new position and hired a highly qualified coach to support novice teacher growth and development.

Additionally, this coach will co-develop and implement a three-year program for supporting and developing novice teachers at Remyly Academy. This three year-program has as articulated professional development scope that includes time to develop as a teacher: fewer duties, new hire professional development in lieu of whole school professional development, differentiated PD towards school-wide goal, and the new teacher coach working in collaboration with each school's director.

Thirdly, we are exploring the possibility of educative mentor program as an arm of our existing teacher-leadership pathway. The high school, under my leadership, may

pilot this next year with an arc of support and professional development for the mentor teachers. One of the implicit reasons for the positive results in this research is the quality of the mentor/master teachers. We need to build these teachers from among our current faculty. This integrated professional culture benefits novices and veterans alike. New teachers get support and guidance, while experienced teachers get recognition and renewal, and everyone focuses on student learning and school improvement (Feinman-Nemser, 2012).

A fourth implication of this research in our high school and beyond is the call to differentiate weekly lesson plan requirements. An emphasis on written plans may be detrimental in that it masks the importance of improvisation. Too much written planning can make a teacher less sensitive and responsive to pupil's needs (Clark & Yinger, 1975). Kagan and Tippens research, in conjunction with the findings of this study, suggest that written lesson planning alone is not as helpful as focused mental planning and that one format for written plans does not work for everyone (Kagan & Tippens, 1992). Given this, our mandated format of written plans may even discourage teachers from developing a flexible and responsive practice and cause lesson planning to morph into a list of notes or facts (Kagan & Tippens, 1992). This is the exact opposite of the inspiration and drive to improve planning that teachers in this study cultivated. Next year Remyly Academy will pilot all teachers submitting quarterly unit plans and assessment guides, and reserving the targeted feedback on lesson plans for new teachers as part of one-on-one coaching cycles or the new teacher

development program. Clark & Yinger's research classifies two kinds of planners: incremental planners who consider short steps and are very responsive to the day-to-day classroom events while comprehensive planner thinks in large chunks and has a clear trajectory from which adaptations may be made. There are strengths and benefits to both—there is a degree of proficiency in both planning styles is necessary for the best implementation (Clark & Yinger, 1977). The school will also explore these differentiated systems in an effort to build all teachers' incremental and comprehensive planning skills.

A fifth implication, with direct impact on my work is collecting weekly data reflection journals from teachers. Keeping a journal was very powerful for teachers; they reported learning a great deal about teaching and learning, and this is a powerful element of professional development (Hattie, 2008). Teachers need to cultivate a robust habit of learning as a part of their preparation for teaching (Feinman-Nemser, 2012) and a weekly reflection on data in practice aims to develop this habit in our teachers. I will pilot thinking about lesson planning as two parts: a preliminary outline and a revised version that reflects the spontaneous modifications that occurred during the class. An opportunity to describe an unanticipated event that arose and the teacher's response to it will provide a powerful "record of interaction" (Kagan & Tippens, 1992) to drive teacher learning.

Experience alone—especially private, unreflective experience—does not automatically produce growth (Feinman-Nemser, 2012). Without a clearly articulated system for developing novice teachers' planning capacity, students receive instruction that is not efficient and responsive. However, with individualized, focused professional development those teachers with limited preparation, especially those working in high-poverty schools, will improve their practice (Feinman-Nemser, 2012). This teacher growth will result in more equitable outcomes for *all* students.

Appendix 1: Teacher observation instrument (data collection)

I will ask purposeful, targeted questions.	Indicator: T actions	Indicator: S actions
	T asks purposeful, targeted questions to students	S answer questions with evidence to support their thinking
	Questions are directly connected to the day's learning goal (supporting LT/daily objective)	S responses illuminate thinking about the day's learning goal (responses include grappling with ideas, justification of an idea, connections to another concept) and not simple one-sentence responses

I will give clear, purposeful directions	Indicator: T actions	Indicator: S actions
	T speaks for fewer than 5 minutes when beginning an activity	S begin the activity without questions about procedures and expectations for the activity
	Oral and written directions are related to the day's learning goal (supporting LT/daily objective)	S work on task and questions and questions are focused on understanding (not procedural) (<i>no more than 5 students ask procedural questions</i>)

Rating scale:

4= 4/4 yes

3= ¾ yes

2= 2/4 yes

1= 1 or 2 /4 yes

Scored is the mean of 3 – 5 observations that were 10-20 minutes each.

Appendix 2: Pre-intervention/post-intervention lesson planning interview (data collection)

Action Research Planning Interview

1. Describe how you plan lessons.
2. If different, how do you prefer to plan lessons?
3. What factors do you always consider and think through when planning.
4. What factors do you think through and consider, but not on a regular basis.
5. What is the relationship between what you write down and what you think through in your planning process?
6. How does your planning impact your teaching during class?
7. What is the most useful part of lesson planning for you?
8. What is the hardest part of lesson planning for you?
9. Additional information or ideas about lesson planning?

Appendix 3: Pre-Intervention/Post-Intervention Lesson Planning Survey (data collection)

Lesson Planning Survey

Thanks for your honest responses on these ten questions!

1. I use Learning Targets to anchor my daily planning.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

2. I think about and plan what methods I will use to gather data about student understanding during the lesson.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

3. I think about and plan how I will shift the day's lesson during the lesson in response to data collected during the lesson.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

4. I think about and plan what methods I will use to gather data about student understanding at the end of the lesson.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

5. I think about and plan the questions I will ask while circulating.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

6. I think about and plan what directions I will give to students in class.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

7. I think through the logistics of materials & supplies when planning.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

8. I plan with targeted students in mind to ensure I am making directions and content accessible to all students.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

9. I think about what student misconceptions might arise during the lesson while I am planning the lesson.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

10. I think about and plan what follow-up instructional moves I will make for students with misconceptions.

- 1 – Never
- 2- Almost never
- 3 – Occasionally/Sometimes
- 4 – Almost every time
- 5 – Every time

What is your name?

Appendix 4: Post-intervention reflection survey (data collection- administered after each intervention)

Name: _____ Date: _____

Please indicate which collaborative session you participated in today:

- Co-planning #1
- Co-planning #2
- Co-planning #2
- "What did the master do?" debrief
- Master teacher planning reflection video

1. What is your focus area:

- Questioning
- Clear directions
- Differentiated student tasks
- Clear explanation of concepts
- Other: _____

2. How helpful was this session in moving your teaching practice?

- 1 Not at all helpful
- 2 Slightly helpful
- 3 Somewhat helpful
- 4 Very helpful
- 5 Extremely helpful

3. What could have made it more helpful?

4. What new learning did you gain from today's work?

5. Explain how will this new learning will impact your planning and instruction:

6. What are you hoping to learn at your next collaborative session

Appendix 5: Overall intervention efficacy survey (data collection)**Post-intervention Survey**

Thank you for your time and though on this final survey! I appreciate your participation!!!

Who are you?

- Teacher A
- Teacher B
- Teacher C

What is your biggest take-away from our coaching sessions this quarter? (co-planning sessions, master teacher observation, and master teacher interview)

Which of the coaching sessions moved your practice the most?

- co-planning cycle (three co-planning sessions)
- master teacher observation
- master teacher interview
- Other:

Why did this coaching session move your practice the most?

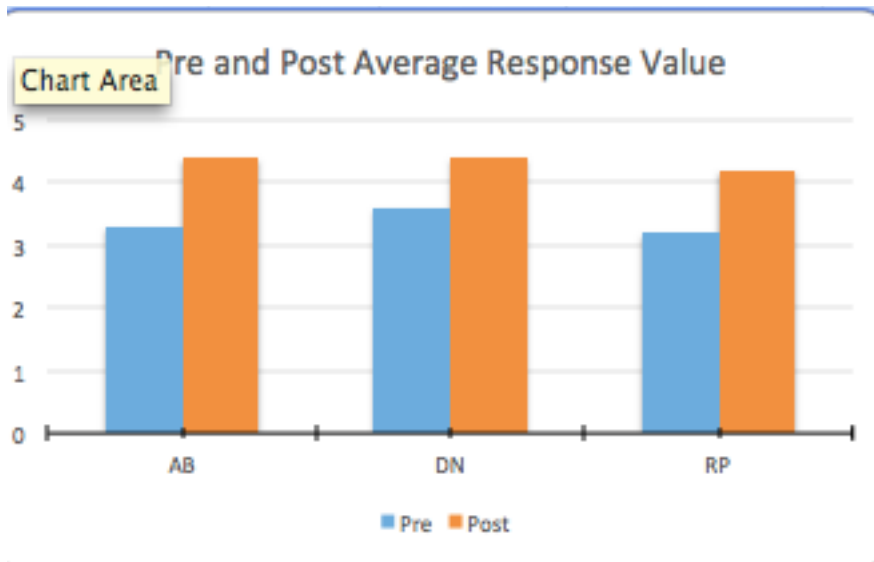
How has your planning improved this quarter?

How has your improved planning impacted your instruction and class culture?

What are your next steps in your planning practice?

Is there anything else you'd like me to know about this quarter 4 coaching?

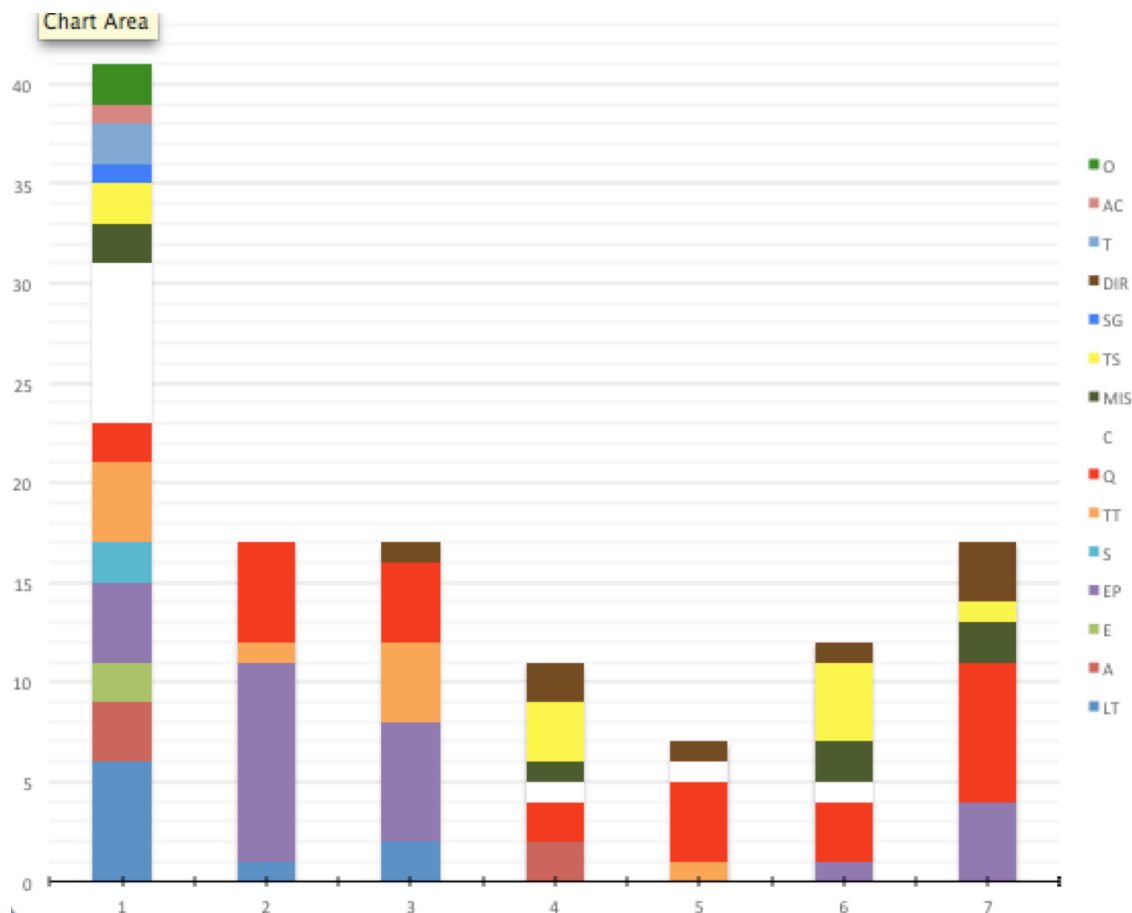
Appendix 6: Sum of pre-Intervention and post-intervention teacher lesson planning survey results- individual results



Appendix 7: Sum of pre-Intervention and post-intervention teacher lesson planning survey results

	SUM of Pre	SUM of Post
Teacher A	33	44
Teacher B	32	42
Teacher C	36	44
Grand Total	101	130

Appendix 8: Frequency of various components of lesson planning referenced by participants over time



Chronology of participant interviews and reflections from pre-intervention interview to the post-intervention interview

*white= collaboration (note the change from #1 to #7)

Appendix 9: Individual Teacher Observation Ratings

	Baseline Rating	Post-intervention rating
Teacher A	1	2
Teacher B	1	2
Teacher C	1	3
Sum	3	7
Average	1	2.3

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