

ABSTRACT

An Exploration of Teacher Professional Development through Inquiry Cycles:
An Instrumental Multiple Case Study in Louisiana

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Teachers' voices about the effects of teacher professional development on student achievement are absent from the literature. Researchers have spent decades examining best practices regarding teachers' continued learning. Traditional professional development for teachers is made up of one-time, sit-and-get, workshop-style learning. This archaic method of professional development is ineffective and rarely impacts student achievement and outcomes positively. While the United States spends billions of dollars annually and invests a large percentage of teachers' time in professional development activities, little research exists that highlights a positive effect on student outcomes as a direct result of professional development. Even less research includes teachers' lived experiences with professional development and its effects, or lack thereof, on student learning. Professional development policymakers continue to use archaic forms of professional development, even though new theories of effective professional learning have emerged.

This study examined four teachers' perspectives of the inquiry cycle model of professional development in Louisiana regarding its effects on student achievement. Data collection methods focused primarily on teacher interviews. The teachers surveyed for this study were teachers in English language arts within the state of Louisiana who used the ELA Guidebooks curriculum. All the teachers in this study participated in professional development with a national nonprofit organization called Teaching Lab, which uses the inquiry cycle model for professional learning. This study employed Thomas Guskey's Five Critical Levels of Professional Development Evaluation as a framework to examine effective teacher professional development. This framework aligned with Teaching Lab's theory of action coined head, heart, and habits. This study argued that inquiry cycles, as a model of professional development, are effective for increasing student achievement. This study's purpose was to inform change in policies and design of teacher professional development, especially as it affects student achievement in reading and English language arts. This study's results have implications for policymakers, professional development designers and facilitators, district leaders, school administrators, and teachers. This study amplified and elevated teachers' voices about the professional learning in which they engaged and its effects on student learning.

Keywords: inquiry cycles, learning cycles, professional development, professional learning, subject-matter content knowledge, pedagogical content knowledge, student achievement, student outcomes, traditional teacher professional development

An Exploration of Teacher Professional Development through Inquiry Cycles:
An Instrumental Multiple Case Study in Louisiana

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DEDICATION

To my husband, Jake, and my daughter, Harper, this work would not have been possible without your support and encouragement.

CHAPTER ONE

Introduction to the Problem of Practice

Their hearts sank as they glared at each other across the table. The presenter began another lecture-style professional “development.” “We could do this better,” Martha whispered. “I know. Why isn’t she modeling this strategy instead of telling us about it?” Ann responded. This was just another in a long string of development days centered around using the Guidebooks—a new curriculum written by teachers in Louisiana for teachers in Louisiana. Martha and Ann talked more content and the instructional strategies inside and out. They knew that if a teacher could only experience the Guidebooks the way that students are meant to experience them, then they would fall in love with the texts, the learning, and the profession all over again. They just needed to understand them and create new routines that centered around student learning.

—Kulkarni, 2018

Introduction

This scenario, taken from real teachers’ accounts about a typical experience with professional development, mirrors current research on the effectiveness of teacher professional learning. Guskey and Yoon (2009) referred to this type of professional development as “the epitome of ineffective practice” and asserted, “many education leaders regard workshops as a waste of both time and money” (p. 497). Researchers, school leaders, educational policymakers, and even teachers agree that professional development is a critical component for developing teachers’ instructional practice and pedagogical content knowledge (Guskey & Huberman, 1995; Guskey & Yoon, 2009; Shaha & Ellsworth, 2013). However, clear guidelines that establish characteristics of professional development associated with student achievement are lacking.

Conducting this study was important because current research shows that while America spends a great deal of money on professional development for teachers, little

rigorous evidence exists showing a positive impact on student outcomes and performance. Furthermore, current research lacks rich, descriptive accounts of teachers' beliefs, attitudes, and experiences pertaining to professional learning.

Statement of the Problem

A growing body of research asserts that traditional teacher professional development is not effective (Ball & Cohen, 1999; “Teachers know best,” 2014; Birman et al., 2000; Borko, 2004; Buczynski & Hansen, 2010; Guskey, 1999; Guskey & Huberman, 1995; Guskey & Yoon, 2009; Salinas, 2010). New theories examine characteristics of “good” professional development that are much more effective than traditional ones (Guskey, 2002a, 2004; Guskey & Yoon, 2009; Jensen et al., 2016). Traditional professional development is a “broken” system (Hill, 2009, p. 470) in need of being fixed.

Recent literature emphasized the necessity of reforming professional development, criticizing traditional “workshop” models (Birman et al., 2000; Webster-Wright, 2009). Traditional workshop models limit the time, activities, or content necessary for cultivating meaningful change in teachers' instructional practice and typically take place outside the teacher's classroom context (Birman et al., 2000; Garet et al., 2001). Generally, this archaic model of professional development involves a leader with special expertise and participants who attend scheduled sessions (Garet et al., 2001). While outside experts are not inherently the problem and can indeed provide needed supports in professional development reform, modern professional learning models acknowledge the expertise of local talent and promote teachers as leaders within their learning communities (Johnson, 2020).

A “core lever” in increasing school outcomes is the teacher (Jensen et al., 2016, p. 11). Improvement of teaching and learning is essential for improving school outcomes, and professional development has a critical role in addressing the gap between teacher pre-service preparation and in-service standards reform (Birman et al., 2000). Goldschmidt and Phelps (2010) identified teacher professional development as “the most promising intervention for improving existing teacher quality” (p. 432). However, it often lacks the characteristics and simply does not meet the challenges of current reform movements (Birman et al., 2000). Some authors note that professional learning can have significant impacts on schools, teacher practices, and in turn on students, but professional learning is often ineffective (“Teachers know best,” 2014; Birman et al., 2000; Jensen et al., 2016; “Mirage report,” 2015).

In addition to the time committed to improving practice, professional development is also a significant expenditure. One study suggested that American teachers may spend an estimated 5–10% of their time on professional development activities (Gulamhussein, 2013). Professional development initiatives receive billions of dollars in funding, with numbers rising each year (“Teachers know best,” 2014; “Mirage report,” 2015). School districts and states spent an average of 1–3% of their budgets on professional development in 1995 (Miles et al., 2004) compared with 7.6% of the total budget in 2013 (Gulamhussein, 2013). That number calculates to be somewhere around \$5,000 (“Mirage report,” 2015) or \$6,000 (Odden et al., 2002) per teacher per year. Lipsey et al. (2012) estimated that figure to be about \$81,000 per school for every 50 students. Such high costs can be unattainable for smaller, less wealthy schools and districts. In sum, the United States spends an estimated \$18 billion annually on

professional development, and yet, 70% of teachers either remained the same or declined on their annual evaluations over the last three years of practice (“Teachers know best,” 2014; “Mirage report,” 2015).

School reform and professional development mandates are not new concepts. Schools, districts, educational leaders, and policymakers have developed strategies to address the needs of professional development reform—more time has been inserted into the school day for teachers to attend learning experiences, mentors are assigned to new teachers, teachers and schools choose their learning based on their desires or needs, and many others (Desimone, 2009; Guskey, 2002b). Teachers themselves report that professional development opportunities show minimal results toward improving their instruction (Hudson, McMahon, & Overstreet, 2002). One article calls traditional professional development a “siloed construct” and urges educational systems to “adopt a more broadly conceived mindset” (Molebash et al., 2019, p. 20). So, if professional development initiatives are well-funded, then why are they ineffective at improving student outcomes? Herein lies the issue at the heart of this study. If professional development opportunities are not reconfigured and organized more effectively, most professional development opportunities will continue to lack the connection to students’ success in the classroom.

Teacher recognition of their learning needs is pivotal for changing teachers’ practice. In their work, Stigler and Hiebert (2007) asserted, “Teaching is unlikely to change until teachers, and all educators, recognize that it can be studied and improved” and that teachers should spend time “learning from and contributing to a growing knowledge base for teaching” (p. xiv). However, they acknowledged, “while other

countries are continually improving their teaching approaches, the United States has no . . . mechanism for getting better” (pp. xviii–xix). Ball and Cohen (1999) referred to this as a lack of “coherent infrastructure” regarding professional development (p. 4). The problem continues to be that none of these reforms or mandates can show positive student outcomes because none of them hold student work at their core (Desimone, 2009; Guskey, 2002a, 2002b; Guskey & Yoon, 2009; Kennedy, 2014, 2016).

Even with staggering investments of money and time, the literature on professional development lacks rigorous empirical evidence of effective models. In their seminal work, Guskey and Yoon (2009) examined 1,343 studies of professional development and found only 9 that contributed to the empirical evidence of effective models of professional development. Similarly, Jensen et al. (2016) examined teacher professional learning in four high-performing systems internationally: British Columbia, Canada; Shanghai, China; Hong Kong, China; and Singapore. Both studies emphasized that current professional development models, referred to in this study as “traditional professional development,” are ineffective, regardless of the amount of time and money invested (Guskey & Yoon, 2009; Jensen et al., 2016). If education leaders and teachers are serious about using professional development as a mechanism to improve teachers’ instructional practices, stakeholders and policymakers must invest in professional learning activities that have the characteristics that foster improvements in teaching (Garet et al., 2001).

Purpose of the Study

The central phenomenon of this study was teacher participation in Teaching Lab’s professional learning model. This instrumental multiple case study explored teachers’

experiences with Teaching Lab’s professional learning model, specifically one known as inquiry cycles. This study examined the relationship between professional learning sequences grounded in inquiry cycles and student achievement for teachers from one district in Louisiana. The present research examined teachers’ practices, described teachers’ perspectives in their own words, and investigated changes in student achievement in the bounded context of Teaching Lab’s inquiry cycle professional learning model.

Yin (2018) asserted that case studies should be grounded in a specific research focus, formed by questions. This study built on previous studies’ findings and answered a call to action for more research regarding professional development’s direct connection to student achievement (Basma & Savage, 2018; Guskey, 2002a, 2006; Salinas, 2010; Yoon et al., 2007) while uplifting teachers’ voices on the matter. This study’s primary research question was: In what ways did Teaching Lab’s inquiry cycle professional learning model change the teachers’ instructional practice? To more deeply understand and describe teachers’ experiences with Teaching Lab’s professional learning model, the following four sub-questions were offered:

1. What characteristics of Teaching Lab’s professional learning sequence are different from “traditional” professional development?
2. What role did these characteristics play in the teachers’ learning during the professional learning sequence?
3. What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?
4. In what ways did this professional learning model impact student academic success?

These questions guided the interviews in the research and aligned with the research design—theoretical framework, data collection, data analysis, and publication—with congruence throughout the study.

Additionally, improving teachers' professional development experiences is in the service of ultimately improving students' educational experiences and increasing their achievement. This study argued that inquiry cycles serve as an effective professional development model. Furthermore, this study intended to inform stakeholders, policymakers, and decision-makers who design and deliver professional development for teachers so that more effective professional development models could be widely adopted.

Theoretical Framework

The theoretical framework guiding this research derived from Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation. Each level in the framework builds in complexity from the previous level in a hierarchy. The five levels are featured in Figure 1.

The first level, participants' reactions, examines participants' initial satisfaction with the professional learning experience. At this level, the researcher sought to understand how the participant liked the training based on logistical questions about comfort, relevance, and enjoyment. Measuring participants' reactions provided the necessary information so that professional learning developers and facilitators could improve design and delivery. However, more importantly, positive participant reactions and participant satisfaction are essential requirements for moving to higher levels throughout the framework.

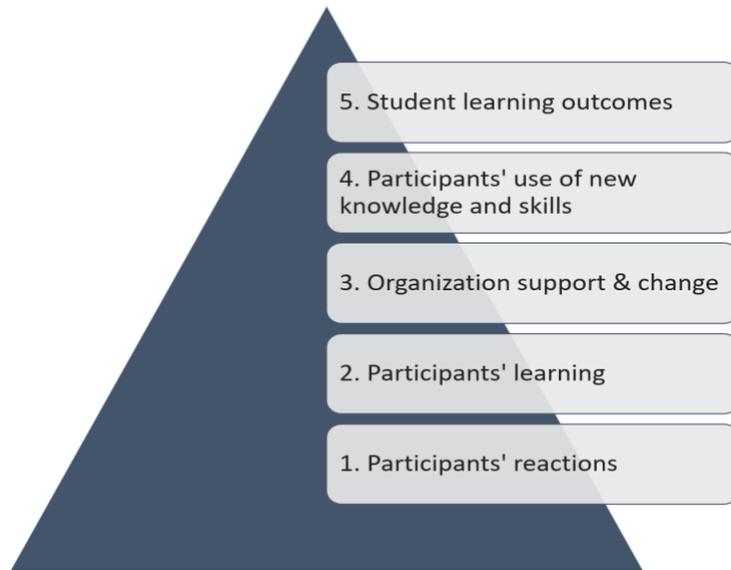


Figure 1. The five critical levels of professional development evaluation.

The second level, participants' learning, begins to probe deeper into whether the participant gained the intended knowledge, skills, and/or attitudes. To accurately evaluate participants' learning, two critical components must be established before beginning the professional learning: First, the developers must establish clear goals for the training in the cognitive, psychomotor, and affective domains. Second, indicators of learning mastery should be specified.

The third level, organization support and change, investigates to what extent the participants' school and district leaders support the learning and changes. According to Sparks (1996), support at the organizational level is a critical lever in individual teachers' learning and implementation success.

The fourth level, participants' use of new knowledge and skills, intends to measure teachers' degree and implementation quality. Once teachers have shown mastery of the specified objectives, it is necessary for transference from knowledge to instructional practice.

The fifth and final level of the framework measures student learning outcomes. Measurement at this level gets at the root of all teacher professional learning—to significantly and positively improve students’ success in school. It is essential at this level that researchers use a variety of measures to check for both the intended goals of the teacher professional learning and any “unintended outcomes” that may be positively or negatively affected by changes in instructional practice (Guskey, 2000).

Guskey’s framework provided the necessary structure to investigate teachers’ attitudes, knowledge, and behaviors regarding professional learning. To improve student outcomes, professional learning must do more than increase teachers’ knowledge. Professional learning must also change instructional practices to promote student achievement. This framework provides the lens for policymakers and stakeholders to view professional development as the necessary catalyst to improve student learning and seek to understand teachers’ experiences with professional learning.

Research Design

The current research study utilized an instrumental, multiple case study design to examine teachers’ perspectives of Teaching Lab’s inquiry cycle model of teacher professional learning in Louisiana. A case study design was most appropriate for this research because Louisiana teachers who attended Teaching Lab’s professional learning series on the ELA Guidebooks curriculum bound the study. Lichtman (2013) proposed qualitative researchers of case studies “are more interested in the richness of the information” (p. 92) gathered in each case, not necessarily in the generalizability of the data. Furthermore, the researcher chose this design to gain a deeper understanding of the lived experiences and meanings for the participants involved (Merriam, 1998).

Louisiana was an ideal site for the research because of the attention the state has received regarding education policy reforms over the last several years. In 2017, Louisiana launched its content leader initiative. As part of its vision, depicted in Figure 2, Louisiana mandated policies that aligned state standards, assessment, and accountability measures with high-quality curriculum and professional development.

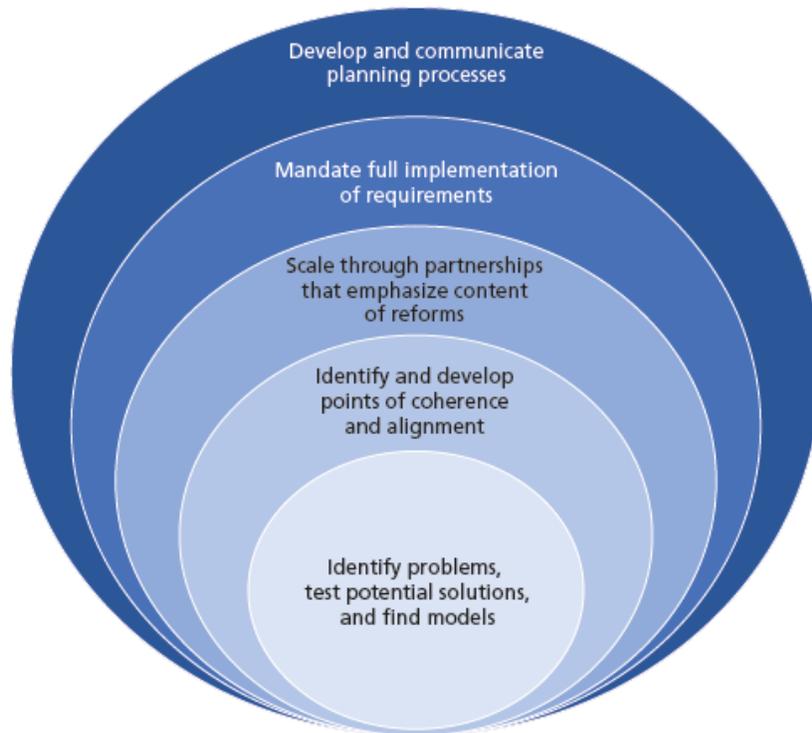


Figure 2. Louisiana Department of Education’s theory of implementation.

Note: Reprinted from “Raising the Bar: Louisiana’s Strategies for Improving Student Outcomes” (p. xi) by J. H. Kaufman, 2018. Copyright 2018 by RAND Corporation. Reprinted with permission.

Louisiana Department of Education then supplied additional high-quality professional development opportunities and allotted funding incentives for districts that chose to utilize high-quality curricula, professional development, and formative assessments. The final step in executing this plan was a communication structure that gathered information

and identified champions of this reform work—Louisiana Content Leaders (Kaufman et al., 2018).

The researcher used purposive sampling across three phases to select four participants from the pool of teachers in Louisiana. While teacher interviews were the primary data source, artifacts, such as questionnaires and other teacher artifacts, were also reviewed to triangulate the data and increase validity. Guskey's (2000, 2002, 2003b, 2016) Five Critical Levels of Professional Development Evaluation was used to analyze teachers' experiences with inquiry cycles. The researcher employed data collection and analysis protocols concurrently in three phases to align with a constructivist epistemology. First, Teaching Lab's questionnaire data provided an overview of teachers' perspectives. Second, individual interviews with the four identified participants presented a deeper understanding of teachers' perceived effects on student outcomes. Third, a review of teachers' artifacts triangulated the data and contributed deeper insight into teachers' learning and implementation of instructional practices.

Definition of Key Terms

The following are terms used in this dissertation and their definitions:

Andragogy: the study of how adults learn.

Content leader: Louisiana's professional development initiative that aligns the ELA Guidebooks with professional learning to develop the knowledge and capacity of local teacher-leaders.

Content knowledge: the knowledge that teachers possess about the subject area(s) they teach.

Curriculum: the course of study and conglomeration of student experiences that define a particular subject in the educational process. In this study, curriculum specifically meant those experiences that are the planned sequence of instruction for a course of study.

ELA: English language arts.

ELA Guidebooks: a high-quality English language arts curriculum developed by the Louisiana Department of Education and written by Louisiana teachers.

Head, heart, and habits: Teaching Lab's professional learning model to describe attending to the whole teacher.

Inquiry cycles: also called learning cycles or cycles of inquiry, the recursive model of asking a question, studying the answer, applying the learning, collecting evidence of the implementation, and discussing that evidence with peers.

Parish: Louisiana uses the term *parish* instead of *county*. In this study, parish was synonymous with *district*, as most parishes are individual school districts.

Pedagogical content knowledge: the intersection of domain-specific content knowledge and instructional pedagogy, grounded in the particular curriculum teachers teach. This research examined teachers who taught the Louisiana English Language Arts curriculum ELA Guidebooks; therefore, teachers built their pedagogical content knowledge around teaching grade-level ELA Guidebooks texts.

Pedagogy: the study of how children learn.

Professional learning: a complex process for in-service teachers to deepen their understanding of curriculum and pedagogy to improve education quality.

Professional learning communities: groups of teachers who meet formally (as directed by their school or district) or informally (of their own volition) to discuss educational problems of practice to improve their instructional practices.

Social capital: the depth and breadth of relationships between teachers in a grade-level, school, or district, also known as collective efficacy.

Student achievement: also referred to as student outcomes or student learning. The amalgamation of learning that happens for students across the school year.

Subject-matter content knowledge: the domain-specific information a teacher requires to teach a given subject. For example, a science teacher needs science content knowledge.

Teaching Lab: a national nonprofit organization the mission of which is to shift the paradigm of teacher professional learning for educational equity. Teaching Lab developed the professional learning content in conjunction with the Louisiana Department of Education and delivered the professional learning experience to Louisiana teachers through the content leader initiative.

Traditional teacher professional development: a workshop-style training, usually after school hours, on weekends, or during the summer.

Conclusion

Billions of dollars are spent annually on teacher professional development. Yet, a disconnect continues between teachers' learning and student achievement. Research indicates that inquiry cycles are an effective teacher professional learning model that can positively affect student achievement. The purpose of this study was to investigate teachers' perspectives of teacher professional development and their perception of the

impact the inquiry cycle model has on student outcomes. This study explored teachers' lived experiences with Teaching Lab's inquiry cycles through interviews and artifacts. Chapter Two presents a review of the literature detailing the three components of an effective education model, which includes teacher professional learning, defining effective teacher professional development, and describing Teaching Lab.

CHAPTER TWO

Literature Review

Portions of this chapter are published in Kelley, A. (2021). Improving teacher professional learning: Inquiry cycles and the whole teacher. In L. Wellner & K. Pierce-Friedman (Eds.), *Supporting early career teachers with research-based practices* (pp. 147–166). IGI Global. <https://doi.org/10.4018/978-1-7998-6803-3>

Introduction

Over a century of research has highlighted the importance of teachers and their essential role in school improvement (Ball & Cohen, 1999; Borko, 2004; Sowder, 2007; Darling-Hammond, 2000; Goldschmidt & Phelps, 2010; Hattie, 2009; Stigler & Hiebert, 2007). Consequently, most, if not all, teachers have participated in some form of professional development or professional learning during their careers. Yet, a growing body of research suggests that traditional professional development is not effective in changing teacher practice to increase student achievement (“Teachers know best,” 2014; Darling-Hammond, 2000; Guskey & Yoon, 2009; The New Teacher Project [TNT], 2015). The education field widely accepts that teachers must engage in continuous learning efforts throughout their careers (Akiba & Liang, 2016). However, research on the topic is inadequate and often delivers mixed results in identifying the most effective professional development structures and strategies to increase student learning outcomes. This literature review argues that better, more effective, forms of professional development models are needed to ensure teachers improve their instructional practice and increase student achievement.

This review of the literature follows a thematic structure with three primary discussions. First, the literature review identifies the three components of an effective education model, including professional development. Second, the literature review examines the four characteristics of effective professional development. Third, the literature review describes Teaching Lab, the organization at the heart of this study.

Three Components of an Effective Education Model

Schools, districts, and states that have demonstrated the most gains in student achievement have established three common, core components in their education model: high-quality curriculum (Chiefs for Change, 2017), aligned assessments (Cohen, 1987), and effective teacher professional learning (Darling-Hammond, 2000; Guskey & Yoon, 2009). These elements must work in tandem and support each other to create successful education models to increase student achievement. However, modern education structures have placed responsibility on teachers to curate curriculum and design assessments for students in addition to their regular day-to-day responsibilities. Due to the important role that a high-quality curriculum plays, it is critical to student success that schools and districts provide high-quality curriculum and aligned assessments in the instructional process.

High-Quality Curriculum

One component of an effective educational model is a high-quality curriculum (Boser et al., 2015; Chiefs for Change, 2017; Weiner & Pimentel, 2017). Curriculum can be defined as the program of instructional materials used by teachers—including textbooks, workbooks, software, manipulatives, and more (Boser et al., 2015). It is widely known that curriculum is vital in how students are taught and that it exerts a

powerful influence on student achievement (Boser et al., 2015; Chiefs for Change, 2017). Written, taught, and tested curriculum has profound effects on student achievement, rivaling teacher effectiveness as a predictor of student achievement (Weiner & Pimentel, 2017). Research has documented that teachers' effectiveness increases when the curriculum's quality increases (Boser et al., 2015; Chingos & Whitehurst, 2012; Jackson & Makarin, 2017). High-quality curricula are built on standards of College and Career Readiness. This standard describes the expected achievement of students and establishes the need for teacher professional learning (Chingos & Whitehurst, 2012; Weiner & Pimentel, 2017). Aligning teachers' needs with professional learning makes it optimally relevant and useful. As such, teachers' professional learning experiences must be grounded in excellent instructional materials. A high-quality curriculum must be rich enough to justify spending sustained time developing teachers' professional expertise (Weiner & Pimentel, 2017).

Aligned Assessment

A high-quality curriculum must be aligned with grade-level standards and an assessment system. Standards should drive the creation of both curriculum and assessments. For teachers to focus their efforts on engaging in high-quality instruction, decision-makers must design assessments to support their instruction, not detract from it.

Laura Hamilton (2010), a senior behavioral scientist with RAND Corporation, explained:

Start with a detailed, coherent curriculum that is aligned with rigorous content standards, and then build an assessment system that measures the skills and knowledge emphasized in the curriculum... Ensuring that all the components are well aligned should give teachers confidence that if they teach the curriculum effectively, the result will be improved student learning as measured by the assessments. (p. 49)

Assessment aligned to the curriculum teachers teach and the professional learning they attend creates a coherent, effective education system.

It is important to note that an aligned assessment system encompasses more than end-of-year standardized assessments. Assessments serve three purposes. First, formative assessments measure growth toward objectives regularly, even daily, and guide teachers' instruction. Second, summative assessments measure individual achievement over a longer period and often report mastery of objectives or the lack thereof. Third, standardized assessments evaluate the effectiveness of educational programs (Hamilton, 2005). Understanding each type of assessment and its purpose is essential to align the assessments with the curriculum.

Effective Professional Learning

Professional development exists in most career areas to maintain high-quality practice (Webster-Wright, 2009) and is considered a career imperative (Hirsh, 2017). Across a number of career fields, increasing performance pressures direct professionals to pursue more effective, efficient, and evidence-based practices that deliver improved outcomes (Darling-Hammond, 2000; Webster-Wright, 2009). In education, professional development is touted as “the most powerful strategy” school systems can employ to improve teacher effectiveness (Hirsh, 2017, p. 2).

Buczynski and Hansen (2010) defined teacher professional development as “occupational instruction intended to equip teachers with tools and resources necessary to provide quality instruction” (p. 599). Avalos (2011) added that professional development is about teachers “transforming their knowledge into practice” (p. 10). Professional development is a structure for changing teachers' thinking and behavior. Teachers learn

about their practice and then use their new learning to act in a way that causes changes in their teaching behaviors and their students' learning behaviors. Thus, the final component of an effective educational model is teacher professional development grounded in a high-quality curriculum.

Professional development activities should build on and deepen teachers' knowledge of the high-quality curriculum they are asked to implement within their classrooms. According to Weiner and Pimentel (2017), "Done right, professional learning linked to curriculum can lead to transformational changes in teaching and learning" (p. 4). Students' needs, guided by educator data analysis, drive professional development initiatives (Hirsh, 2017). The most successful professional learning initiatives "focus on the knowledge and skills educators require to close the gap between students' current performance and the intended outcomes" (Hirsh, 2017, p. 6) and are rooted in the domain- and curriculum-specific content that teachers teach in their classrooms (Weiner & Pimentel, 2017). Furthermore, professional learning experiences are excellent only when the underlying instructional materials are excellent. Effective professional development closely aligns with a high-quality curriculum (Weiner & Pimentel, 2017). Professional development is rooted in principles of adult learning. Adult learning principles are the guiding beliefs that direct the design and delivery of adult learning experiences. These principles are grounded in three overarching adult learning areas: andragogy, self-directed learning, and transformative learning. The research in these three theories of adult learning attempts to untangle its complexity. Each theory, and its theorists, address the unique needs of adults as learners.

Andragogy. A term coined by German educationalist Alexander Kapp (Merriam, 2001) and made popular by Knowles (1980), *andragogy* is “the art and science of helping adults learn” (p. 43). The core tenant in the study of andragogy is that adult learning moves from simply managing content and conveying information to participants, which is a traditional pedagogical approach, towards much deeper guidance (Connolly, 1996; Laird, 1998). Within his theory of andragogy, Knowles (1975, 1980) listed five assumptions of adult learners. First, adult learners are self-directed and usually independent. Second, their life experiences provide a deep well from which they can draw context for learning. Third, learning is deeply linked to changes in their social roles. Fourth, adult learners are problem-oriented and seek image application of knowledge. Fifth, they are intrinsically motivated to learn.

Self-directed learning. Self-directed learning finds its roots in the classical, Western education of the Greeks (Hiemstra, 1994). Knowles (1975) described self-directed learning as a “process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes” (p. 18). Self-directed learning is both a process and a learner characteristic, or attribute (Hiemstra, 1994). According to Garrison (1997), self-directed learning aligns with a constructivist worldview that encourages collaboration for deep, meaningful learning. Candy (1991) further developed the concept of self-directed learning and postulated that learning is social and requires interdependence. Brockett and Hiemstra (1991) echoed this assertion by saying self-

directed learning tasks and activities “cannot be divorced from the social context in which they occur” (p. 32). Self-directed learning coexists within a social learning context.

Transformative learning. Mezirow (2000) stated transformative learning is “constructivist, an orientation which holds that the way learners interpret and reinterpret their sense experience is, central to making meaning and hence learning” (p. 37). He further emphasized that transformative learning is rooted in the learner’s deep reflection that ultimately leads to a change in beliefs or behavior. Merriam and Bierema (2019) expounded Mezirow’s definition by saying transformative learning is “a rational, critical, cognitive process that requires thinking, reflection, questioning, and examination of one’s assumptions and beliefs” (p. 86). For learners to consider their assumptions, challenge those assumptions, and eventually change their beliefs, the learning process is initiated by a “disorienting dilemma” (Mezirow, 2000). Through this dilemma, learners experience a shift in their perspective. Adult learning experiences must involve content that brings a change in how they perceive things, which leads to acquiring new information.

Adult learning principles in teacher professional development. The field of education should employ adult learning principles that provide teachers with the most valuable learning experiences. Teaching Lab has established a teacher professional development model that effectively improves teacher instructional practice and increases student performance (Daniels, 2019). To increase the equity of access to its model and professional learning content, Teaching Lab has been investigating the use of a virtual learning environment to engage teachers in self-directed learning experiences that can elevate their instructional practice. The research outlined in this dissertation will aid

Teaching Lab in developing learning experiences that address adult learners' specific needs.

Knowles' (1975, 1980) assumptions of adult learners in his theory of andragogy intend to guide the development of learning experiences that specifically address the needs of adults. It is notable to mention that his definition of andragogy, "helping adults learn," is philosophically different than the theory of pedagogy, "teaching children" (Knowles, 1980, p. 43). The focus of andragogy is that adults are intrinsically motivated to learn; therefore, facilitators of adult learning, like Teaching Lab, need only guide their adult learners toward the established outcomes. While Teaching Lab selects the first two inquiry cycles to model for teachers, it is expected that through the gradual release of responsibility, teachers will assume the leadership necessary to identify and research their cycles of inquiry around problems of practice grounded in their student data. In this way, teachers are choosing their learning objectives within a problem-centered approach to learning.

Conclusion

Conventional wisdom asserts that schools make little difference in student learning; however, emerging research suggests schools make positive differences through the educational experience (Darling-Hammond, 2000). For students' educational experiences to be effective, three core components must be included in the educational model: high-quality curriculum (Weiner & Pimentel, 2017), aligned assessments (Hamilton, 2010), and professional learning for teachers (Hirsh, 2017). Teachers are the center of school reform, as they carry out the demands of high standards through high-quality curriculum with aligned assessments (Garet et al., 2001). The teacher provides a

substantial portion of the positive differences schools make in students' education (Darling-Hammond, 2000). Thus, research posits that education reform depends on teacher quality and effectiveness (Garet et al., 2001). Research recognizes that teaching can be studied and improved (Stigler & Hiebert, 2007) through teacher professional learning (Darling-Hammond, 2000). Therefore, curriculum, assessment, and teacher professional development are interdependent and work in tandem to increase students' learning.

Effective Professional Learning

With the daunting mountain of evidence against traditional professional development, what elements exist in professional development for teachers to ultimately improve student achievement? Many have asserted that the need for rigorous, empirical evidence regarding effective professional learning and its correlation to increased student achievement does exist (Basma & Savage, 2018; Guskey, 2002a, 2002b, 2006; Salinas, 2010; Yoon et al., 2007). To determine the most effective professional development structures, research must establish a definition of *effective professional development*. Effective professional learning can be defined as “structured professional learning that results in changes in teacher practices and improvements in student learning outcomes” (Darling-Hammond et al., 2017, p. v). Essentially, professional learning is only effective when it improves teachers' teaching and students' learning (Jensen et al., 2016).

Researchers debate the exact formula for the most effective professional learning model for teachers. However, four key components integral to creating effective professional learning experiences are: (a) a content-specific focus designed to simultaneously increase teachers' subject-matter knowledge and pedagogical content

knowledge; (b) active participation strategies grounded in a constructivist approach to learning so that teachers can experience the content and collaborate and reflect on their practice during a model of effective practice; (c) sustained duration on a single topic of study or problem of practice; and (d) job-embedded time for teachers to learn new content, apply that learning to their classrooms, collect student evidence, and analyze the results of their instruction to make informed instructional decisions (Darling-Hammond et al., 2017).

Content-specific Focus

With the new shifts in instruction since adopting the Common Core State Standards and similar state-developed standards aligned to College and Career Readiness, teachers are shifting toward more sophisticated and adaptive instruction (Weiner & Pimentel, 2017). Effective teaching requires teachers to communicate their subject area's basic knowledge while also developing advanced thinking and problem-solving skills (Garet et al., 2001). To reach this new level of sophistication, teachers engage in professional learning designed to address these new and developing needs. Effective professional learning is simultaneously grounded in developing teachers' subject-matter knowledge and intentionally focused on discipline-specific pedagogical content knowledge (Darling-Hammond et al., 2017). However, increasing teachers' subject and discipline-specific knowledge is not enough. Teachers should engage in professional learning directly aligned to the curriculum they are directed to teach (Weiner & Pimentel, 2017). When professional learning and curriculum align, teachers engage in opportunities to study a problem of practice grounded in student work and make instructional decisions based on the evidence they have collected (Darling-Hammond et al., 2017). Since the

goal of effective professional learning is to improve outcomes for students, putting student work analysis at the core of teacher learning is essential.

Active Participation Strategies

Implicit in much of the literature on professional development is an objectivist epistemology that views knowledge as an object that can be acquired through learning (Webster-Wright, 2009). This belief about knowledge dates to the ancient Greek worldview that knowledge was a commodity, something that could be produced, managed, or transferred from one who possesses the knowledge to one who is deficient in knowledge (Webster-Wright, 2009). This view perpetuates the idea of the metaphorical empty vessel into which professional development pours new knowledge (Gallagher, 2016; Spillane et al., 2003). The term professional development implies a deficiency in the professional that must be developed through training delivered in the form of courses, seminars, or workshops (Webster-Wright, 2009). In contrast, professional learning situates the professional as an individual who engages in self-directed learning, an active participant in knowledge construction (Webster-Wright, 2009).

From a constructivist viewpoint, since learning, knowledge, and understanding are socially constructed (Dewey, 1933; Vygotsky, 1978), teachers require active participation in the learning (Darling-Hammond et al., 2017; Desimone, 2009; Guskey 1997, 1999). Learning is iterative. It is a cycle that requires learners to participate in the experience actively and reflect on their own beliefs throughout the process (Kolb, 1984; Webster-Wright, 2009). To successfully implement a curriculum effectively, teachers must experience the instruction and interventions for which they will be responsible (Althausen, 2015; Wei et al., 2009). One way to experience these lessons is through active

participation. Active participation—engaging in meaningful discussions, collective planning, practice with the curriculum content through observation and feedback, and student work analysis (Birman et al., 2000)—encourages deeper analysis of substantive topics crucial to teachers’ practice, which may improve outcomes for both teachers’ instruction and students’ learning (Desimone, 2009; Garet et al., 2001).

To view professional learning as the active construction of knowledge rather than a passive absorption, teachers, leaders, and policymakers must reframe their conceptualization of knowledge (Webster-Wright, 2009). According to the Vygotskian premise, professional learning is constructed within the sociocultural context of a community of learners (Vygotsky, 1978; Webster-Wright, 2009). Dewey, who also profoundly influenced the concept of learning, described a holistic approach in which the learner is integral to the experience of learning (Dewey, 1933). Learning, even for teachers, occurs through social interaction in communities of practice (Webster-Wright, 2009).

One form of active participation during teacher professional learning is cooperative models of teaching. Utilizing cooperative teaching models during teacher professional learning allows teachers to work collaboratively on group-oriented activities with shared goals to jointly identify and solve problems of practice to improve instruction and increase student learning. Another hallmark of using cooperative teaching models in teacher professional learning is the ability for teachers to establish trusting relationships with their colleagues (DeLuca et al., 2017). The whole teacher approach (Chen & McCray, 2012) advocated developing teachers’ attitudes alongside building their knowledge. By designing teacher professional learning within the cooperative teaching

models, teachers are often allowed to work with other teachers across school and district lines with whom they might not have regular contact (Tillema & Imants, 1995). Since teachers' social capital has been shown to positively affect student outcomes (Leana, 2011), encouraging the growth of that social capital through cooperative teaching models is a viable option for improving teacher professional learning.

Research has well-established that learning involves making meaning (Katz et al., 2005; Webster-Wright, 2009). Teachers must synthesize their new knowledge and construct interpretations of the knowledge (Spillane et al., 2003). Additionally, teachers should work towards identified learning objectives and drive the process of their improvement (Jensen et al., 2016). When social change or improvement is the desired outcome, reflection plays a valuable role in learning that requires change (Heller et al., 2012; Webster-Wright, 2009). Teachers must question and challenge the assumptions of their practice, examining and changing the philosophical worldview on which their beliefs are based (Webster-Wright, 2009) through “an active process of exploration and discovery” (Boud et al., 1985, p. 7). The framework of reflection supports teachers' needs as they learn and encourages critical inquiry (Webster-Wright, 2009).

Sustained Duration on a Single Topic or Problem of Practice

Teachers, leaders, and school systems have identified time constraints as the primary challenge to effective professional learning (Hirsh, 2017). Teachers need time for collaborative problem-solving and learning. This time should focus on both duration and span: the number of contact hours spent on a single topic or problem of practice and the number of days across the school year that teachers engage with the learning (Garet et al., 2001). Traditional professional development employs single-day encounters or

fragmented learning episodes that do not yield increased student outcomes (Darling-Hammond et al., 2017; Yoon et al., 2007). However, research indicates that professional learning initiatives that are spaced over time and focus numerous hours on a single sustained topic elicit positive effects on teacher learning and student outcomes (Desimone, 2009; Scher & O'Reilly, 2009; Timperley et al., 2017; Wayne et al., 2008; Yoon et al., 2007).

Effective professional learning provides adequate time for teachers to study, learn, practice, apply, and reflect on their practice throughout the school year. Herein lies a dilemma: What is adequate time for effective professional development? One review of the literature by Yoon et al. (2007) examined 35 experimental or quasi-experimental studies and determined that effective professional learning models require an average of 49 hours per academic year on a single, coherent set of topics. Guskey and Yoon (2009) asserted that number is greater than 30 contact hours of professional development, but caution designers of teacher professional learning, “time must be well organized, carefully structured, purposefully directed, and focused on content or pedagogy or both” (Guskey & Yoon, 2009, p. 497). Regardless of the exact number, sustained time on a coherent set of topics is beneficial, but only if the time supports other effective components.

Job-Embedded Time

Rather than professional development workshops during the summer, after school, or on weekends, teachers need on-the-job professional support during the school day throughout the school year (Hirsh, 2017). While some research indicates staff meetings and workshop-style professional development training expose educators to new

ideas, a preponderance of research indicates job-embedded support is more effective for changing teachers' daily practice (Darling-Hammond, 2000; Hirsh, 2017). Most reform types of professional learning advocate for professional development within a teacher's regular workday (Boser et al., 2015; Darling-Hammond, 2000; Garet et al., 2001; Holloway, 2006). Compared to traditional workshop-style professional development, job-embedded teacher professional learning focuses on teachers' particular context—their school, their classroom, their students. Additionally, it has a greater influence over changes in teachers' instructional practices and is more responsive to adult learning needs. Furthermore, it is more sustainable as it scales across school systems (Garet et al., 2001).

Conclusion

Effective professional learning is grounded in four key tenants: a content-specific focus, active participation strategies, sustained duration on a single topic of study or problem of practice; and job-embedded time for teachers to collaborate on learn new content and analyze student data (Darling-Hammond et al., 2017; Garet et al., 2001; Hirsh, 2017; Yoon et al., 2007). The four key levers work together to offer teachers effective professional development that results in elevated instructional practices in their disciplines and, subsequently, increased student outcomes (Desimone, 2009; Garet et al., 2001). No longer will traditional, one-off professional development focused on tactical skill implementation suffice for teachers' continued education training. Instead, teachers need deep, collaborative professional learning intended to help them elevate their practice toward more sophisticated and adaptive instruction (Darling-Hammond, 2000; Weiner & Pimentel, 2017).

Teaching Lab

Based on an accumulation of previous research, one organization, Teaching Lab, uses a professional development model with three components that work together to attend to the whole teacher. The model includes activating teachers' head, heart, and habits during professional learning. Teaching Lab is a national nonprofit organization the mission of which is to “fundamentally shift the paradigm of teacher professional learning to achieve educational equity” (Vu et al., 2020). One way Teaching Lab executes this mission is through improving the practice of teacher professional learning by using research-informed best-practice instruction for adult learners. Teaching Lab's professional learning is built entirely around inquiry cycles with embedded cooperative learning opportunities for teachers. Figure 3 outlines Teaching Lab's professional learning structure.

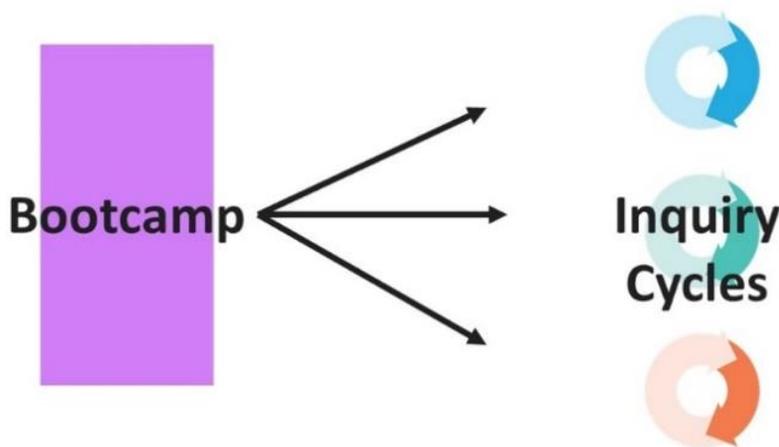


Figure 3. Teaching Lab's professional learning structure.

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Teachers come together for a “boot camp” of learning the research base for their high-quality curriculum. The boot camp is developed from foundational research and contextual information designed to build teachers’ knowledge of instructional best practices grounded in a high-quality curriculum. Teachers then move into a series of inquiry cycles focused on identifying teacher or student needs.

Teachers begin their learning with inquiry cycles within a structured inquiry model. Initially, the inquiry cycle question is provided by Teaching Lab staff based on curriculum-driven content. Next, teachers spend a day learning to hypothesize about student learning and plan collaboratively to teach a common lesson. During this day of learning and planning, teachers engage in various cooperative models such as Jigsaw, Gallery Walks, Chalk Talks, among others. After the first day of learning, teachers return to their classrooms and execute the lesson while gathering data in the form of student work samples. Finally, teachers reconvene to analyze student work and reflect on the process. Teachers repeat this cycle with a new inquiry cycle question.

Teaching Lab’s goal is that teachers, schools, and districts gradually take on the responsibility of designating the inquiry cycle question related to student work. Inquiry cycles would be led locally, and teachers would take on the responsibility for designing and delivering professional learning around the inquiry cycle question, employing the cooperative learning models within the whole teacher approach and teaching and learning framework. Teaching Lab integrates these frameworks into a theory of action they have coined head, heart, and habits (Teaching Lab, 2018). This model is presented in Figure 4.

The following sections outline Teaching Lab’s components: head, heart, and habits, the whole teacher approach, and the teaching and learning inquiry framework.

Each of these frameworks provides a structure for developing an understanding of effective teacher professional learning.

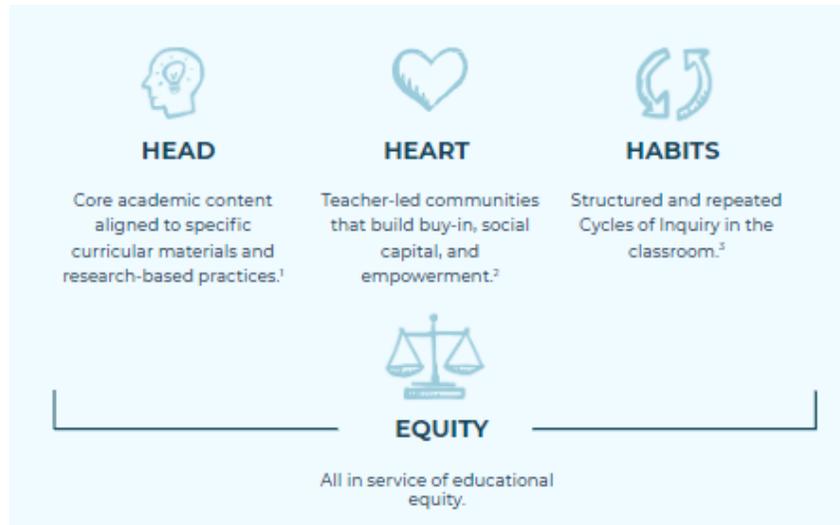


Figure 4. Teaching Lab's model.

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Head

To effectively instruct students, teachers need both content knowledge and pedagogical content knowledge. Content knowledge is knowledge of the subject and domain-specific content. Pedagogical content knowledge is knowledge of how to make this domain-specific content accessible to others (Kanter & Konstantopoulos, 2010). This knowledge is deeper than preservice college and university coursework (Goldschmidt & Phelps, 2010; Moats & Foorman, 2003). The whole teacher approach attends to teachers' knowledge (Chen & McCray, 2012). Teaching Lab's model leverages this same concept to develop teachers' content knowledge and pedagogical content knowledge in their model with the component called "head."

Many studies have investigated the effects of teachers' subject-matter content knowledge on student achievement (Birman et al., 2000; Darling-Hammond, 2000; Deng, 2018; Evens et al., 2018; Garet et al., 2001; Putman et al., 2009). Measures of teachers' subject-matter content knowledge show significant positive effects on student learning (Khalid et al., 2011). When teachers know more from their subject-specific content, they have a deeper wealth of knowledge to draw from when designing learning experiences for students. However, teachers' subject-matter content knowledge is simply not enough.

In addition to subject-matter content knowledge, teachers need a deep understanding of how to convert their subject-matter content knowledge into effective instructional strategies that reach diverse students (Wise & Darling-Hammond, 1987). Shulman (1986, p. 8) coined the term *pedagogical content knowledge* and described it as “the most useful forms of representation . . . the most powerful analogies, illustrations, examples, explanations, and demonstrations—in a word, the most useful ways of representing and formulating the subject that make it comprehensive to others” Chen and McCray (2012) added three indicators to this definition that intersect to develop pedagogical content knowledge: (a) what to teach (content knowledge); (b) how to teach (instructional methods); and (c) whom to teach, which refers to general child development as well as individual students. Pedagogical content knowledge, in this research, represents the exact knowledge teachers need to teach their grade level, subject, and specific content well. Teachers who lack this knowledge may struggle to notice and be able to diagnose students' misconceptions. They may not be able to employ strategies outlined in a high-quality curriculum with integrity to that curriculum's intended use (Kanter & Konstantopoulos, 2010).

In addition to these two domains of knowledge, the third level of curriculum knowledge is also important. Shulman (1986) asserted that teachers need lateral curriculum knowledge, knowing the content with which students will interact within their grade level across the curriculum areas, and vertical curricular knowledge, knowing what other concepts students will study within their subject area across grade levels.

Heart

One of the key components in Teaching Lab's model is called "heart." Heart aligns with "attitudes" in the whole teacher approach. The essential assumption in this part of the model is that teachers' attitudes, mindsets, beliefs, and relationships affect their impact on student outcomes. Social capital describes two aspects of group members' relationships. First, it describes the collective whole of the knowledge and effect that group members offer together. Second, it describes the nature of relationships—breadth and depth—among the group members (Baker, 1984; Coleman, 1990a, 1990b; Leana & Van Buren, 1999). It is both the actual and potential resources embedded in relationships and can be a predictor of group and individual performance (Adler & Kwon, 2002; Bourdieu, 1986; Leana & Van Buren, 1999; Nahapiet & Ghoshal, 1998). In schools specifically, positive relationships among teachers who work together on a team and have strong group ties have students who perform better (Pil & Leana, 2009).

In contrast, *human capital* is the term for the capacity, knowledge, skills, and affect that an individual teacher has developed through preservice teaching and on-the-job classroom experience (Leana, 2011). Universities and preservice teaching preparatory programs are tasked with the formal education teachers gain before entering the workforce. Studies show little relationship between teachers' formal education and

increased student achievement. Researchers found no relationship between degree type and teacher performance. Moreover, education coursework only minimally affected overall teacher effectiveness (Darling-Hammond, 2000; Leana, 2011). Even more startling, teachers' subject-matter content knowledge showed insignificant effects on student achievement (Darling-Hammond, 2000). After a decade of studying human capital, Leana and her associates asserted human capital should not be the focus, but school reform should instead focus on social capital—the patterns of interactions among teachers (Leana, 2011; Pil & Leana, 2009).

Social capital can have a positive effect on the knowledge among teachers who work in teams. Pil and Leana (2009), Leana (2011), and Darling-Hammond (2000) agreed that the social capital among teachers could more accurately and more significantly predict student achievement than both years of experience and subject-matter content knowledge. Teachers without advanced education degrees, but who have deep professional relationships with their advanced-degree peers, often have the same positive impact on students (Pil & Leana, 2009). The least-able teachers in the group seem to benefit the most. Network density easily diffuses information and experience throughout the group (Coleman, 1990a, 1990b). This level of closeness also builds trust through vulnerability (Rousseau et al., 1998). Teachers who work and reflect together build trust and strengthen relationships (Bryk et al., 1997). As a component of effective professional development, Heart intends to build a community of learners. As part of the reform process, teachers and the entire school community must view professional learning as a continual learning process (Holloway, 2006). This community mindset builds social capital.

Habits

Teaching Lab’s effective professional development model is grounded in learning cycles loosely based on the scientific method. Inquiry reflects the natural approach to solve problems in everyday life through a “process of exploring the natural or material world that leads to asking questions and making discoveries in the search for new understandings” (Molebash et al., 2019, p. 21). Within the “habits” component, teachers identify a problem, spend time together learning about research-informed best practices that address the problem, apply the new knowledge by planning and implementing a lesson in their classrooms, collect evidence of student learning, and then reconvene to analyze student work and evaluate their instructional choices through reflection. Engaging in a continuous improvement process is not the same as engaging in rigorous research, but it is certainly related.

Learning cycles, as Teaching Lab describes them, are knowledge-based or inquiry-based. Knowledge-building learning cycles predominantly support teachers in understanding the curricula, developing content, and building pedagogical content knowledge. Inquiry cycles primarily determine “if a change is an improvement” (Teaching Lab, 2018). It is important to note that inquiry cycles should still draw upon existing evidence bases in education, particularly those that live in the design of a curriculum. Additionally, the distinction between the two is somewhat contrived, as a cycle could achieve both goals.

Teaching Lab has codified inquiry cycles as having five distinct phases, as seen in Figure 5. First, teachers or leaders identify needs. Needs may articulate knowledge or skills that teachers need to implement the curriculum or initiative being studied

effectively, or needs may articulate student needs as evidenced by data collected through student work samples. In either case, the identified needs should address student learning and support teachers in increasing student achievement.

The Cycle of Inquiry

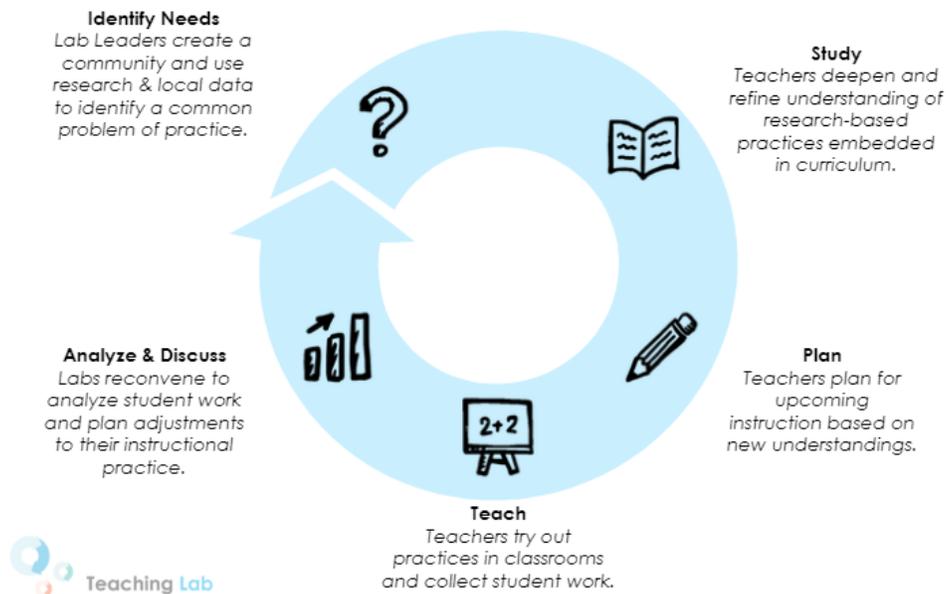


Figure 5. Teaching Lab’s inquiry cycle graphic.

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Second, teachers deepen or refine their understanding of research-based best practices through collective study. This phase of the cycle may involve teachers engaging in self-directed learning of the given topic or may elicit the input of an external expert. Third, teachers spend time planning together to implement their learning. They consider the context of their curriculum, identify opportunities for implementation of their new learning, and plan for the practice of the new knowledge or skill. Fourth, teachers teach. Using the plan developed together during the professional learning, teachers engage in the practice of that learning in the context of their classrooms. They utilize the plan they

developed to “try on” the new instructional practices. During this phase, teachers also collect evidence of student learning since the inquiry cycle’s premise is grounded in student learning and advancing student outcomes. Fifth, teachers bring their evidence back to the collective group to analyze their data and discuss their findings. Teachers consider whether their instruction was effective by examining evidence of student learning from the experience. This phase allows teachers to refine their needs and their students’ needs so that the cycle progresses and teachers engage in continuous learning.

Moreover, inquiry cycles should be collaborative. Weinbaum and colleagues (2004) defined collaborative inquiry as the “process by which colleagues gather in groups to pursue, over time, the questions about teaching and learning that the group members identify as important” (p. 2). It is important to note that the central question should reflect the needs of the team and its members and should be grounded in “perplexing issues related to learning and teaching” (Donohoo & Velasco, 2016, Kindle location 573). Through collaborative inquiry (Schnellert & Butler, 2014), increases in student learning outcomes are no longer dependent on individual teachers, but rather the “collective wisdom” (Donohoo & Velasco, 2016, Kindle location 302) that comes from shared ownership and the unique experiences and expertise from diverse group members.

In addition to established cycles of inquiry, analyzing student work and reflecting on one’s instructional strategies are essential habits to build during professional learning experiences (Darling-Hammond, 2000; Jensen et al., 2016; Weiner & Pimentel, 2017). Traditional professional development is ineffective because it does not support teachers’ implementation of a curriculum (Darling-Hammond et al., 2009). Inquiry cycles provide teachers with the opportunity to practice and apply new learning, refining their

implementation of the particular curriculum. Thus, inquiry cycles support teachers' implementation efforts through continuous practice despite challenges that may arise in the early stages (Gulamhussein, 2013). The cycles support changes and shifts in their instructional practice over time.

Inquiry also provides the necessary structure to build teachers' capacity as leaders and learners. It provides a "systematic approach" (Donohoo & Velasco, 2016, Kindle location 446) that results in teachers' ability to consume and produce research-based knowledge. However, it is important to note that the inquiry process is iterative. Rarely is it linear. Rather, teachers may select a question to explore, study the research, plan to teach, and collect, analyze, and discuss evidence. It is likely that during this discussion, teachers determine that more knowledge is needed or that a different approach should be executed during the teaching of the lesson, so teachers cycle back to the plan or teach phases before identifying any new needs or asking any new questions. Donohoo and Velasco (2016) suggested, "the cycle moves to a new iteration when team members feel they can answer the question posed at the beginning of the cycle" (Kindle location 522).

The Teaching and Learning Inquiry Framework

Its similarities to the scientific method characterize the teaching and learning inquiry framework, depicted in Figure 6 (Molebash et al., 2019). First, learners ask a question and make a hypothesis. Next, they gather data. Then, they analyze the data, generalize about their findings, and reflect on the process (Kilbane & Milman, 2014). Inquiry lessons for students can range from highly structured, where students verify previous findings by following a prescribed set of procedures to reach an intended outcome, to open inquiry in which students develop their inquiry question, procedure,

and methodology (Kilbane & Milman, 2014). Decades of research have led educators toward inquiry as a preferred instructional methodology to improve students' analytical and problem-solving skills across various disciplines (Kilbane & Milman, 2014; Molebash et al., 2019).

Similarly, inquiry as a teacher professional development model is “a dynamic intersection of disciplinary literacies” (Molebash et al., 2019, p. 21). In addition to teaching lessons grounded in inquiry, teachers engage in their inquiry cycles as a professional learning method (Jensen et al., 2016). According to Ball and Cohen (1999), “Teachers need opportunities to reconsider their current practices and to examine others, as well as to learn more about the subjects and students they teach” (p. 3). The teaching and learning inquiry framework offers teachers this cycle of asking questions, making inferences of students' instructional needs, learning research-based, best-practice solutions, and communicating conclusions based on analysis of student learning to reflect on teachers' practices (Molebash et al., 2019).

The teaching and learning inquiry framework has deep constructivist roots, as its methodology supports the philosophy that knowledge is constructed. One of the most notable characteristics of the inquiry model is its incorporation of metacognitive thinking skills at each phase of the lesson (Kilbane & Milman, 2014). Learners engage in inferring during the making hypotheses phase, creating and applying during gathering data; judging during data analysis; and generalizing, summarizing, explaining, and critiquing during the reflection of the process. While these are all essential skills for students to learn during their schooling years, these skills are equally important for teachers to exercise when thinking about their classroom instruction.

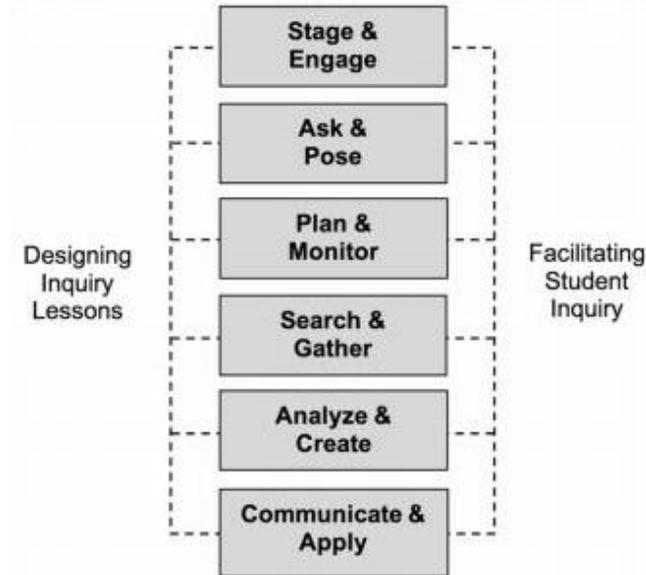


Figure 6. Teaching and learning inquiry framework.

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Teacher professional development has traditionally been anchored in the direct instruction model. A typical professional development session for a teacher involves showing up on a Saturday morning, an afternoon at the end of a school day, or even a summer day to sit idly in a classroom or school auditorium as a presenter speaks. Research supports that this method of “learning” costs billions of dollars annually but still shows little or no effect on student achievement (“Teachers know best,” 2014; Guskey & Yoon, 2009; TNTP, 2015). However, emerging research suggests that inquiry cycles are much more effective at supporting teachers in improving their practice and increasing student achievement (Butler & Schnellert, 2012; Greenleaf et al., 2018; Tillema & Imants, 1995). In this inquiry model, teachers are regarded as “teacher-researchers” and are active learners in their profession, constructing their pedagogical content knowledge through a process of asking questions, hypothesizing, gathering

evidence in the form of student work samples, analyzing evidence, generalizing their findings to inform their instruction, and reflecting on the process to begin another cycle. This depth of engagement in learning the content, developing their pedagogical content knowledge, and analyzing student work to assess their instructional practice allows teachers to employ a process that will initiate the small, incremental changes needed to improve their practice and increase student achievement. The teaching and learning inquiry framework is a professional learning model that catalyzes improvements in teachers' instructional practice and ultimately greater student learning. The teaching and learning inquiry framework outlines specific steps in a process of learning, doing, and reflecting to support teachers in the hard work of improving their instruction.

A Whole-Teacher Approach to Professional Learning

An essential goal of teacher professional learning is to attend to the whole person. Chen and McCray (2012) described their whole teacher approach to professional learning that includes three major components: attitudes, knowledge, and practice. This conceptual framework affirms Teaching Lab's head, heart, and habits model. The core components featured in the whole teacher approach are multidimensional, integrated, developmental, and contextualized, and all three variables influence each other and work together equally to develop in-service teachers (Chen & McCray, 2012). Teachers' attitudes about a curriculum, content area, or instructional practice affect their mindset, beliefs, and behavior toward learning and implementation. Unfortunately, traditional professional development rarely addresses teachers' attitudes and beliefs (Chen & McCray, 2012).

Facing challenges while implementing a new curriculum is not a new phenomenon for teachers. Changes in teachers' beliefs and values are required to implement new pedagogical approaches to instruction to be effective (Anderson, 2002). The whole teacher approach directly attends to teachers' attitudes by establishing communities of learners and promoting teachers as experts to build on their strengths (Chen & McCray, 2012). Building learning communities within schools and across districts can cultivate relationships among teachers. The strength of these relationships determines the "social capital" of a particular school or district (Leana, 2011). This social capital can be a "significant predictor of student achievement gains" (Leana, 2011, p. 33), so it is essential to promote teachers' positive attitudes and enrich schools' social capital.

The whole teacher approach (Chen & McCray, 2012) also builds teachers' knowledge as a foundational component of the framework, with a particular emphasis on pedagogical content knowledge at the intersection among subject-matter content knowledge, instructional strategies, and understanding of children, both general child development and students as individuals (Chen & McCray, 2012). Increasing teachers' knowledge includes increasing their knowledge of best-practice instruction in their specific disciplines, as well as general pedagogy (Deng, 2018; Putman et al., 2009). In addition to attitudes and knowledge, the whole teacher approach works to develop teachers' practice, which is the ultimate goal of most professional development. However, this approach develops teachers' practice in tandem with their knowledge and attitudes (Chen & McCray, 2012). Sustained time for collaboration and classroom practice and applying new learning is essential to shift teachers' practice toward increased student outcomes (Chen & McCray, 2012; Darling-Hammond et al., 2009).

Ongoing support and feedback are also necessary during the application and practice phase of professional development (Chen & McCray, 2012). Additionally, inquiry cycles allow teachers to revisit the new knowledge learned and reflect on their implementation of that knowledge (Chen & McCray, 2012; Jensen et al., 2016).

Conclusion

Teaching Lab’s (2018) head, heart, and habits model is echoed in both the whole teacher approach (Chen & McCray, 2012) and the teaching and learning framework (Molebash et al., 2019). Each component of the model—the head, the heart, and the habits—targets one aspect of the necessary levers in adult learning. The “head” refers to both the content knowledge and pedagogical content knowledge teachers need to be most effective in their subject area or discipline. The “heart” is rooted in collaboration and social capital. It considers teachers’ individual and school contexts, lived experiences, expertise, and affect. The alignment of heart to the whole teacher approach allows Teaching Lab content designers and facilitators to address teachers’ attitudes alongside their instructional practice. The “habits” component provides a structure for teachers to engage in meaningful reflection and data analysis as a collaborative group. Each of these components is essential for effective professional development.

Conclusion

Although a growing body of research on effective teacher professional development has emerged, policymakers and stakeholders lack the evidence from teachers’ experiences to implement positive reform regarding teacher professional learning (Guskey & Yoon, 2009). Research on 21st-century learners has overwhelmingly agreed that students today need progressive, modern instructional modalities that attend

to their sophisticated learning needs (Darling-Hammond, 2000). Effective professional development models must attend to teachers' adult learning needs to positively change instructional practices and increase student learning and achievement.

This research intended to contribute to the growing body of work by examining teachers' perspectives on professional development and its effects on student outcomes. The goal of this research was to inform policymakers and stakeholders who design and deliver professional learning. This study argued that inquiry cycles are an effective model of 21st-century teacher professional learning and urges decision-makers to advocate for professional development reform that includes inquiry cycles as the primary mode of teacher professional learning.

CHAPTER THREE

Methodology

Introduction

A growing body of research asserts that traditional teacher professional development is not effective—it does not show increased student academic success or gains, and new theories reveal effective teacher professional learning characteristics. This instrumental multiple case study provided insight into teachers’ perspectives on effective professional learning and its impact on student achievement. This research focused on one group of teachers’ experiences as they progressed through the learning sequence of inquiry cycles. In the current study, the researcher explored four classroom teachers’ experiences and their perspectives on the effectiveness of Teaching Lab’s professional learning model. A central research question guided this research: How did Teaching Lab’s inquiry cycle professional learning model change the teachers’ instructional practice? The following four sub-questions deepened the researcher’s understanding of the teachers’ experiences:

1. What characteristics of Teaching Lab’s professional learning sequence are different from “traditional” professional development?
2. What role did these characteristics play in the teachers’ learning during the professional learning sequence?
3. What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?
4. In what ways did this professional learning model impact student academic success?

Researcher Perspective

I am a content design manager at Teaching Lab. Previously, I was project manager on the partnership's team, where I regularly facilitated content with teachers, Lab Leaders, school administrators, and district leaders. Teaching Lab creates and delivers content grounded in three curricula: ELA Guidebooks, expeditionary learning (ELA), and illustrative math (mathematics). I primarily work on our ELA Guidebooks team. Before working at Teaching Lab, I taught in a public school for eight years and in a private Christian classical school for one year. During my time as a public-school teacher, I contracted through Louisiana's Department of Education to draft daily lesson plans for the ELA Guidebooks curriculum.

I believe that teacher professional development is an essential component for improving schools across America. Even the best of teachers learn from other teachers and can continually elevate their practice. I also believe that America's opinion of teacher professional learning is meant to "fix" what is broken; I disagree. I think the vast majority of teachers are doing their absolute best, against all odds, and simply have not received all the knowledge, skills, or resources they need for real improvement. I hope this research will elevate teachers' voices in this space and give credence to the credibility of their experiences with professional development.

Furthermore, I believe in a constructivist epistemological worldview. Knowledge is socially constructed, which means that learning is a social process. Jarvis (2012) asserted that learning is not "in splendid isolation from the world in which the learner lives," rather, "it is intimately related to that world and affected by it" (p. 11). Learning both affects and is affected by learners, their culture, and their context. This complicated interplay of factors (The National Academies of Science, Engineering, and Medicine,

2018) should be viewed holistically, incorporating the learner as a whole person both individually and within their learning community.

I hope that my research will have two primary outcomes. First, more teacher voices will be heard in a traditionally positivistic space. It is common for our society to value quantitative data with specific results over qualitative descriptive data, especially in education. Due to budgetary concerns and the need for instant reform that is replicable and widespread, policymakers and district leaders look to what can be proven to work. Therefore, what works and is confirmed in one area may or may not be relevant to other areas. Teachers' voices can shed light on what works given their specific contexts. Second, more research will be conducted around effective teacher professional learning. As a teacher, I experienced my fair share of terrible teacher professional development—PD that was irrelevant, ineffective, and a waste of time. If society truly values our teachers, we should appreciate their time and their expertise as well. By presenting relevant, research-based, curriculum-specific professional development grounded in their specific context and examining their students' work, we communicate that we value them as individuals and as educators. My findings as a facilitator at Teaching Lab inspired this research. My goal is to use this research project to bring teachers' voices into a space where the literature is lacking.

Conclusion

Finally, I want to acknowledge that not only will I, the researcher, do my due diligence to collect and analyze the data, but this research process has also had and will continue to have an impact on me. As I continue the daily work at Teaching Lab of creating and delivering effective teacher professional learning to literacy teachers across

my home state of Louisiana, I will strive to remember the findings of this research in my content development. When considering the role of the researcher in qualitative research, Lichtman (2013) said:

much of qualitative research, whatever approach is used, acknowledges the role of the researcher as a filter through which data are collected, organized, and interpreted. As such, looking for objectivity is not only foolish, it is impossible. Researchers should not strive to be objective and look for ways to reduce bias. Rather, they need to face head-on the subjective nature of their role. They need to consider effects on the research process and effects on themselves. (p.159)

My goal is to face head-on my feelings toward this research and any biases I have as I begin to collect and analyze the data, then to bring my findings to my colleagues and peers at Teaching Lab so that we can continue to elevate our work in supporting teachers.

Theoretical Framework

The theoretical framework that guided this research was Guskey's (2000, 2002a, 2002b, 2016) five critical levels of teacher professional development evaluation. This framework applied to the current research study because it seeks to guide practitioners through "systemic inquiry to gain new knowledge" about the professional learning model being investigated—Teaching Lab's inquiry cycles professional development model (Guskey, 2000, p. 44). Researching a professional development model, such as the inquiry cycle model, is a highly complex process. Guskey's (2000, 2002a, 2002b, 2016) framework serves as a guide through the five levels, or lenses, that must be considered when evaluating teacher professional learning.

This framework shaped the research questions and overarching research design. Because the framework is a hierarchy, each level builds on the previous level and informs the successive level (Guskey, 2000), which provides structure and organization for the research design. The current research focused on teachers' perspectives and lived

experiences with professional learning, which primarily targets level four of the framework: participants' use of new knowledge and skills. To that end, a qualitative design was employed. Focusing on improved student outcomes would have indicated a quantitative or mixed-methods approach, and as is specified in the limitations and delimitations section to follow, such methods were not within the purview of this research.

Guskey's (2000, 2002a, 2002b, 2016) framework informs the data collection approach because the types of data collected aligned with Guskey's (2000, 2002a, 2002b, 2016) suggestions for each level of the framework. The use of questionnaires targets levels one to three. Their purpose was to identify teachers' reactions, teachers' learning, and teachers' perspectives of leaders' support for the changes in classroom instructional practice. In other words, whether school leaders and district administrators in their Louisiana district provided the time, space, and resources for teachers to show a change in their practice. Each of these data collection levels is imperative before proceeding to the interview process because each level informs the subsequent levels in the framework. Participant interviews evaluate levels three to five, but this research focuses primarily on level four: participant's use of new knowledge and skills. The interview questions were semi-structured and open-ended to elicit responses from teachers on their perspectives of whether they use their new knowledge and skills. Review of artifacts was the final point of data collection in this research and was intentionally intended to evaluate level four on the framework. Teachers' notes from Teaching Lab's training days and the teachers' lesson plans before and after the training are authentic evidence of teachers' learning and implementing that learning in their classrooms. Multiple data points are essential for

“providing acceptable evidence for judging the effects of professional learning” (Guskey, 2012, p. 42). This research’s data collection process was designed to provide such acceptable evidence, using Guskey’s (2000, 2002a, 2002b, 2016) framework.

This framework informs the data analysis approach because this research offers a formative evaluation of Teaching Lab’s inquiry cycle model of teacher professional learning in Louisiana. The research is formative because it is ongoing and designed to inform decision-makers and other stakeholders about teachers’ perspectives of this professional learning model. The use of Creswell and Poth’s (2018) “data-analysis spiral” points to this formative evaluation and aids the researcher in making sense of the data.

Research Design

The research design selected for this study was an instrumental multiple case study. It intended to explore the effectiveness of Teaching Lab’s inquiry cycles teacher professional development model. Qualitative research has gained momentum over the last 30 years as the design of choice for “individuals seek[ing] understanding of the world in which they live and work” (Creswell, 2013, p. 24) and for “exploring and understanding the meaning individuals or groups ascribe to a social or human problem” (Creswell & Creswell, 2018, p. 4). Consequently, an instrumental multiple case study is the most appropriate design for this research. Moreover, case studies are a qualitative research design investigating the “particularity and complexity of a single case, coming to understand its activity within important circumstances” (Stake, 1995, p. xi).

Understanding effective teacher professional learning is a complex issue that quantitative research designs cannot easily measure. While quantitative research can numerically assess gains in teacher knowledge over time, understanding how particular professional

development models impact teachers' instructional practice and student achievement may be unique to each teacher. Therefore, while quantitative data are useful in determining whether a particular professional development model impacts student achievement, it fails to note the complexities of each teacher's experience with professional learning and the effects on the classroom culture and context.

The instrumental multiple case study was the most appropriate case study design for this research project. The research questions sought to understand teachers' perspectives (cases) to answer research questions around a central theoretical question. This design aligns with Hancock and Algozzine's (2017) definition in which instrumental case study research is best when the researcher seeks to "understand a theoretical question or problem" (p. 38). Merriam (1998) further ascribed case study research helps the researcher to "gain an in-depth understanding of the situation and meaning of those involved" (p. 19). Program evaluations often utilize the case study research design (Creswell & Creswell, 2018), primarily if the researcher seeks to understand the nature of the setting of the participants (Patton, 2015).

Site Selection and Participant Sampling

According to Creswell (2013), "case study research is a qualitative approach in which the investigator explores a bounded system (a *case*) . . . over time, through detailed, in-depth data collection" (p. 97, emphasis in original). While Teaching Lab works with more than 30 schools and districts nationwide, Louisiana was chosen as the site for this research because it is a bounded system in which the researcher could collect detailed, in-depth data. Furthermore, the researcher chose Louisiana because Teaching Lab trained all teachers using the head, heart, and habits model. This depth of training is

different from many smaller schools and districts where cohorts of teachers are trained and then expected to train other teachers in their schools. Schools and districts often use the train-the-trainer model when budgetary constraints prevent all teachers from attending a professional learning sequence, especially one that lasts seven days. Having every English language arts teacher in grades three through eight trained on the curriculum provided a large pool of participants to sample.

For this research study, the researcher used purposive sampling procedures across three phases. Merriam and Tisdell (2016) asserted, “Purposeful sampling is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned” (p. 96). They further developed the idea of purposive sampling by suggesting multiple phases of participant sampling, suggesting two levels of sampling for qualitative case studies. First, researchers select the case to be studied and then continue sampling within that case to select participants. To “select a sample from which the most can be learned,” the researcher utilized three participant sampling rounds, as seen in Figure 7.

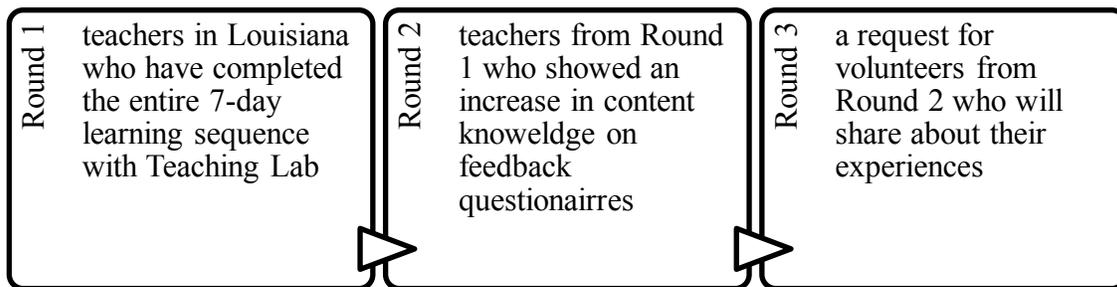


Figure 7. Participant selection: Purposive sampling.

Round 1 of participant selection included only teachers in Louisiana who completed the entire seven-day learning sequence with Teaching Lab. Some teachers

were absent from one or more of the training days for various reasons. Additionally, districts across Louisiana sent cohorts of teachers, administrators, and leaders to the Louisiana Content Leader training hosted by the Department of Education.

Regarding the selection of cases, Lichtman (2013) posited that researchers should “select a case that is considered *typical* of others in the same set” (p. 92). In round two of participant selection, the researcher examined Teaching Lab’s questionnaire data aligned to the Guskey (2000, 2002, 2003b, 2016) framework. The end-of-course questionnaires were designed to elicit feedback from participants throughout Louisiana to diagnose their perceived satisfaction and evidence of learning. The results of Teaching Lab’s questionnaire data were analyzed to inform the selection of participants. Sampling included 42 participants who showed an increase in content knowledge, but excluded five teachers who did not increase content knowledge. Finally, in round three of sampling, teachers were sent a request to volunteer to participate in the study and share their experiences with Teaching Lab. Table 1 details the demographics of participants in the study.

Table 1

Participant Demographic Information

First Name	Years of Teaching Experience	Current Grade Level Taught
Allysia	24	Eighth
Jade	5	Ninth, Tenth
Meredith	17	Third
Sarah	6	Eighth

Data Collection

Merriam and Tisdell (2016) indicated the researcher is “the primary instrument for data collection and analysis” (p. 16). Furthermore, Lichtman (2013) acknowledged that the researcher shapes the meaning of the research and reciprocally, the research shapes the researcher. Patton (2015) defined data in qualitative research as “direct quotations from people about their experiences, opinions, feelings, and knowledge” obtained through interviews; “detailed descriptions of people’s activities, behaviors, actions” recorded in observations; and “excerpts, quotations, or entire passages” extracted from various types of documents (p. 14). Therefore, multiple sources of data were collected. Multiple data sources, and the rich, thick descriptions contained within them, allow triangulation of the data and increase validity through saturation across the data collection process (Creswell, 2013; Yin, 2018).

For this study, data collection was a multi-phase process that included individual interviews and artifact reviews. Figure 8 provides a timeline for the data collection and analysis process.

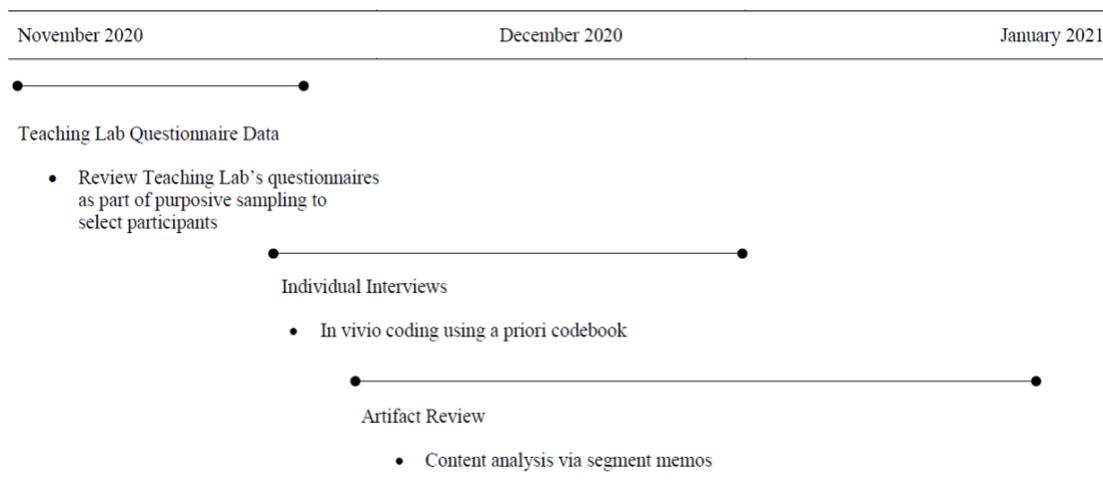


Figure 8: Data collection and analysis process timeline.

Yin (2018) explained that it is the convergence of the data collected across multiple sources that determines the validity and consistency of the findings. Table 2 aligns the various means of data collection to each research question.

Table 2

Summary of the Data Collection Methods for Each of the Main Research Questions

Research Question	Theoretical Framework	Data Collection
How did Teaching Lab’s inquiry cycle professional learning model provide the structure to change the teachers’ instructional practice?	Participants’ learning	Questionnaires
	Participants’ use of new knowledge and skills	Semi-structured individual interviews
		Review of participants’ notes from the professional learning
What characteristics of Teaching Lab’s professional learning sequence are different from “traditional” professional development? What role did these characteristics play in the teachers’ learning during the sequence?	Participants’ reactions	Questionnaires
	Participants’ learning	Semi-structured individual interviews
	Organization support and change	
What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?	Participants’ use of new knowledge and skills	Questionnaires
	Student outcomes	Semi-structured individual interviews
		Student work samples

In the current study, data collection and data analysis procedures were multifaceted and occurred in tandem. Merriam and Tisdell (2016) called the process of data collection and analysis “recursive and dynamic” (p. 195). This statement embodies

the data collection and analysis procedures in the current research. For example, the researcher conducted individual interviews and participants were asked to submit artifacts. Individual interviews were analyzed and coded, then artifacts were coded, and the interviews were analyzed again to look for patterns and themes that began to emerge from the data.

Teaching Lab's Questionnaire Data

The first round of data collected was acquired from Teaching Lab. The data consisted of questionnaires used at the end of each Teaching Lab training module in Louisiana to elicit teacher satisfaction and evidence of teacher learning. The questions utilized in Teaching Lab's questionnaires were developed to align with Guskey's (2000, 2002a, 2002b, 2016) framework for professional learning evaluation. Each question, listed in Appendix B, was aligned to the appropriate level of Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation.

Individual Interviews

The research sought to “highlight what is typical, normal, and average” among participants' experiences (Patton, 2015, p. 284). After reviewing Teaching Lab's questionnaire data for Louisiana teachers, outlier data were eliminated, and a selection of 37 participants was invited to volunteer to participate in the study. Of those 37 participants, 8 teachers agreed to participate. Due to limitations of teachers' time and availability, a final group of four teachers was chosen, and the individual interviews were scheduled. Yin (2018) asserted, “one of the most important sources of case study evidence is the interview” (p. 110). Patton (2015) emphasized the purpose of

interviewing is “to allow [researchers] to enter into the other person’s perspective” (p. 426). The interviews were semi-structured, allowing for more “flexibly worded” or “more or less structured” questions (Merriam & Tisdell, 2016, p. 110). All interviews were conducted via Zoom, a cloud-based video communications platform that offers audio and video recording capabilities. Merriam and Tisdell (2016) suggested that audio or video recordings of interviews in conjunction with verbatim transcriptions “provide the best database for analysis” (Merriam & Tisdell, 2016, p. 131). For this reason, all interviews were video-recorded, kept in a password-protected cloud storage account, and transcribed before the data analysis phase of the research.

According to Merriam and Tisdell (2016), “*good* interview questions are those that are open-ended and yield descriptive data” (p. 120, emphasis in original). When conducting interviews, Patton (2015) outlined six types of interview questions:

1. Experience and behavior questions: Focused on a person’s behaviors, actions, and activities.
2. Opinion and values questions: Focused on a person's beliefs or opinions, and what they think about something.
3. Feeling questions: These questions “tap the affective dimension of human life. In asking feeling questions—How do you feel about that?—the interviewer is looking for adjective responses” (p. 444).
4. Knowledge questions: Focused on participants’ actual factual knowledge about a topic or phenomenon.
5. Sensory questions: While similar to experience and behavior questions, these questions focus on more specific data about what is or was seen, heard, or touched.
6. Background/demographic questions: Focused on participants’ demographics as relevant to the research study.

Because qualitative research focuses on developing an understanding of the participants’ lived experiences, Patton’s (2015) six types of questions provide a variety of categories

for the research to ensure the interview questions “yield descriptive data” (Merriam & Tisdell, 2016, p. 120). Essentially, Patton’s (2015) six types of questions provide a structure to asking open-ended questions.

During the individual interviews, the researcher intended to build rapport with participants, collect demographic and perception data, and develop a base understanding of teachers’ experiences. Table 3 outlines the semi-structured questions used during the individual interviews, along with their alignment to the Guskey (2000, 2002, 2003b, 2016) theoretical framework, Patton’s (2015) six types of interview questions, and the research question being addressed. All questions, including sub-questions, probing questions, and clarifying questions, are illustrated in Appendix C.

Table 3

Interview Questions

Interview Question	Theoretical Framework	Patton’s Six Types	Research Question
Tell me about yourself and your teaching experience.	None	Background/ demographic	What characteristics of Teaching Lab’s professional learning sequence are different from “typical” professional development?
Tell me about the professional development you have attended before working with Teaching Lab. • What was your best experience?	None	Experience and behavior	What characteristics of Teaching Lab’s professional learning sequence are different from “typical” professional development?

Interview Question	Theoretical Framework	Patton's Six Types	Research Question
<ul style="list-style-type: none"> • What was your worst experience? 			
Tell me about yourself and your teaching experience.	Level 1	Experience and behavior	What characteristics of Teaching Lab's professional learning sequence are different from "typical" professional development?
Tell me about the professional development you have attended before working with Teaching Lab. <ul style="list-style-type: none"> • What was your best experience? What was your worst experience?	Level 2	Knowledge	What role did these characteristics play in the teachers' learning during the professional learning experience?
Tell me about your professional learning experience with Teaching Lab.	Level 3	Opinion and values	What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?
What did you learn during your professional learning experience with Teaching Lab?	Level 4	Sensory	What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?
What role did Teaching Lab play in providing organizational support for your	Level 4	Experience and behavior	

Interview Question	Theoretical Framework	Patton's Six Types	Research Question
implementation of the ELA Guidebooks? How has your instructional practice changed since attending Teaching Lab's professional learning?	Level 4	Opinion and values	What characteristics of Teaching Lab's professional learning sequence are different from "typical" professional development?
How could you compare what you are doing now with what you did in the past?	Level 5	Feeling	In what ways did this professional learning model impact student academic success?

Artifact Review

After the individual interviews, participants in the study were asked to submit artifacts for review. Hancock and Algozzine (2017) supported this type of qualitative data collection because these artifacts “provide insights into the person’s beliefs, attitudes, and behaviors” (p. 57). Merriam and Tisdell affirmed this assertion, “In some ways, documents are like observations in that documents give us a snapshot into what the author thinks is important, that is, their personal perspective, while observations allow us to see overt behavior” (Merriam & Tisdell, 2016, p. 166). Participants in the study submitted a selection of their handwritten notes from the training sessions with Teaching Lab and a sample of lesson planning documents from before and after the professional learning sessions.

Triangulation of Data

To achieve triangulation, data for the current research study were collected from a variety of sources. Furthermore, the data triangulation served to “build a coherent justification for themes” (Creswell & Creswell, 2018, p. 200). The research sought to intentionally incorporate validity strategies to analyze the data and present the findings accurately, as suggested by Creswell and Creswell (2018).

Data Analysis

Qualitative data analysis is a complex recursive and dynamic procedure (Merriam & Tisdell, 2016). To interpret the data fully and accurately during this case study, the researcher utilized Creswell and Poth’s (2018) “data-analysis spiral” to organize, memo, code, interpret, and represent the data (pp. 185–186). Qualitative researchers use data analysis to process and make sense of the data through “consolidating, reducing and interpreting what people have said and what the researcher has seen and read—it is the process of making meaning” (Merriam & Tisdell, 2016, p. 202). Merriam and Tisdell proposed that data collection and analysis should be “a simultaneous process in qualitative research” (p. 195). Throughout the intricate data analysis process, researchers move “back and forth between concrete bits of data and abstract concepts, between inductive and deductive reasoning, between description and interpretation” (Merriam & Tisdell, 2016, p. 202). Data analysis occurred both during the study and after all artifacts have been collected.

Yin (2018) distinguished pattern matching logic as “one of the most desirable techniques to use” for case study data analysis and asserted, “the results can help a case study to strengthen its internal validity” (p. 143). Pattern matching logic compares the

case study findings with predicted findings made before the study was conducted. The researcher developed a list of predicted findings based on Teaching Lab's professional learning model and a review of the literature on effective teacher professional development. These predicted findings align with the *a priori* design of this instrumental multiple case study.

First, a naming system was created to organize files digitally. File folders were named according to specific indicators: school, grade level, teacher, and date. Each folder included participants' video-recorded interviews, interview transcripts, and artifact submissions. In addition, a searchable spreadsheet was used to categorize and list artifacts so they can be sorted by the naming indicators.

Data analysis procedures were conducted in tandem with data collection procedures to inform data collection efforts within a constructivist worldview. After the initial review of Teaching Lab's questionnaires, data were analyzed for first-cycle coding.

Second, participants' interviews were coded during first-cycle coding, using an *in vivo* approach with *a priori* codes developed through a thorough review of the literature on effective teacher professional development (Miles et al., 2004). Specifically, the researcher analyzed the survey data for references to head, heart, and habits, or words that were nestled into these three overarching categories and for keywords associated with the five levels of the Guskey (2000, 2002, 2003b, 2016) framework.

Next, artifacts were reviewed using content analysis. Hsieh and Shannon (2005) described content analysis as "a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and

identifying themes or patterns” (p. 1278). This research specifically used directed content analysis as it worked from an *a priori* framework of codes within the theoretical framework and Teaching Lab’s professional learning model. As artifacts were collected, memoing procedures were used to identify “major organizing ideas” (Creswell & Poth, 2018). Segment memos were utilized to identify common themes in participants’ professional learning notes. Document memos were employed to aggregate the observation data and confirm or disconfirm code categories as ideas evolve across multiple documents. The researcher then used second-cycle coding—a narrative description of the patterns that began to emerge (Miles et al., 2004). Figure 9 includes the completed codebook for data analysis.

A priori Data Analysis Codebook

- Ineffective PD
- Effective PD
- Reactions
- Evidence of teacher learning
 - Knowledge
 - Skills
 - Attitudes
- Organization support and change
- Teachers’ use of new knowledge and skills
- Student learning outcomes
- Inquiry
- Collaboration

Figure 9. A priori Data Analysis Codebook.

Finally, project memos captured the primary ideas that lead the researcher into findings and interpretations from the data and toward a narrative description of the patterns emerging in the data. From the narrative description of patterns, the researcher developed interview questions to develop an understanding of participants’ individual

experiences in Teaching Lab’s professional learning model. Throughout the interview process, analytic induction was employed to develop and check hypotheses. Simultaneously, constant comparative analysis was utilized to compare the concepts and categories that emerged from individual data to other individuals and the group.

Ethical Considerations

One paramount ethical consideration includes protecting the teachers who participate in the study, the district in which they work, and the privacy of the students in the classrooms. To protect teacher and school district anonymity, the researcher employed pseudonyms for the school districts. All four participants chose to use their first names instead of pseudonyms; however, pseudonyms for parishes were used. Additionally, all digital files remain password protected on a secure cloud storage platform. As a facilitator employed by Teaching Lab, the organization providing the professional learning and the focus of this research, only teachers who were not included in this researcher’s training group were included in the study. Participants participated voluntarily and had the autonomy to leave the study at any time if they chose. The district did not compel them to participate. The researcher acknowledges the responsibility to the participants and the subjects of the study to do no harm and to seek informed consent from all stakeholders. Finally, one of Teaching Lab’s values and a moral principle guiding the work is educational equity. Findings are presented in a way that promotes this value and encourages educational equity.

It is not uncommon for researchers to seek to understand their own environments. Lichtman (2013) said, “Typically, researchers study a program or project on which they have been working” (p. 93). However, there are ethical considerations to ensure validity

and reliability in the research findings. First, the researcher presented accurate findings, even if the findings are not in line with the researcher's previously held beliefs about Teaching Lab and its model. Second, the researcher checked for confirmation bias by including participants in the data analysis and publishing stages of the research.

Limitations and Delimitations

Delimitations in qualitative research are essential to restrict or bound the study so that the scope of the research is focused and the parameters are defined (Creswell & Creswell, 2018). This study was delimited to teachers within Louisiana schools who attended all seven days of Teaching Lab's professional learning series on the ELA Guidebooks curriculum. The purpose of this delimitation was to narrow the focus of the study to only teachers who experienced all three parts of the learning sequence: boot camp and both inquiry cycles.

In addition to delimitations imposed by the research, limitations outside of the researcher's control may also affect the research study. At the time this research was conducted, the COVID-19 pandemic limited many social interactions and education norms. These limitations included conducting observations in schools and classrooms, interacting with teachers in the field in their natural setting, and reviewing end-of-year standardized assessment data. Because of these changes, the researcher chose to focus solely on virtual participant interviews and artifact submission.

Another limitation was the sample size presented in this instrumental multiple case study. The goal of the research was not to generalize about all teachers or all professional learning experiences. The objective of the current research presented here

was to elevate a group of teachers' voices and present their perspectives and experiences with Teaching Lab's model.

Conclusion

Chapter Three described the overarching research design of this multiple instrumental case study. The research questions, site selection, participant sampling, data collection procedures, and data analysis procedures were outlined. The current research study examined teachers' perceptions of professional learning through inquiry cycles, especially as delivered by Teaching Lab in Louisiana. This study's purpose was to inform change in policies and design of teacher professional development, especially as it affects student achievement in reading and English language arts. This study's results have implications for policymakers, professional development designers and facilitators, district leaders, school administrators, and teachers. To that end, the following chapter examines the results and discusses the implications of the research findings and suggestions for further research.

CHAPTER FOUR

Results and Implications

Introduction

Teachers' voices are absent from the literature on effective teacher professional learning. The purpose of the current research study was to examine teachers' perspectives of Teaching Lab's inquiry cycle model of professional learning. The researcher sought to answer the primary research question: In what ways did Teaching Lab's inquiry cycle professional learning model change the teachers' instructional practice? To develop a comprehensive and coherent study, the researcher utilized a multiple instrumental case study design and triangulated data through in-depth teacher interviews and artifact analysis. Participants chose to use their first names, but pseudonyms have been used for all parish names. This chapter reveals that teachers reported positive changes in their instructional practice that initiated growth in students' learning and academic outcomes. The findings are presented in three phases. First, this chapter provides case descriptions that illustrate the context of each participant in the study. In each individual case, the data are analyzed first using the theoretical framework and second by identifying the participant's data through the lens of the research questions. Second, this chapter presents themes that emerged from the data through a cross-case analysis using Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation. Third, this chapter unfolds with a discussion that offers key findings with connections to the literature. The goal of this chapter was to present teachers' lived experiences with

professional development and their perceptions of the effects of inquiry cycles on their teaching and their students' learning.

Results

This instrumental, multiple case study was bounded in the state of Louisiana. First, this section presents Teaching Lab's questionnaire data. Through purposive sampling, four teachers across Louisiana were selected to share their experiences with Teaching Lab's inquiry cycle model of teacher professional learning. Their approximate geographic locations within Louisiana are indicated in Figure 10, and indicated by the parish, or district, where each teacher teaches. After reviewing participants' individual case descriptions, this section presents an in-depth look at the data collected and analyzed.



Figure 10. Map of participants geographic location in Louisiana.

The researcher selected the participants of this study using a purposive sampling procedure. Teachers in this study attended Teaching Lab’s seven-day ELA Guidebooks training series across an entire school year, either 2018–2019 or 2019–2020, and they all taught in Louisiana. Individual interviews were conducted via Zoom, were semi-structured, and lasted approximately one hour each.

Allysia, Magnolia Parish

Allysia, a veteran teacher of 24 years, had taught elementary and middle school in public school settings, on military bases, overseas for military families, and in Department of Defense Schools. She has been a teacher, a reading specialist and instructional coach, an assistant principal, and a principal. During the study, Allysia taught virtually in an eighth-grade ELA classroom. For personal and professional reasons during the COVID-19 pandemic, she chose to leave her instructional coach position at a charter school to go back into a classroom at a school closer to her home. “Anyone who knows me knows that eighth grade is my baby, baby, baby,” Allysia beamed with pride during her interview. Even with many district and state COVID-19 restrictions in place, Allysia was thriving as a virtual teacher. “I’ve learned to LOOO-OOOO-OOOOVE virtual teaching!” she exclaimed. “I love engaging with my kids in a virtual platform. It allows me to not lose time, get the content done, and move my kids into deeper conversations because I’m getting to color outside the lines.”

As a participant in Louisiana’s third cohort of ELA content leaders in 2019, Allysia began her journey with Teaching Lab skeptical of its model and its claims. One of the keys to success she found with her students was asking for their feedback when sharing about her learning with them:

Once they [the students] started seeing their scores go up on our data charts they soared. One of the things that we did is I brought them into the cycle with me. “Okay guys, I’m learning, so when I leave, I’m actually going to learn how to be a better teacher for you. So, I need your feedback.” So we would have data Thursdays, our data chat days and I would ask them for feedback. ‘How did this feel? We read this and I did it this way; I used to do it that way. What are your thoughts? What do you think?’ So, they loved it and toward the middle of the year it was like an epiphany, “Oh! We can do this! We like that you trust us to tell us what we are going to do at the end and there’s no secret.” Including them in my learning was extremely beneficial to their learning.

Allysia continued to explain how her students felt empowered over their learning, which, in turn, helped her feel empowered as the teacher regarding their learning experience.

Because of her experience with Teaching Lab, and the knowledge she gained from the ELA content leader training, Allysia was the grade-level chairperson in her new school and had been tasked with communicating her knowledge and skills to the rest of her team.

Allysia’s Analysis According to the Theoretical Framework

After conducting Allysia’s interview, the researcher analyzed the data using the theoretical framework. Each level of Guskey’s (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation was applied. The following section presents Allysia’s data through the lens of the framework.

Level 1: Participant satisfaction. When describing her worst professional development experience, Allysia discussed the importance of an effective facilitator:

I hate when someone is reading slides, does not teach the content, or has never taught the content. People reading slides is probably my number one pet peeve. Facilitators should know their presentation enough to be able to share and discuss the content. Some of my worst PD experiences have been when I know that you have not taught it and it’s supposed to be immediately implemented without a toolbox. Give me the handout. Give me the template. Give me everything I need

to go directly into the classroom because teachers don't need one other thing to do.

Allysia also discussed the importance of processing time. She said she likes to be a thinker throughout a professional learning experience and claimed Teaching Lab was “by far” her favorite. “When it’s people at the table actually in it doing it,” she said. “I like when we talk, and then I get a chance to visualize what that could look like in my classroom.” Allysia said that because of the facilitator and the time spent collaborating with her peers, she looked forward to the learning days, calling them “certainly, time well spent.” Because the time was meaningful, Allysia felt very satisfied with the professional learning.

Level 2: Participant learning. Allysia began her response to this level of the framework with, “Oh my goodness,” and then began to list many things that she learned during Teaching Lab’s professional learning sequence. She discussed the importance of not skipping ELA Guidebooks lessons, sharing the end-of-unit assessments and student exemplars with students at the beginning of the unit, and the importance of teaching the curriculum with integrity. She explained that the professional learning affirmed some things she believed to be best practice, giving her the science behind her thinking. This affirmation empowered her to advocate for herself and her students’ best interests. Allysia also described how she brought her students into the inquiry cycle with her. She “elicited feedback from students based on her changes in instructional practice,” giving students more voice over her implementation of the curriculum. She explained that this shift in her mindset of students empowered her students, which positively affected their achievement outcomes.

Level 3: Organizational support and change. Allysia described the support she received from her school as positive, which was attributed to her ability to implement new learning with her students without fear of judgment from her administrators. In Allysia's current school, she is given complete autonomy to make informed instructional decisions about her students and their needs. Allysia says that the support was split in her previous district, receiving positive support from one administrator and interference from another. The division she described increased the difficulty of getting other teachers on board with the new learning. The data presented from these two experiences verified Guskey's assertion that organizational support is pivotal for teachers to implement their new knowledge and skills.

Level 4: Participant's use of new knowledge and skills. When asked about a shift in her instructional practice as a result of attending the professional learning experience, Allysia discussed how she shifted her thinking from "what" to deliver to "how" to deliver. She said:

I don't do fluff stuff. I stick to the "script." I'm a huge advocate from annotating the teaching notes. It shifts the focus from what the content should be to a focus on *how* I need to deliver the content that is already quality content. I can focus on how I am going to scaffold and support my students as I deliver the content.

Allysia went on to describe how she used her planning time to focus on how she is going to scaffold and support her students as she delivers content. In the past, she also had to find texts, select tasks and activities, and create the materials she needed to teach a lesson. "Planning is much simpler and more focused," she explained. Previously skeptical, Allysia now considers herself an advocate of the ELA Guidebooks curriculum,

citing her implementation of the knowledge and skills she gained during the professional learning sequence as a primary reason.

Level 5: Student learning outcomes. Allysia described positive student achievement because of her professional learning experience. She said, in her district, she has “complete autonomy” to make decisions in her classroom for her teachers because her “[test] scores speak for themselves.” She boasted reaching 85–90% of her students reaching “mastery” on their end-of-year reading assessment, whereas only about 30% of students reached this level before attending the training. When asked to what aspect of the training she attributed this increase, she replied:

The information was very useful. I realized that I held the keys to the kingdom because I represented my whole school in terms of what this should really look like in our classrooms. I realized that while I was implementing and learning that I was gathering and then I chose to quickly hurry up and bring my principal in. That puts the onus on me because I’m saying, “Look at my scores as evidence. As long as [my students’] scores show I can produce, this is the way I know it needs to be done.”

When speaking of her students and their learning, Allysia was enthusiastic and beamed with pride. During the interview, her body language and facial expressions communicated just as much about her perceptions as her words did.

Allysia’s Analysis According to the Research Questions

First, Allysia’s data was analyzed using Guskey’s (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation was applied. Then, the researcher sought to answer the research questions. The following section offers answers to the research questions from data collected during Allysia’s interview.

Sub-question 1: In what ways did Teaching Lab’s inquiry cycle professional learning model change the teachers’ instructional practice? Allysia began showing her students the end-of-unit assessments and student exemplars at the beginning of the unit to create a roadmap of their learning. She also began to utilize features of the curriculum, such as the “Set the Context” videos, to build students’ knowledge throughout each unit. Furthermore, she shifted her planning from what to teach to how to teach—focusing on the supports and scaffolds needed to help her students succeed.

Sub-question 2: What characteristics of Teaching Lab’s professional learning sequence are different from “traditional” professional development? Allysia noted the collaboration and the time spent learning about each topic of study as characteristics of the professional learning that were instrumental in her learning and different from traditional professional development. She also referenced the inquiry cycle model as a key structure that supported her learning throughout the professional learning sequence.

Sub-question 3: What role did these characteristics play in the teachers’ learning during the professional learning sequence? Allysia cited collaboration as a key characteristic in her learning. She referenced several other teachers from her cohort and discussed the importance of the relationships she built with those teachers. Allysia emphasized that collaboration with her peers provided her time to sit and process the learning with her peers. She emphasized the importance of time with other teachers in her cohort to make meaning of the learning and internalize how she could take her new learning back to her classroom.

Sub-question 4: In what ways did this professional learning model impact student academic success? When asked about student academic success, Allysia was excited about the improvements she has seen in her students' writing as a result of her learning. "My writing instruction is stronger because I can give [my students] more detailed feedback," she said. She explained that her knowledge and use of additional scaffolds from the ELA Guidebooks curriculum has helped her students learn how to process and think through complex texts.

Primary Research Question: What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?

Teaching Lab provided Allysia the time, structure, and knowledge she needed to implement the Guidebooks curriculum. Collaboration and the inquiry cycle structure were key characteristics of Teaching Lab's professional learning sequence for Allysia's learning. Furthermore, Teaching Lab's seven-day professional learning series deepened Allysia's pedagogical content knowledge of the ELA Guidebooks curriculum and developed her capacity for making intentional instructional decisions for scaffolds that support students' learning.

Summary of Allysia

As a virtual eighth grade English language arts teacher, Allysia is thriving. Once a skeptic, she now implements many of the skills she learned from attending Teaching Lab's professional learning sequence. She continues to support other teachers in her school with deepening their pedagogical content knowledge and improving their implementation of the ELA Guidebooks curriculum.

Jade, Manatee Parish

Jade’s journey began at the start of her teaching career in 2016. Fresh out of college and fresh into an alternative certification program at a local Louisiana university, Jade was a seventh-grade ELA teacher at a junior high school in her hometown. During the professional development series before the start of the school year, the district supervisor informed Jade and the other seventh-grade teachers they would be teaching the new Louisiana curriculum, the ELA Guidebooks. They received zero training to implement this curriculum, and the school’s attitude toward the ELA Guidebooks was “apathetic at best.”

During that first year, Jade used a popular teacher website for sharing teaching materials, as well as other teachers at her school to accumulate the necessary classroom resources:

If I couldn’t find it, I haphazardly created it. I pulled stories that I enjoyed, and I taught reading strategies like I had been conditioned to teach in college. I created a folder called “Theme” in my brain, and I found videos, stories, and pictures to put into that folder. And honestly, I feel guilty about the way I taught my students in my first year because I did not give them the high-quality instruction they deserved.

These materials were not the high-quality materials that Jade now uses with her students by teaching the ELA Guidebooks curriculum.

In the fall of 2017, Jade left her hometown and moved to Alligator Parish where she continued to teach seventh grade and utilize the ELA Guidebooks curriculum.

I was excited because I was comfortable teaching 7th grade, but I was not teaching the same novels. Some of them were the same, but my new school had a setlist of novels to teach as a part of the Guidebooks 2.0 Curriculum. The attitude of the *Guidebooks* in Alligator Parish was, ‘Here is the curriculum, use it.’ And I did, but not with fidelity. I still supplemented here and there, holding onto the “teach reading strategies” mindset. If the kids didn’t understand main idea, then I hounded them on main idea.

At the end of that school year, Jade was given the report of her students' LEAP achievement data. LEAP is the end-of-year standardized test all Louisiana students take at the end of each year. Her students grew 0.1 points from the year before. "It was a gut punch," she said, "because I know how that made me look—not good."

For the next school year, Jade was moved to eighth grade and committed to spending her summer learning to improve her practice:

I spent all summer poring over into the units, looking at the lessons, creating outlines of the lessons, etc. I was going to be prepared this year to provide my students with the high-quality instruction they deserve. Then I was asked to be a participant in the content leader distinction, with training provided by Teaching Lab.

Even with the time invested over the summer to prepare to teach her students, Jade believed what she had planned would not be enough to help her students succeed on the end-of-year standardized assessments.

Jade admitted that she felt skeptical at the beginning of the professional learning series but was willing to implement the ELA Guidebooks curriculum and her new learning from the professional learning to the best of her ability. "It wasn't easy," Jade said. "We pushed through the challenging parts of the lessons and celebrated the growth, even when it was small." That year, Jade's students grew almost 20 points. Even as she recounted this experience, her face lit up, and her eyes brightened, remembering the pride she felt in her students. Jade commented that she believed this growth was directly related to the skills she learned from Teaching Lab's inquiry cycle model.

"One student, in particular, stands out above the rest," Jade recounted the story of a student she taught in seventh grade who ended the year with a LEAP score of "approaching basic." "As we dug into the new strategies I was learning to use to support

my students, I began to see her confidence grow. She became willing to take risks and ask questions because she began to trust that I would support her learning.” At the end of eighth grade, the same student earned a rating of “mastery” on the LEAP assessment.

Jade since moved to Manatee Parish as a ninth-grade teacher. Even though she was new to Manatee Parish, she became the lead teacher in the English I professional learning community. This leadership role allowed Jade to support other teachers in their implementation of the ELA Guidebooks curriculum.

Jade’s Analysis According to the Theoretical Framework

After conducting Jade’s interview, the researcher analyzed the data using the theoretical framework. Each level of Guskey’s (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation was applied. The following section presents Jade’s data through the lens of the framework.

Level 1: Participant satisfaction. Jade emphasized that having an effective facilitator “made it easier to engage with them, and with the information they were presenting.” She recalled her first experience with Teaching Lab. “My initial reaction was that the facilitator was . . .” she paused. “She was a little much, to be honest. But she was engaging, and it made me pay attention more.” Jade continued to describe the importance of the facilitator to her experience. “She made the content relevant, and she was willing to stick with us through the hard times when none of the teachers in my group thought the information was relevant.” Jade admitted that, at first, her professional learning did not feel useful. “It wasn’t until the By-Catch Experiential (Appendix D) that I changed my mind because, after that experience, the entire sequence began to make more sense.”

Level 2: Participant learning. When asked, “What did you learn during your professional learning experience with Teaching Lab?” Jade answered, “I now see how building the students’ background knowledge on a topic is essential to their success.” Jade discussed the *Diverse Learners Planning Guide*, a document created by Teaching Lab experts to support teachers in planning scaffolds for their diverse learners. “It showed me how to differentiate for different learners for different reasons, step-by-step.”

Another important point Jade made during the level two questioning was, “Even if students can’t read on grade level, they can think on grade level. My facilitator said that during the professional learning and it really stuck with me and how I view my kids.” Jade iterated that thinking about her kids with this shift in her mindset encouraged her to be more patient when they needed more processing time for a question or a different support than other students to access the text and its complexity. “I realized background knowledge makes such a difference when kids are reading,” she said. Jade described how some of her students needed an evidence chart while others just needed samples of the types of evidence they needed to find in the text. Jade identified intentionally choosing scaffolds based on students’ needs as a skill she learned during the professional learning experience.

Level 3: Organizational support and change. Jade had a unique perspective of organizational support because she had worked in two different parishes that both received Teaching Lab’s professional learning sequence at different times. In Alligator Parish, where Jade received her training, Jade had a mixed review of the organizational support, stating that the district was “great at the training but not great at following up or sustaining the learning.” Sometimes, when posing a question or presenting a problem of

practice with implementing the curriculum, Jade received slow responses and sometimes even felt those responses came with some hostility. However, other leaders in Alligator Parish encouraged Jade and supported her learning and growth.

In Manatee Parish, where Jade taught at the time of this study, she received immense professional learning support. In addition to the regular seven-day series from Teaching Lab, Manatee Parish added unit unpacking training for teachers, quarterly training for school and district leaders, and every student had copies of every book or resource so that students did not need to share. Questions were usually answered by the end of the day. Jade attributed this difference to school and district leader training. In Alligator Parish, leaders did not attend the professional learning experience and lacked the knowledge and skills that teachers had learned during the sequence. In contrast, leaders in Manatee Parish received the teacher learning and additional leader training.

Level 4: Participant's use of new knowledge and skills. Jade referenced an essential new skill from their learning with Teaching Lab: asking questions. Jade submitted artifacts that included a series of observations conducted by her district leaders as she was attending the training. An artifact review of Jade's observation reports indicated that between training sessions, she grew in proficiency in asking questions and taking on the responsibility of her students' learning. Jade attributed this growth to two key aspects of her learning. First, the inquiry cycle model allowed her to deeply analyze her students' data and make informed decisions to increase their achievement. Second, the coaching and support she received between professional learning sessions from her school and district leaders encouraged her to keep trying, even as she struggled to implement some of the new knowledge and skills.

Jade was asked how her instruction had changed over time since attending Teaching Lab’s professional learning sequence. Before the professional learning experience, she recalled that her instruction was more skills-based, focusing on theme, character development, or other reading skills. “Now, I don’t have to pull stories to teach skills,” she explained. “The skills are embedded and are cyclical because the philosophy of the curriculum is knowledge-building.” Jade attributes this shift in her mindset of the ELA Guidebooks curriculum, and her implementation of it, to the inquiry cycles. Once she was able to see a change in her students’ achievement, Jade bought-in to the professional learning model and the ELA Guidebooks.

As she thought to the future of her instructional practice, Jade articulated this hope:

I hope to use the *Diverse Learners Planning Guide* more because I have more English language students than ever before and I’m at a loss as to how to help them exactly. I have to find a way to adjust my teaching, so they know what’s going on and not rely on the translator 100% of the time.

Jade was hopeful that by continuing to use the inquiry cycle in her classroom, she would find the scaffolds she needed to fully support each student in her classroom with their unique needs.

Level 5: Student learning outcomes. Jade described a phenomenon with her student work samples after implementing strategies for close reading. “Now, the focus is more on building background knowledge than ever before,” she said. “Now, I spend more time on background knowledge and less time expressly teaching a skill set that they practice.” This shift meant that, initially, Jade’s students struggled on cold read tasks and assessments. However, after more practice building knowledge, as the curriculum

intended, her students began to show growth in overall reading comprehension and reading ability.

Jade's Analysis According to the Research Questions

First, Jade's data was analyzed using Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation was applied. Then, the researcher sought to answer the research questions. The following section offers answers to the research questions from data collected during Jade's interview.

Sub-question 1: In what ways did Teaching Lab's inquiry cycle professional learning model change the teachers' instructional practice? Jade continued to use the inquiry cycle model in her classroom to conduct her own action research to refine and elevate her instruction practice continually. She asked more text-dependent questions as scaffolds to support students' learning and allowed more wait time for processing after she asked a question. Jade's instruction that previously focused on skills now focused heavily on scaffolding the complex text and building students' knowledge.

Sub-question 2: What characteristics of Teaching Lab's professional learning sequence are different from "traditional" professional development? The use of inquiry cycles and the amount of collaboration during the professional learning experience were unique to Teaching Lab. Teaching Lab's use of inquiry cycles as a model of teacher professional learning gave Jade more confidence in her ability to make instructional decisions that would support her students. She was able to better anticipate where students would likely need support and intentional select scaffolds designed to address students' learning needs.

Sub-question 3: What role did these characteristics play in the teachers' learning during the professional learning sequence? The facilitator was engaging, and the content was relevant to Jade's classroom and teaching context. According to Jade, the learning felt authentic and immediately applicable to her students. The inquiry cycle structure allowed Jade to spend time analyzing evidence of her students' learning to inform her instructional decisions. She now reports more confidence in diagnosing students' struggles and selecting best-practice scaffolds to support them.

Sub-question 4: In what ways did this professional learning model impact student academic success? Jade presented her students' end-of-year standardized assessment data from before and after her attendance at Teaching Lab's professional learning series. In the 2017–2018 school year before the training, Jade reported 0.1 points of growth in her students LEAP scores. However, in 2018–2019 after attending Teaching Lab's professional learning, she reported a growth of almost 20 points. She said that her students had learned to dive into complex texts and emerge with a greater understanding of the text and the unit's topic.

Primary Research Question: What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?

Teaching Lab provided the content knowledge and pedagogical content knowledge Jade needed to improve her instructional practice, leading to increased student learning.

Summary of Jade

Once a skeptic of the ELA Guidebooks curriculum and of Teaching Lab's model, Jade considered herself an expert in her field, teaching other teachers about the benefits

of the ELA Guidebooks structure. She frequently used the planning materials she received during the professional learning experience to plan scaffolds and supports for her students so they could access the complex texts used in the curriculum. Jade planned to further her knowledge of the ELA Guidebooks by seeking distinction as a Louisiana content leader. Distinction is a series of micro-credentials earned by submitting planning documents, student work samples, and self-reflection of instructional practices for assessment.

Meredith, Crawfish Parish

Meredith grew up in a family of teachers. Her mother, brother, and both sisters were all teachers in various states and content areas. Meredith attended Arizona State University and originally “tried to major in international business” but fell in love with elementary education. As of this writing, she had 17 years of experience in various grade levels, including second, third, fourth, and middle school in Houston, and her current position in Crawfish Parish. In addition to her regular classroom duties, she wrote curriculum for the state of Louisiana, was a teacher leader in her school and district, was a mentor teacher to teacher candidates, was a teacher trainer, and was a mother of four children. Meredith attributed her work ethic and love of teaching to her upbringing. She recounted, “I grew up in a learned household. Museums, theaters, trips to Williamsburg or the White House were frequent occurrences in our home.” Meredith’s love of learning throughout her youth inspired her work as an ELA and social studies teacher.

Upon adopting the Common Core State Standards in 2013, Meredith was suggested as an expert for other teachers in her district of Crawfish Parish. She hosted summer workdays in her mother’s home. Teachers from around the district would come

together, unpack the standards, and find resources and complex texts that could be used to teach those standards. Then, the teachers would spend some much-needed time relaxing poolside after a long day of work to continue building their connections as professionals. “Looking back, that’s probably the first time that I really considered that professional development could look different,” Meredith said during her interview. “It was obvious that these teachers, who became some of my best friends, needed time to work together, to build trust, and to have a plan for their students. I just didn’t have words for that kind of learning, yet, and no one was delivering professional development that looked like that, so we continued to meet around the pool together and do our own learning.”

Unlike other wary or skeptical participants of the ELA Guidebooks and of Teaching Lab’s model, Meredith instantly embraced both wholeheartedly. “I’d always loved teaching with novels and authentic picture books, articles, and short stories with my students. I figured, ‘Sure, I’ll teach you main idea or theme, but let’s learn about the *Titanic* as we do it.’” When presented with the opportunity to attend content leader training, Meredith was among the first of her peers. “The Guidebooks were working well in my classroom,” she said hesitantly, “but I knew I could be doing more for my kids, and I wanted to learn how to dig even deeper into them.”

Since attending Teaching Lab’s ELA Guidebooks training, Meredith has begun facilitating the information to other teachers across Louisiana. “It’s good, sound research, and every Louisiana teacher should have the opportunity to teach their kids this way.” Meredith expressed passion for sharing her newfound knowledge and skills with other teachers across the state so that more students could be impacted.

Meredith's Analysis According to the Theoretical Framework

After conducting Meredith's interview, the researcher analyzed the data using the theoretical framework. Each level of Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation was applied. The following section presents Meredith's data through the lens of the framework.

Level 1: Participant satisfaction. When asked about her best and worst professional development experiences, Meredith recounted an experience from her first year of teaching in which she discovered differentiated learning:

My first-year teaching, all new teachers were required to attend a training on differentiated instruction by Nancy Ratcliff. This is one of my best experiences because I saw immediate benefit to my students. I could easily take back the information I gained and use it with my students the next day. It was applicable no matter the content or grade-level, so I've been able to use it every year since I started teaching.

Meredith even shared a picture of the resource she was given that day that still hangs beside her desk, which you can see in Figure 11.

Meredith then discussed her disappointment with the experience she identified as the worst professional development experience. "I was so excited!" she began. "My district was sending tons of teachers and 'everyone' was going." Because her school had chosen not to send any teachers to this professional development experience, Meredith and a few of her colleagues fundraised the money to attend—\$1,200 each to attend:

When we arrived, it was super exciting, lots of energy and fun. I went to my first session, math. It was a lot of cute games, but they weren't usable because they didn't align to the standards and the curriculum. But I thought, that's okay. There are lots more sessions. So, I went to the second session—social studies. It was basically a sales pitch for [a popular teacher materials sharing website], but the topics weren't covered at all in third grade standards and curriculum.

Meredith continued her story, and the theme continued throughout her retelling of the conference. Presenters used materials that were not rigorous and were below Louisiana’s expectations of students. Furthermore, the topics of interest in the materials were not included in the standards. Meredith informed the researcher that the only professional development experience worse than the one she had been describing was attending a mandated training day she wrote that was being redelivered by someone else in the district.

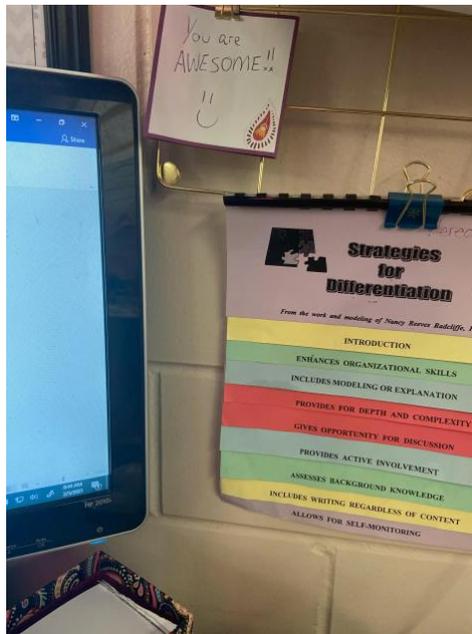


Figure 11. Photograph of “*Strategies for Differentiation*” handbook by Meredith’s desk.

Meredith related these experiences to her professional learning with Teaching Lab. She explained that the science and research behind the strategies were the most useful for her. Because reading had always come easily for her, she liked to teach it to her students but sometimes struggled to empathize when students were not successful. She said that learning the data was important because “it was the missing piece in connecting

with students and understanding why they didn't read well." She said that learning there was research to support her instructional decisions empowered her and made her feel "hugely smart," or like an expert in her field.

Meredith also attributed Teaching Lab's collaboration as a factor in her learning.

She emphasized:

I've always learned more from the teacher next door than from any professional development I've ever attended. Working with other teachers in the cohort model has been revolutionary. Sharing the planning sessions with other teachers and seeing how others annotate how they anticipate complexity and student misconceptions has helped me deepen my understanding of the units and lessons and how to teach them.

Meredith pointed out that working collaboratively with other teachers from her school, district, and state helped her consider other instructional decisions and how those decisions could also benefit her students.

Level 2: Participant learning. Meredith identified building knowledge as the most important thing she learned from the professional learning experience. She connected the Baseball Study (Recht & Leslie, 1988) to the By-Catch experiential, saying:

The Baseball Study most resonated with me because it stressed the importance of building knowledge on students' reading comprehension. I learned that it's essential to build students' knowledge through reading a series of texts on a topic, like we did with the [By-Catch] experiential. (Appendix D)

For Meredith, the Baseball Study explained something she knew about students but had not articulated—that students learn best when they learn about a single topic. One of Meredith's favorite topics to teach is the *Titanic*. She said that her students have heard about her *Titanic* unit from other students over the years. Every year, she looks forward to their chance to climb aboard and set sail across the Atlantic Ocean in her classroom.

In addition to her learning about building knowledge and the Baseball Study, Meredith referenced the writing rubrics used during one of Teaching Lab’s inquiry cycles. “Using the [writing] rubric to sort my students and as a measurement tool for instructional decisions was novel for me,” she said. “I couldn’t wait to get back to my team and share!” she exclaimed. Meredith explained that she had only used rubrics to grade papers and convey those grades in her grade book and parents. Using the rubric to make instructional decisions was a new skill for her.

Level 3: Organizational support and change. Returning to her example with the writing rubric from the previous line of questions, Meredith shared her excitement to communicate this new revelation to her third-grade teammates:

At the very next team meeting, I was excited to share what I had learned. The other teachers were excited, too. But the literacy coach wanted to break down our LEAP 360 data by standard and skill to see what standards and skills our students still needed to work on.

Because Meredith’s excitement was squelched, she felt disempowered. “I don’t feel like my voice was heard because the leaders haven’t been through the training and don’t have the depth of knowledge that I have.” Meredith continued to explain that she wished her district had also attended the training and understood the important point of building students’ knowledge and shifting from a skills-based instructional mindset to a text-based instructional mindset.

Level 4: Participant’s use of new knowledge and skills. Here, Meredith admitted that the questions were difficult to answer because her district put limitations on teacher autonomy. However, she discussed the Reader’s Circles, an ELA Guidebooks tool designed to support teachers in developing additional text-dependent questions that

scaffold students' access to a complex text. Meredith explained that she printed the Reader's Circles on poster-sized paper, laminated them, and hung them in her classroom. She described the importance that these ELA Guidebooks frameworks had in her work with students. "The visual of the Reader's Circles helps to ask my students better questions that scaffold their learning," she said. Meredith used the Reader's Circles when planning her lessons and when she was teaching and needed to ask an additional question in the moment.

Level 5: Student learning outcomes. Meredith spoke of her students' achievement positively. She returned to her example of the writing rubric and described a shift in her mindset about evaluating students' writing and its impact on her students' learning. "Evaluating student work is normally about points and grades. Get it out of the stack and into the grade book," she began. "But the inquiry cycle really made me look at it, hold onto it longer, revisit it, examine the qualitative data, and offer students tangible feedback." As she reflected on her students, Meredith asserted that this time spent poring over her students' writing samples gave her more insight into the root cause of their misconceptions, increasing her ability to address their gaps in learning and causing an increase in their learning.

Meredith's Analysis According to the Research Questions

First, Meredith's data was analyzed using Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation was applied. Then, the researcher sought to answer the research questions. The following section offers answers to the research questions from data collected during Meredith's interview.

Sub-question 1: In what ways did Teaching Lab's inquiry cycle professional learning model change the teachers' instructional practice? Prior to attending Teaching Lab's professional learning on the ELA Guidebooks curriculum, Meredith used rubrics in a traditional manner, assessing her students' writing and assigning a numerical value for each category for the purpose of allotting a grade for the gradebook. After the professional learning, however, Meredith used the writing rubric as instructional decision-making tool rather than only to assess student work for grading purposes. She also used the Reader's Circles to create text-dependent questions that scaffold students who need additional support with complex texts. Using the Reader's Circles allowed her to create a clear and intentional series of scaffolded questions designed to support and guide her students through a complex text.

Sub-question 2: What characteristics of Teaching Lab's professional learning sequence are different from "traditional" professional development? First, Teaching Lab offered more collaboration during the professional learning experience and used common tools differently, as instructional decision-makers and planning documents, rather than grade book pieces. Second, the inquiry cycle structure allowed more time and collaboration for Meredith and her peers, while keeping the focus of their learning on student academic success. Third, Teaching Lab's professional learning model focused on deepening Meredith's pedagogical content knowledge specifically related to implementation of the ELA Guidebooks curriculum, rather than focusing solely on subject-matter content knowledge.

Sub-question 3: What role did these characteristics play in the teachers' learning during the professional learning sequence? Collaboration allowed Meredith to spend more time learning alongside other teachers, most of whom she would not have gotten to know apart from this professional learning experience. Meredith referenced specific teachers and named how her relationships with those teachers continued after the professional learning series. These continued relationships have allowed Meredith to build both her self-efficacy and the collective efficacy of the group of teachers with whom she continues to learn. Additionally, Meredith's use of the rubric as a tool for making instructional decisions improved her ability to scaffold student learning in small group settings.

Sub-question 4: In what ways did this professional learning model impact student academic success? Meredith reports that her students have demonstrated an increased ability to find evidence that supports their assertions when answering text-dependent questions about a complex text. Students have also shown growth in their writing abilities with both narrative and expository prompts. Finally, Meredith's students have demonstrated a greater depth of knowledge of the topics they study in the ELA Guidebooks curriculum.

Primary Research Question: What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?

Teaching Lab provided the research base that Meredith needed to understand the science behind reading instruction. Additionally, Teaching Lab increased Meredith's pedagogical content knowledge for implementing the ELA Guidebooks curriculum. Furthermore,

Teaching Lab’s demonstration of using the writing rubric as a tool for making instructional decisions played a significant role in Meredith’s learning during the professional learning sequence.

Summary of Meredith

Meredith has been an advocate of high-quality standards and curriculum for most of her career. She has deliberately sought opportunities to increase her knowledge and skills as a teacher and share her learning with other teachers. Meredith immediately embraced Teaching Lab’s professional learning model, believing that it would help her elevate her instructional practice and positively affect her students.

Sarah, Pelican Parish

Sarah’s passion for ELA instruction led her into a role as a teacher. Shortly after graduating from college with a bachelor’s degree in psychology, she began to substitute teach in the district where she lived. She then entered an alternative certification program and took a position as a sixth-grade teacher in Cypress Parish, where she taught for five years. In the summer of 2020, Sarah moved to her current school to teach eighth grade in Pelican Parish. During her first year in Cypress Parish, Sarah was given the EngageNY English language arts curriculum and told, “This is what you do; here is all your stuff; and have a good day.” Sarah described that first year as “really hectic,” but also said she was grateful for it because it taught her to dig deeper:

I dug into the standards at a deeper level. I spent hours upon hours late into the middle of the night every night really digging into the standards which led me to a love of the standards and of curriculum.

Sarah's love of the standards and curriculum led her to doing work at the district level. As a district teacher leader, Sarah was selected to attend the ELA content leader training its first year in 2017. She continued to work at the district level, training other teachers with her new learning and ended the year with some of the highest ELA scores in the parish on the students' end-of-year standardized LEAP assessment.

Since moving to Pelican Parish at the beginning of the 2020–2021 school year, Sarah said she was still working on building trust with her new school-level team and district leaders.

Even with all of the knowledge I learned at content leader training, I'm not really able to implement in the way that I know can help students because I don't have that level of trust gained yet with this district. I'm at a point in my teaching career with have all this knowledge of how the Guidebooks work, how they're put together, how the lessons and sections build off of each other. I have all this knowledge, and a deep understanding, but I don't yet feel like I can use my knowledge effectively because I have to comply with district policies that may or may not directly align to what I know to be true.

Sarah continued to explain that she shared much of her knowledge and understanding with other teachers on her grade-level team during her common planning time. While she admitted that this time was not always spent on the most effective types of professional learning, she tried to steer her peer teachers toward strategies that support students who may be struggling.

Sarah's Analysis According to the Theoretical Framework

After conducting Sarah's interview, the researcher analyzed the data using the theoretical framework. Each level of Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation was applied. The following section presents Sarah's data through the lens of the framework.

Level 1: Participant satisfaction. Sarah emphasized the importance of a facilitator having a deep understanding of both the content and the process with which they were asking teachers to engage. “Not only can they explain their knowledge,” she explained, “but have they actually lived it? Have they taught this curriculum, and have they done what they are asking me to do?”

Sarah admitted that she “questioned everything during [Teaching Lab’s] process,” wondering if it was going to be relevant to her classroom:

I was frustrated the first two or three sessions. I didn’t want to be the student. I didn’t feel like the tasks and materials addressed the objectives. And I couldn’t see how I could use any of this with my students. But at the end of the first cycle [of inquiry], it made more sense. It took some time to understand, but I was finally able to see how the learning fit together. It truly did give me a deeper level of understanding when it came to how the Guidebooks were developed and a deeper understanding of what it means to say ‘close reading.’ I got a deeper knowledge and understanding of all the working parts and the why and how behind the bigger ideas. Once I understood all of that, the information became much more applicable to my students and I could see how I could use this knowledge to improve my instructional practice.

Eventually, when Sarah began to see the benefits of professional learning in her classroom, she was much more open to changing her instructional practices. She acknowledged that her pedagogical content knowledge of the ELA Guidebooks curriculum began to deepen and with that deeper knowledge came more intentional instructional decisions.

Level 2: Participant learning. Sarah began her recollection of her learning by naming the Instructional Shifts of Literacy. She explained that while she had seen them before, during her professional learning experience with Teaching Lab, she developed a deeper understanding of all the components of literacy that went into designing the ELA Guidebooks and its instructional philosophy. When discussing the shift of knowledge,

Sarah identified a turning point in her professional learning experience. She explained that the knowledge-building experiential was revolutionary to how she thought about reading instruction. Sarah said:

After the By-Catch experiential, I felt like I fully grasped the Guidebooks approach to building knowledge. That session helped connect a few dots in how the curriculum interacts and how it is presented to students.

Even though this new learning was pivotal for Sarah, she admitted that she was still confused with the level of complexity of the texts presented to students, calling the text complexity levels “frustrating for students, and for me.” Sarah then said that she hoped to learn more about the science and reasoning behind the high levels of complexity so she could better understand how to scaffold for her students’ needs.

Sarah expressed dissatisfaction with the training until the inquiry cycles started. She asserted, “deeper into the cycle, I began to see [student learning] visible in my classroom,” which made the training more relevant, and therefore, more valuable to her. Sarah also said that a shift happened as she began to build relationships with other teachers in her cohort. She described one relationship she was able to build with a district leader during the training. Even though she since changed districts, she still had a strong working relationship with the district leader and felt like the cohort model helped foster and strengthen that relationship.

Level 3: Organizational support and change. Sarah experienced a large amount of district support while teaching in Cypress Parish, where she received the training, but minimal support in Pelican Parish, her current district.

In [Cypress Parish], I had a voice with the district administrators. They trusted my opinion with feedback on a unit, resources that addressed specific problems, and being a voice of reason to address other teachers’ mindsets. But here in [Pelican

Parish], the leaders did not go through the training with the teachers. The response time is slower when I have a question and sometimes the questions are met with hostility. I feel like before the leaders really understood the training and were on-board. Here, it feels more like they are redelivering the training from a point of view of doing because they were told to do it, not really because they have lived it.

Sarah expressed frustration over the lack of support in Pelican Parish. She also stated the concern she felt for students because she did not feel supported in her implementation of the ELA Guidebooks curriculum. Guskey (2002) asserted, “Lack of organizational support and change can sabotage any professional development effort, even when all the individual aspects of the professional development are done right” (p. 6). Sarah’s experience aligned with Guskey’s assertion, causing her to experience dissatisfaction with parts of the training due to the lack of support she felt. She also expressed that the difference in school support has made a “huge difference” in student outcomes.

Level 4: Participant’s use of new knowledge and skills. Sarah began by saying, “Now I spend more time on background knowledge of the topic or subject and less time expressly reaching a skill set that they practice.” She gave an example from the ELA Guidebooks unit “Flowers for Algernon,” explaining that she spent a great amount of time throughout the unit building students’ knowledge of IQ and psychology. Sarah explained that the open communication among the teachers in her cohort helped her gain true insight from the people who have knowledge and practice implementing the ELA Guidebooks curriculum with this mindset of a text-based curriculum that builds knowledge.

Level 5: Student learning outcomes. Sarah was hopeful about her students’ learning in Pelican Parish, where she taught during this study. She said, at Cypress

Parish, where she taught when she initially received her training, there were too many competing initiatives at the school level, and it had a negative effect on students. For the current research study, Sarah's perspectives on her students' learning outcomes were inconclusive.

Sarah's Analysis According to the Research Questions

First, Sarah's data was analyzed using Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation was applied. Then, the researcher sought to answer the research questions. The following section offers answers to the research questions from data collected during Sarah's interview.

Sub-question 1: In what ways did Teaching Lab's inquiry cycle professional learning model change the teachers' instructional practice? Teaching Lab increased Sarah's content knowledge of the Instructional Shifts of Literacy and her pedagogical content knowledge of how those shifts are embedded in the ELA Guidebooks curriculum. Sarah has shifted her mindset on the importance of building students' knowledge rather than focusing on individual reading standards and skills. Sarah also adapted her instructional practice to include a more robust planning routine that includes reading all the texts for a unit before beginning to plan for the unit. Reading through each of the texts allows her to identify the complexities within each text and plan scaffolds for them. Furthermore, she can identify connections across the texts that are designed to deepen students' knowledge of the topic of study during the unit.

Sub-question 2: What characteristics of Teaching Lab's professional learning sequence are different from "traditional" professional development? The inquiry cycle

structure and the use of a boot camp to build participants' knowledge of the research and science of teaching reading were different than what Sarah had experienced before with traditional professional development. The boot camp was "intense" but allowed Sarah to deeply connect with the research behind the ELA Guidebooks curriculum. During the boot camp, she learned how to break down each unit and lesson, developing a deeper pedagogical content knowledge of the curriculum and its components.

Sub-question 3: What role did these characteristics play in the teachers' learning during the professional learning sequence? Sarah attributed much of her learning to the collaboration built into the learning and the relationships she built with other teachers in her cohort. During the interview, Sarah mentioned how much she appreciated the open communication among the teachers in her cohort. She asserted that each offered individual insights from their knowledge and practice that had a positive effect on her learning.

Sub-question 4: In what ways did this professional learning model impact student academic success? Sarah was unsure of the impact the learning had on her students. Before receiving the data from her students end-of-year assessments, Sarah transferred to a different district. She is hopeful that her students this year will show growth from her improved planning and data analysis procedures.

Primary Research Question: What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?

Teaching Lab provided the time, structure, and knowledge necessary to change Sarah's instructional practices. The extensive time spent on Teaching Lab's professional learning

across the school year was crucial for Sarah to develop the deep connections she formed with her colleagues. The collaborative inquiry cycle structure encouraged Sarah to work with her colleagues to analyze the evidence of their students' learning. Moreover, Teaching Lab's professional learning deepened Sarah's knowledge of the Instructional Shifts of Literacy and her pedagogical content knowledge of the ELA Guidebooks curriculum.

Summary of Sarah

Although skeptical at first, Sarah viewed her experience with Teaching Lab positively and looked forward to more professional learning with them. She continued to grow her knowledge so that she could continue to improve her instructional practice and share her learning with other teachers in her building during their common planning times. Sarah hoped that she could have an impact in Pelican Parish, just as she did in Cypress Parish before. Sarah's case is the last of the four cases. The following section summarizes the findings that were revealed in a cross-case analysis.

Cross-Case Analysis

The researcher primarily sought to answer the question: In what ways did Teaching Lab's inquiry cycle professional learning model change the teachers' instructional practice? To investigate teachers' experiences with Teaching Lab's professional learning model and answer the primary research question, the researcher used the following four sub-questions to guide the research:

1. What characteristics of Teaching Lab's professional learning sequence are different from "traditional" professional development?
2. What role did these characteristics play in the teachers' learning during the professional learning sequence?

3. What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?
4. In what ways did this professional learning model impact student academic success?

Each of the four participants answered the interview questions and submitted artifacts that demonstrated their learning during Teaching Lab's seven-day professional learning sequence on implementing the ELA Guidebooks curriculum. The researcher analyzed the interviews and artifacts individually before employing a constant comparative process to identify emerging themes across cases. The following section describes the themes that emerged during the cross-case analysis.

Emerging Themes by Research Questions

All the participants shared experiences that aligned with common themes that answered the research questions. The cross-case analysis revealed four primary themes that emerged across participants' data. These themes included building students' knowledge, inquiry cycles, collaboration, and deepening teachers' pedagogical content knowledge.

Building students' knowledge. An emerging theme across the cases is that of building students' knowledge. All four participants referenced this explicitly during their interviews, even though they offered varied perspectives on building students' knowledge in their classrooms. During the boot camp portion of Teaching Lab's training, teachers learn about a seminal study in literacy called the "Baseball Study" (Recht & Leslie, 1988) and engage in an experiential designed to simulate what happens when students read a text and do not have sufficient knowledge to access the complexity of the text they are reading. A synopsis of this experiential, known as the "Pacific By-Catch Experiential,"

can be found in Appendix D. Teaching Lab's use of the By-Catch Experiential became a pivotal point for participants in both deepening their understanding of English language arts instruction and altering their mindset toward the needs of diverse learners in their classrooms. Three of the four participants in this study cited this experiential as a turning point in their learning during the professional learning experience. Jade, Meredith, and Sarah cited this pivotal shift in their thinking about students' access to complex texts. Until this point in the training, participants were still skeptical of the methodology Teaching Lab was presenting. However, after engagement in the experiential, they each had a better understanding of their students' struggles, particularly those with gaps in their learning or limited background knowledge.

Inquiry cycles. The inquiry cycle structure was named as an important characteristic of Teaching Lab's professional learning that set it apart from traditional teacher professional development. Through their interviews, the group's consensus was that inquiry cycles provided the mechanism that enabled them to try new strategies in a low-risk environment and dig deeply into their students' work samples as evidence of student learning. The structure allowed teachers to try out new instructional strategies in their classrooms while keeping the focus of those strategies on student learning. In addition to the structure of implementing new strategies and analyzing student learning in response to the instruction, participants noted the time committed to the professional learning series as a unique attribute of Teaching Lab's professional learning experience.

Collaboration. Three of the four participants directly referenced collaboration as a key factor in their learning. Each participant referenced working with their cohort or

other teachers in their school, district, or the state as an important factor in their learning. All four participants also discussed the structure of the inquiry cycle as a mechanism that supported their learning. Participants developed relationships with other teachers and leaders in and across districts and grade-levels within Louisiana. These relationships served to build teachers' collective efficacy. Furthermore, the cohort model allowed participants to spend time learning alongside, from, and with other teachers in their school and district, or in their grade level across schools or districts.

Deepening teachers' pedagogical content knowledge. Unanimously, participants indicated Teaching Lab increased their English language arts content knowledge and their pedagogical content knowledge of teaching the ELA Guidebooks curriculum. Each participant cited different aspects of their pedagogical content knowledge including fluency instruction, direct vocabulary instruction, the importance of building knowledge as part of the Guidebooks curriculum, and the connection between writing prompts and students' understanding of the complex texts within each unit. This deepened pedagogical content knowledge allowed the participants to choose scaffolds and prioritize instruction more intentionally when planning their lessons. Furthermore, participants reported more efficiency in their instructional delivery of the Guidebooks content because they were able to better internalize the lessons during the planning phase. Participants attributed this internalization and efficient planning to the deeper understanding of both ELA content and the specific design and features of the Guidebooks curriculum.

Emerging Themes Through Framework Analysis

The theoretical framework guiding the data analysis was Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation. This framework was beneficial for evaluating teachers' perceptions of the effectiveness of Teaching Lab's inquiry cycle model of professional learning because it is a hierarchy that begins with participant satisfaction of the training and progress through five stages, or phases, ending with the impact of student learning. The goal of all teacher professional learning is not only to increase teachers' content knowledge and pedagogical content knowledge but for this increase in teacher learning to have a positive effect on student outcomes (Ball & Cohen, 1999; Darling-Hammond, 2000). These outcomes are usually academic in nature and can include positive changes in students' attitudes, mindsets, and beliefs or their affect (Boser et al., 2015; Hirsh, 2017; Weiner & Pimentel, 2017).

The emerging themes are presented in a cross-case analysis of the data from all four participants according to the five levels of Guskey's (2000, 2002a, 2002b, 2016) framework. First, themes around participant satisfaction are discussed. Second, participants' learning is presented. Third, this section examines themes that emerged around organizational support. Fourth, the themes that emerged from participants' use of their new knowledge and skills are analyzed. Finally, teachers' perceptions of the impact of student learning are discussed.

Level 1: Participants' Satisfaction

When considering participants' satisfaction with a professional learning experience, it is important to consider the content, the process, and the context (Guskey, 2000). Content considerations include "relevance, utility, and timeliness of the topics

explored” but can also include the “magnitude, scope, credibility, and practicality of the change required to implement this new knowledge” (Guskey, 2000, p. 95). Product considerations “relate to the conduct and organization” (Guskey, 2000, p. 95) of the professional learning experience, such as questions about the facilitator and the use of participants’ time. Context usually considers the physical setting of the experience (Guskey, 2000). Here, it is essential that leaders and facilitators consider lighting, participant comfort, and refreshments because attending to teachers’ basic human needs is an important first step in creating an effective professional learning experience.

To learn more about their satisfaction with the professional learning experience, the researcher prompted participants by saying, “Tell me about your professional development experience.” Follow-up questions included probes about participants’ worst and best professional development experiences. The two themes that emerged from this level were: knowledge and engagement of the facilitator and relevance on the content.

Knowledge and engagement of the facilitator. The knowledge and engagement of the facilitator formed one of the overarching themes that led to participants rating a professional learning experience as effective or discussing it as a positive experience. All four participants mentioned the knowledge of the facilitator and relevance of the information to their context as primary factors in a satisfying professional learning experience. Participants emphasized that their experience with the Teaching Lab facilitators was unique because they felt the facilitators had a deep understanding of the content and the process from doing the work in their own classrooms.

Relevance of the content. In addition to facilitator expertise and engagement, all four participants discussed relevance to their students and their context as a primary reason that a professional learning experience is satisfying. Although Jade admitted that initially she did not find relevance in the theoretical research Teaching Lab presented during the boot camp, the By-Catch Experiential (Appendix D) changed her reaction. All four participants indicated that moving deeper into the inquiry cycles made their learning visible in their classrooms because they were testing the instructional strategies and analyzing their students' learning. Making instructional decisions for their classrooms and reviewing evidence of their students' learning made the content authentic and tangible, increasing their satisfaction with the time spent on the professional learning sequence.

Level 2: Participants' Learning

Once participants are having a positive learning experience, documenting their learning is essential. The second theme that emerged in this level of Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation framework is that of inquiry cycles as a structure that supported participants. During questioning at Level of the framework, participants' answers focused on collaboration, inquiry cycles, and deepening their content knowledge and pedagogical content knowledge, as presented previously in the cross-case analysis by research question. Each of these three themes pointed to the collaborative inquiry cycle structure as a means of effective professional learning. Participants were able to deepen their pedagogical content knowledge through the Pacific By-Catch Experiential, implement new instructional

strategies while feeling supported in the process, and develop relationships with other teachers and school and district leaders.

Level 3: Organizational Support and Change

Participants in this study all taught and received their training in the state of Louisiana. However, each participant presented a unique perspective because they all taught in different districts across the state. When asked about organizational support, participants' responses did not present a consensus on how much support they received or their perceived impact of that support. Their varied perspectives at this level indicate that organizational support plays an essential role in changing teachers' instructional practice. Allysia, who felt very supported by her district, reported positive effects on instructional practice and student outcomes. Sarah, who does not feel supported by her district, identified more areas of struggle in her instructional decision-making and fewer gains in her students' achievement.

Level 4: Participants' Use of New Knowledge and Skill

This level of Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation framework seeks to answer the question, "Did the new knowledge and skills that participants learned make a difference in their professional practice?" (Guskey, 2016, p. 35). Guskey (2000) asserted that the most accurate information at this level is gleaned from observations of teachers in their classrooms. However, a limitation of the current research was the lack of observation data due to COVID-19 restrictions, so the researcher relied on participant submissions of artifacts such as observation reports, lesson plans, notes from the professional learning experience,

and student work samples. Guskey (2000) offered another important caveat that implementation of new knowledge and skills is a gradual process that is often uneven and requires time to pass after the professional learning experience. Therefore, data at this level of the framework change over time as teachers continue to implement new knowledge and skills or fail to implement new knowledge and skills. Jade, Meredith, and Allysia all discussed how they support students by scaffolding students' learning.

Level 5: Student Learning Outcomes

While the focus on student learning outcomes generally focuses on gains in academic measures, student learning outcomes can include cognitive, affective, or psychomotor outcomes (Guskey, 2000). The question to answer in level five of Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation is whether the teachers' learning "benefited students in any way" (Guskey, 2000, p. 207). Three of the four participants depicted positive effects on student achievement as a result of their professional learning. Allysia, Jade, and Meredith all discussed gains in student learning as they learned additional scaffolds and supports embedded as part of the ELA Guidebooks curriculum. Sarah's perspective offered inconclusive data, as she changed districts after her professional learning experience with Teaching Lab.

Conclusion of Themes by Framework Analysis

Using Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation to analyze the qualitative data allowed the researcher to illuminate teachers' perspectives across a hierarchy of data analysis and identify emerging themes across the cases. First, the data indicate that teachers' overall satisfaction with the professional learning experience increased after the boot camp when

teachers began to analyze their students' work during the inquiry cycles. Second, participants reported that the building knowledge experiential, inquiry cycle structure, and collaboration were essential in causing changes in their mindsets and instructional practices. Third, participants' experiences indicated that organizational support was crucial to their success in implementing new knowledge and skills in their classrooms. Fourth, participants noted the shift in their practice to support students and scaffold their learning using text-dependent questioning. Fifth, participants reported positive effects on student learning outcomes as a result of the collaborative inquiry cycle process and the support they received from the inquiry cycle structure as they implemented new pedagogical content knowledge and instructional practice skills with their students.

Discussion

The purpose of this instrumental, multiple case study was to explore teachers' perceptions of the effectiveness of Teaching Lab's inquiry cycle model professional learning experience. The research questions in this study were designed to explore the characteristics of Teaching Lab's teacher professional learning that were different from traditional teacher professional development, what role those characteristics played in teachers' learning, and what role Teaching Lab played in providing both instruction and support for teachers as they implemented the ELA Guidebooks curriculum. This discussion interprets the data collected from all four participants by answering each research question.

Interpretation of the Data

In this discussion, the data will be interpreted according to the research questions. First, each sub-question will be addressed:

1. What characteristics of Teaching Lab’s professional learning sequence are different from “traditional” professional development?
2. What role did these characteristics play in the teachers’ learning during the professional learning sequence?
3. What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?

Finally, the researcher will address the primary research question: In what ways did Teaching Lab’s inquiry cycle professional learning model change the teachers’ instructional practice?

Sub-question 1: In what ways did Teaching Lab’s inquiry cycle professional learning model change the teachers’ instructional practice? Teaching Lab’s inquiry cycle professional learning model increased teachers’ English language arts content knowledge and their pedagogical content knowledge related to implementing the ELA Guidebooks curriculum. Additionally, the professional learning sequence caused teachers to spend more time analyzing student work as a mechanism for making more intentional instructional decisions. Teachers learned to utilize a rubric for making instructional decisions, rather than the traditional use of assessing a piece of writing to assign a grade. Finally, teachers learned how to ask scaffolding questions using the Reader’s Circles as a tool within the ELA Guidebooks curriculum.

Sub-question 2: What characteristics of Teaching Lab’s professional learning sequence are different from “traditional” professional development? Participants in this study identified several characteristics of Teaching Lab’s professional learning experiences that differed from traditional professional development. One-time, “sit-and-get” experiences with minimal support or follow-through characterized traditional teacher

professional development. Participants in this study also cited that traditional learning experiences may or may not be relevant to their classroom context, even though they are often required by school or district administrators. Teaching Lab's professional learning experiences are grounded in inquiry cycles, which require teachers to implement new knowledge and skills and then analyze students' work samples as evidence of their implementation.

Sub-question 3: What role did these characteristics play in the teachers' learning during the professional learning sequence? Participants in this study reported that the inquiry cycle structure provided them the support needed to try out new knowledge and skills with their students in a low-risk environment. They also noted that the collaborative nature of the inquiry cycle model was beneficial to their learning and growth over the course of the learning sequence. Participants reported that the sustained time spent on a single topic such as close reading or writing was paramount in deepening their pedagogical content knowledge in literacy, especially as that knowledge relates to instructing students using the ELA Guidebooks curriculum.

Sub-question 4: In what ways did this professional learning model impact student academic success? Three of the four participants in this study indicated increased student learning. The two primary areas of improvement for students were understanding complex text and writing. Teaching Lab's inquiry cycle model of teacher professional learning increased participants' pedagogical content knowledge of the ELA Guidebooks curriculum and supported teachers as they implemented strategies that transferred their learning into increased student achievement.

Primary Research Question: What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum?

Teaching Lab provided the time, structure, and pedagogical content knowledge necessary for teachers to deeply engage in the work of analyzing their instructional practice and making adjustments that increased student learning. The head, heart, habits model was integral to teachers' learning, and that learning transferring to student achievement.

Summary of Significant Findings

This research study used a robust data analysis process, including analyzing individual cases according to Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation theoretical framework and the research questions followed by cross-case analysis using the same framework and research questions. Many themes emerged throughout the data analysis process. While five themes emerged across the cases, a summary of the significant findings offers three essential findings from the research:

Finding 1—*inquiry cycles provided the time and structure needed for participants to feel supported as they implemented the ELA Guidebooks curriculum.*

Finding 2—*collaboration was essential for participants' learning.*

Finding 3—*participants deepened both their content knowledge and pedagogical content knowledge across the professional learning experience which translated into favorable student learning outcomes.*

These findings align with current scholarship on effective teacher professional learning.

The following section examines these findings in more detail as they connect to the literature.

Summary of Literature Review Connections

As part of the data analysis, it is important to consider the findings of this research regarding the literature review. A thorough review of the current scholarship on the topic of effective teacher professional learning yielded four essential characteristics: a content-specific focus during the professional learning experience, active participation strategies that target the needs of adult learners, sustained duration on a single topic or problem of practice across the school year, and job-embedded time devoted to the learning. The current research confirmed much of the previous literature regarding effective professional learning. The following section of this chapter summarizes the connections between the literature review and the current research. Table 4 follows the discussion and provides a visual of the literature that was supported with the findings from the current research.

Content-specific focus. Teaching Lab's professional learning experience focused on deepening participants' English language arts content knowledge and pedagogical content knowledge to implement the ELA Guidebooks curriculum. This focus allowed participants to delve deeply into the science of reading instruction and apply that knowledge to make instructional decisions. A review of the literature revealed that teachers need professional learning that simultaneously builds their subject-matter knowledge and intentionally focuses on the pedagogical content knowledge to teach their high-quality curriculum (Darling-Hammond et al., 2017; Weiner & Pimentel, 2017). The data from the current research affirms this assertion from the scholarly literature.

Active participation strategies. A review of the scholarship on effective teacher professional learning showed that learning is iterative, and teachers need to engage in active participation strategies that address their unique needs as adult learners (Darling-Hammond et al., 2017; Desimone, 2009; Guskey, 1999; Kolb, 1984). Collaboration is an active participation strategy that all four participants in the present research identified as essential to their learning throughout Teaching Lab’s professional learning experience. Furthermore, the collaborative nature of the professional learning experience encouraged participants to build trusting relationships with other teachers in their cohorts, increasing the collective efficacy of those teachers, which research has shown to have positive effects on students (Leana, 2011; Leana & Pil, 2006).

Sustained duration on a single topic or problem of practice. Traditional professional development is well-known for single-day, workshop-style instruction for teachers. However, Teaching Lab’s professional learning experience utilizes current research on effective professional learning and offers sustained duration on a single topic across the school year (Guskey & Yoon, 2009; Timperley et al., 2017; Wayne et al., 2008; Yoon et al., 2007). In this case, the single topic of focus for Teaching Lab’s professional learning experience was implementing the ELA Guidebooks curriculum and supporting the literature concerning time and duration of effective professional learning experiences. This study did not support one literature review source. Scher and O’Reilly (2009) conducted a meta-analysis of math and science interventions that spanned either one school year or multiple school years. Because the current study did not span multiple school years, the current research could not verify the literature.

Job-embedded time. The literature on effective professional learning indicated that teachers should engage in the learning experiences during their regular school day (Boser et al., 2015; Darling-Hammond, 2000; Holloway, 2006). The current research affirmed the benefit of job-embedded professional learning. Participants stressed the importance of spending their regular school hours engaging in the professional learning experience so they could focus on the tasks and the learning as part of the job responsibilities and not in addition to those responsibilities.

Table 4

Relationship Connections: Literature Review and Findings

Topic	Literature	Findings supported by the literature	Findings not supported by the literature
Content-specific focus	(Weiner & Pimentel, 2017)	+	
	(Darling-Hammond et al., 2017)	+	
Active participation strategies	(Desimone, 2009)	+	
	(Guskey 1997)	+	
	(Guskey, 1999)	+	
	(Darling-Hammond et al., 2017)	+	
Sustained duration on a single topic or problem of practice	(Kolb, 1984)	+	
	(Yoon et al., 2007)	+	
	(Scher & O'Reilly, 2009)		-
	(Timperley et al., 2017)	+	
	(Wayne et al., 2008)	+	
Job-Embedded Time	(Guskey & Yoon, 2009)	+	
	(Boser et al., 2015)	+	
	(Holloway, 2006)	+	
	(Darling-Hammond, 2000)	+	

The remaining sections of Chapter Four provide a summary of connections with Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development

Evaluation and implications of the data on the current and future educational landscape. Chapter Four concludes with a summary of the most salient findings from the research.

Summary of Theoretical Framework Connections

As part of the data analysis, it is also important to consider the findings of this research regarding the theoretical framework. The purpose of this study was to gain a deeper understanding of teachers' perspectives of Teaching Lab's inquiry cycle model of teacher professional learning. The research questions were designed to gather details and insights into participants' reactions, learning, and use of new knowledge and skills as they impacted students' learning outcomes and academic achievement. The researcher employed Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation as a theoretical framework to provide focus and organization to the research design and data analysis procedures. Through participant interviews and an artifact review, themes emerged at the various levels of the framework that aligned with the research questions and previous scholarship. Figure 12 provides an overview of the themes that emerged at each level of Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation.

First, participants' reactions to Teaching Lab's teacher professional learning sequence were favorable. Guskey (2000) asserts that participants tend to favor content that is practical and addresses specific problems the teachers face in their contexts with readily implementable solutions relevant to students' needs. The data from this study showed that participants aligned with Guskey's (2000) assertion. They cited the relevance of the content and the knowledge and engagement of the facilitator as two important reasons that they responded favorably to the learning

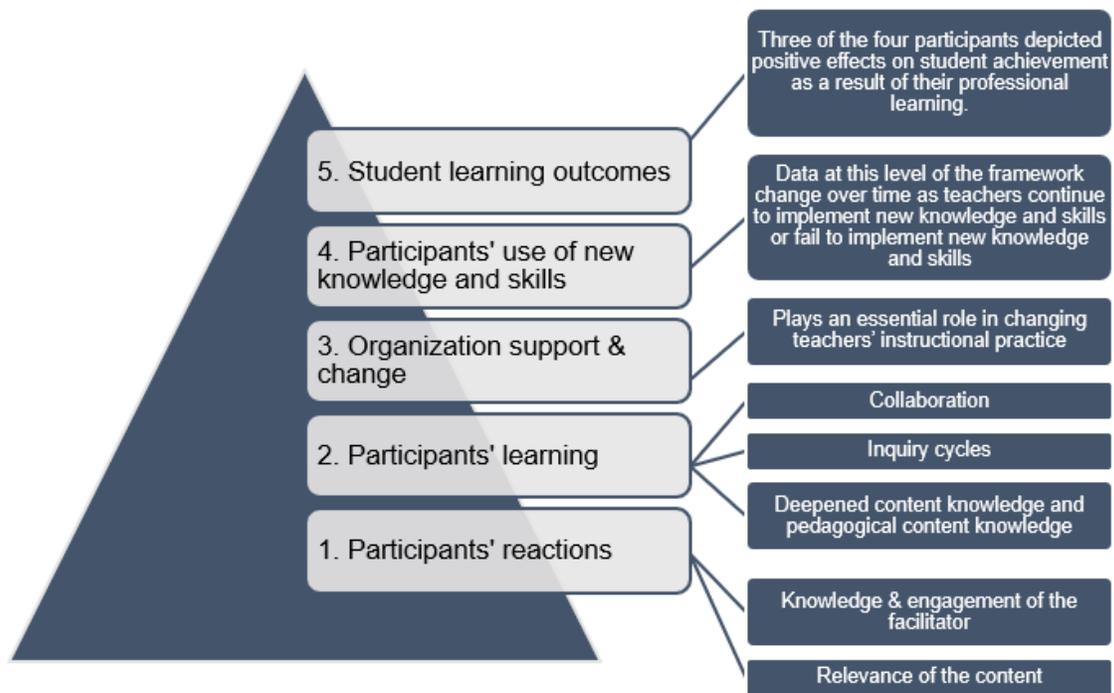


Figure 12. Summary of connections with the theoretical framework.

Participants noted three key characteristics of Teaching Lab’s professional learning model that impacted their learning: collaboration, inquiry cycles, and a focus on developing pedagogical content knowledge. First, collaboration encouraged the participants to work with other teachers within and across their schools, districts, and grade-levels. Deepening these working relationships with other teachers elevated the participants’ self-efficacy and the collective efficacy of the cohort with whom they were learning. Collaboration also encouraged more processing time for participants to work with other teachers they regarded as experts in the field when analyzing student data together. Second, inquiry cycles provided a supportive structure for teachers to take small risks that improved their instructional practice. By nature, inquiry cycles take time to complete. So, participants noted that the amount of time spent on the learning across the school year was beneficial to their learning as well. Third, the professional learning

focused on deepening teachers' pedagogical content knowledge of the ELA Guidebooks curriculum. Participants indicated that this focus increased their understanding of the components of the curriculum and elevated their confidence in implementing appropriate scaffolds that would support student learning.

Guskey asserts that teacher learning and organizational support are reciprocal in nature. He posits, "unless individual learning and organizational changed are addressed simultaneously and support one another, the gains made in one area may be canceled by continuing problems in the other" (Guskey, 2000, p. 149). Participants' data in the present study aligned with this assertion. Allyisia and Jade had strong organizational support and reported that their students showed strong improvements in English language arts. Meredith had mediocre organizational support and indicated that her students had shown gains in their learning, but not to the extent that Allyisia and Jade expressed. Sarah, with the least amount of organizational support, showed inconclusive student achievement results. The current study demonstrates the need for strong organizational support aligned with teacher professional learning.

All four participants reported gains in their English language arts content knowledge and their pedagogical content knowledge in relation to the ELA Guidebooks curriculum. Guskey (2000) suggests that this level of the Five Critical Levels of Professional Development Evaluation framework answers one central question, "Did participants incorporate the new knowledge and skills into practice?" (p. 182). To answer this question, the researcher examined the data for changes in participants' professional behaviors or activities. Each participant suggested ways in which her instructional practice changed including planning, student evaluation, and focusing instruction on the

text rather than skills. But the most important theme at this level is the variability of the data in the future. The data will continue to change as teachers continue to practice and implement the knowledge and skills they gained from the professional learning.

Three of the four participants in this study reported positive effects from their learning on student learning. The goal of teacher professional learning is impact on student learning. Data from this study corroborates the data from previous research: collaborative inquiry cycles provided teachers the time, structure, and knowledge to positively impact student academic achievement.

Conclusion

This multiple case study considered the role that Teaching Lab's inquiry cycle professional learning model had on four Louisiana teachers' instructional practice in teaching English language arts through the ELA Guidebooks curriculum. Following a review of the findings from each of the research questions, seven overarching themes emerged from the data. First, participants believed the overall professional learning experience was relevant, and three of them cited the facilitator as a key factor in their satisfaction with the learning. Second, all four participants noted that the relevance of the content to their classroom context and their students' needs was an important characteristic of the professional learning experience. Third, participants reported that learning about the importance of building students' knowledge to increase reading comprehension was essential to deepening their pedagogical content knowledge. Fourth, collaborative inquiry cycles provided the time and structure needed for participants to implement their new knowledge and skills while learning from other teachers in their school, district, or grade level. Fifth, organizational support, or the lack thereof, impacted

teachers' perceptions of their ability to increase student achievement. Sixth, participants perceived a shift in their mindsets as a cause of increased student achievement. These five themes provide insight into teachers' perceptions of Teaching Lab's inquiry cycle professional learning model and create implications for the field of education.

Implications

Teachers are the most influential factor affecting students' academic achievement (Jensen et al., 2016), and teacher professional learning is the mechanism that allows teachers to continually deepen their pedagogical content knowledge and refine their instructional practice (Birman et al., 2000; Guskey & Huberman, 1995; Guskey & Yoon, 2009; Shaha & Ellsworth, 2013). This study explored teachers' perceptions of Teaching Lab's inquiry cycle professional learning model to increase student learning and achievement in English language arts. The findings suggest the following implications and recommendations for utilizing inquiry cycles as a professional learning model and future research. This section is organized according to implications for three stakeholder groups: teachers, school leaders and district administrators, and professional learning designers and decision makers.

Implications for Teachers

Teachers are the driving force of student success (Goldschmidt & Phelps, 2010; Jensen et al., 2016) and professional learning is necessary to prepare teachers for the ever-changing 21st century educational landscape (Birman et al., 2000). Teachers should recognize that teaching "can be studied and improved" (Stigler & Hiebert, 1999) and seek professional learning opportunities that address their learning needs and the needs of their students. The findings in this encourage teacher agency and inspire teachers to advocate

for themselves and each other. This study presents characteristics of effective teacher professional learning. Teachers can use these findings to amplify their voices and perspectives. In alignment with the participants in this study, teachers should advocate for collaborative inquiry cycles and relevant content in their professional learning.

Collaborative inquiry. First, collaborative inquiry cycles provided the time and structure needed for participants to implement their new knowledge and skills while learning from other teachers in their school, district, or grade level. Inquiry cycles should be widely employed as a professional learning method because they provide the time and structure teachers need to implement change. Furthermore, inquiry cycles address the needs of the whole teacher, including their knowledge, attitudes, and mindsets. Collaborative inquiry cycles further address teachers' need to work alongside other teachers in the profession who share similar contexts in their school, district, or grade level. This collaboration reduces the silo effect that most teachers feel when alone in their classrooms instructing students for most of their day. Teachers can use the findings from this study to advocate for both collaboration and inquiry cycles in their professional learning.

Content relevance. Second, all four participants in this study noted that the relevance of the content to their classroom context and their students' needs was an important characteristic of the professional learning experience. So often, professional development is done to teachers rather than for or with teachers (Darling-Hammond, 2000; Desimone, 2009; Guskey, 2002a; Guskey & Yoon, 2009). Merriam and Bierema (2019) posit adult learners seek learning that is relevant to their personal or professional

lives. Participants in this study supported this assertion. They noted that content relevance, once they discovered it during the inquiry cycles, was a motivating factor for their motivation to learn. This study amplified teachers' voices and perceptions of their professional learning. More often, teachers should have a voice in the professional learning they choose to attend to ensure relevance to their unique classroom contexts. Teachers can use this finding to advocate for professional learning that addresses their needs. Other education leaders and stakeholders can use this finding to intentionally seek teachers' voices on content that will address their learning needs and the needs of their students.

Inquiry cycles provided the time and structure needed for deepening participants' pedagogical content knowledge in the ELA Guidebooks. Collaboration was a key component that provided processing time while building the collective efficacy of a given cohort of teachers. Keeping the content of the professional learning relevant to teachers and their students' needs increased participants' motivation to learn and participate in the inquiry cycles. Teachers should advocate that school leaders and district administrators select professional learning initiatives that utilize collaborative inquiry cycles that focus on content relevant to their specific classroom contexts and needs.

Implications for School Leaders and District Administrators

School leaders and district administrators stand to benefit if they listen to teachers' voices on teacher professional learning. Since most teachers will spend a substantial amount of their work time attending professional learning (Gulamhussein, 2013), it is important that school leaders and district administrators choose professional learning initiatives that incorporate teacher professional learning best practices. This

research study illuminated two key implications for school leaders and district administrators: organizational support and a facilitator who is both knowledgeable and engaging.

Organizational support. The first implication for school leaders and district administrators is the importance of organizational support. Organizational support, or the lack thereof, impacted teachers' perceptions of their ability to increase student achievement. Education leaders must learn alongside the teachers they lead. Timperley and colleagues (2017) suggest that education leaders are responsible for setting the vision for their school or district and then building the capacity of their teachers and staff. The organization, and the leaders that run it, can support or sabotage (Guskey, 2002b) professional learning efforts. Participants in this study had varied experiences with organizational support, but the data indicated that organizational support impacted teachers' implementation of knowledge and skills and students' academic achievement. Future studies should be conducted about the importance of organizational support in conjunction with professional learning. Studies that focus on teachers from a single cohort, school, or district may offer distinct perspectives from those in this study across cohorts and districts in their state. Repeating the research with math, science, or other subject-area teachers may also yield insightful results.

Engaging and knowledgeable facilitator. The second implication this study found for school leaders and district administrators is the facilitator is a key factor in participants' satisfaction with the learning. Weiner and Pimentel (2017) suggest facilitators of teacher professional learning should be content experts so they can

“cultivate the teaching expertise in teachers” (p. 14). Participants in this study noted that knowledgeable and engaging facilitation was a key factor in their learning, especially in the early boot camp sessions when they still felt skeptical of the training and of the curriculum. This finding is important for professional learning designers and vendors to understand when planning learning experiences for teachers. Additionally, this finding impacts education leaders, who should choose professional learning partners that are engaging and knowledgeable to facilitate in their schools and districts. Future research should be conducted to investigate the role of the professional learning facilitator regarding participants’ engagement, learning, and transfer of learning to student success.

Teachers in this study were clear: support from their school leaders and district administrators played an important role in their ability to implement the knowledge and skills they gained from Teaching Lab’s professional learning sequence. Additionally, having a knowledgeable and engaging facilitator helped to increase their learning and motivation to participate in the inquiry cycles. School leaders and district administrators should select professional learning initiatives that utilize a knowledgeable and engaging facilitator and offer their support through time, resources, and encouragement to teachers.

Implications for Professional Learning Designers and Decision Makers

Professional learning designers and decision makers are gatekeepers of teacher professional learning. This study presents evidence that collaborative inquiry cycles are an effective model of teacher professional learning that increase teachers’ individual pedagogical content knowledge and collective efficacy, or social capital. Additionally, participants in this study report positive impact on student learning related to professional learning that incorporates collaborative inquiry cycles. Professional learning designers

should implement this model into their professional learning experiences. National, state, and district policymakers should utilize this model when making decisions and setting policies for teacher professional learning requirements.

Participants' mindsets. In addition, participants in this study perceived a shift in their mindsets as a cause of increased student achievement. This finding affirms Chen and McCray's (2012) assertion that "attitudes are closely related to teachers' knowledge acquisition and classroom practice" (p. 9). Professional learning must target more than teachers' knowledge to positively affect their instructional practice and ultimately their students' learning. Teaching Lab's head, heart, and habits model activates the whole teacher in the learning, so that participants address both cognitive and emotional needs in their learning. Future quantitative or mixed-methods studies that utilize quantitative data from students' end-of-year standardized assessments will be necessary. These future studies will need to meet the What Works rigorous research requirements to show correlation and causation between teachers' participation in inquiry cycle model professional learning and increased student performance.

Conclusion and Summary

While it is true that different teachers have different experiences, this study amplified teachers' voices who represented most Teaching Lab participants' experiences. The problem is that traditional professional development is costly and ineffective. The goal of teacher professional learning is to increase teachers' pedagogical content knowledge so that their learning can be transferred into more effective instructional practices that improve student academic outcomes. If education reform in 21st-century America is to achieve its intended outcome of increased student performance, teachers

need time, resources, and structure to effectively learn and implement new knowledge and skills in their instructional practice. This study found that teachers believed that the collaborative inquiry cycle model, grounded in the English language arts curriculum they teach, provided them the structure needed to increase their pedagogical content knowledge and improve learning for their students.

The current research study utilized an instrumental multiple case study design to investigate teachers' perceptions of the effectiveness of Teaching Lab's inquiry cycle model of professional learning. The researcher used purposive sampling to select four Louisiana teachers who attended Teaching Lab's seven-day professional learning series focused on supporting teachers as they implemented the ELA Guidebooks curriculum. Individual interviews and a review of artifacts were conducted to explore teachers' perceptions of inquiry cycles as an effective professional learning model. The study's findings indicated that teachers identified collaboration, relevant content to their teaching contexts, and the inquiry cycle structure to be integral characteristics of the effectiveness of the professional learning sequence.

This study's findings provide insightful implications for professional learning designers, national policymakers, state and district administrators, school leaders, teachers, and Teaching Lab's internal stakeholders. Professional learning partners and national policymakers should utilize inquiry cycles as a model when working with teachers in schools and districts. State, district, and school leaders should seek professional learning partners who implement inquiry cycles for professional learning to support teachers if they seek to see real change in education reform. Teaching Lab should continue to research the effectiveness of their head, heart, and habits model so that they

can communicate their learning to internal stakeholders such as staff, the Board of Directors, and potential funders. Furthermore, identifying the key characteristics that lead to the effectiveness of their model should be shared with the education profession at large to elevate teachers' instructional practice nationally.

This research study sought to answer the question: What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum? The study's findings indicated that Teaching Lab's head, heart, and habits structure was essential to supporting teachers' learning that transferred to student learning by providing time, structure, and pedagogical content knowledge by using inquiry cycles as a professional learning model. Traditional professional development that consists of one-time, "sit-and-get" workshops do not yield the student learning desired by education reform initiatives. This study indicated that effective teacher professional learning utilizing inquiry cycles and collaboration can transform teacher learning that translates to increased student learning. Chapter Five presents an Executive Summary of this study, informed recommendations for various stakeholders, and a proposal for the distribution of the findings from this research.

CHAPTER FIVE

Distribution of Findings

Executive Summary

Research supports that teacher professional learning is one of the most influential factors in teacher quality and student learning (Birman et al., 2000; Goldschmidt & Phelps, 2010; Jensen et al., 2016). However, “traditional” teacher professional development made up of one-time, sit-and-get, workshop-style learning is archaic and ineffective rarely changes teachers’ instructional practices that ultimately impact student achievement and outcomes (Ball & Cohen, 1999; Borko, 2004; Buczynski & Hansen, 2010; Guskey, 1999; Guskey & Huberman, 1995; Guskey & Yoon, 2009; Salinas, 2010). Since billions of dollars are spent annually on professional learning in education (“Teachers know best,” 2014; “Mirage report,” 2015), researchers, educators, and scholars have sought to determine the characteristics of effective teacher professional learning so those characteristics can be implemented in schools and districts across the country. While the literature varies and is still emerging, seven characteristics have proven to be impactful for teacher learning that transfers to student learning. Effective teacher professional learning is content focused (Weiner & Pimentel, 2017), incorporates active learning (Birman et al., 2000), supports collaboration (Birman et al., 2000), uses effective practice (Putman et al., 2009), provides coaching and expert support (King & Newmann, 2000), offers feedback and reflection (Díaz-Maggioli, 2004), and is of sustained duration (Holloway, 2006).

Furthermore, teachers' voices are largely missing from the current scholarship. While much research has been conducted to establish effective teacher professional learning characteristics, rarely are teachers' voices present in the findings. The current research amplified four teachers' voices and their perceptions and experience with Teaching Lab's inquiry cycle model of teacher professional learning.

Overview of the Data Collection and Analysis Procedures

The purpose of the current research study was to explore the effectiveness of Teaching Lab's inquiry cycle teacher professional learning model. To address the various levels of Guskey's (2000, 2002a, 2002b, 2016) framework and amplify teachers' voices in the research, the current study employed an instrumental, multiple case study design. This was the most appropriate design for "exploring and understanding the meaning individuals or groups ascribe to a social or human problem" (Creswell & Creswell, 2018, p. 4). The case in this study was bounded by the state of Louisiana and teachers who attended a seven-day professional learning sequence with Teaching Lab grounded in the ELA Guidebooks curriculum. Participants were selected using purposive sampling across three rounds of examination. To triangulate the data and increase the internal validity, multiple sources of data were collected and analyzed using an In Vivo approach (Creswell, 2013; Yin, 2018). Data sources included questionnaires, individual interviews, and artifacts such as lesson plans, observations, student work samples, and notes from learning sessions. The participants chose the artifacts that were submitted. The researcher then used content analysis (Creswell & Poth, 2018; Heish & Shannon, 2005) to identify common themes across cases. Limitations to this study included restrictions due to COVID-19 mandates. These mandates limited the researcher's ability to interact with

teachers and students in their natural environments; therefore, the researcher relied on participants' submissions of documents and artifacts.

The theoretical framework underpinning this study was Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation. This framework, which typically serves as an evaluation of teacher professional learning for school leaders, district administrators, and professional development practitioners, provides "systemic inquiry to gain new knowledge" about teachers' experiences with a particular professional learning experience. The framework was used to guide all aspects of the research design, including identifying the research questions, selecting participant samples, and developing data collection and analysis procedures. Guskey's five critical levels are hierarchal and organized so that each level builds upon the previous one. The researcher selected this framework to provide evidence of the effectiveness of Teaching Lab's inquiry cycle teacher professional learning model. The evidence presented from the findings of this research will allow Teaching Lab to restructure future programs and activities to facilitate better and more consistent implementation.

Level one of the framework considers teachers' reactions to the learning, including their reaction to the physical space, the facilitator, and the relevance of the content presented. Level two of the framework examines teachers' learning. This level seeks to understand whether teachers met the intended learning outcome of the training. Level three investigates organizational support and change, or whether teachers feel supported in their grade level, school, or district by peers and leaders. The fourth level, and the primary focus of this research, explores teachers' use of the new knowledge and skills. This level of the framework seeks to understand how teachers implement their

learning in planning and delivering instruction using their newfound pedagogical content knowledge. Finally, the fifth level analyzes student learning outcomes. Effective professional learning should produce a transfer of knowledge from teachers to improve students' socioemotional or academic outcomes. This level seeks to identify how students demonstrate increased knowledge or skills because of their teachers' professional learning.

Summary of Key Findings

The current research sought to answer the research question: What role did Teaching Lab play in providing instruction and teacher support on implementing the ELA Guidebooks curriculum? The study's findings indicated that Teaching Lab's head, heart, and habits model was essential to supporting teachers' learning that transferred to student learning. Participants reported that Teaching Lab provided time, structure, and pedagogical content knowledge by using inquiry cycles as a professional learning model that addressed both cognitive and emotional learning needs. Three key findings emerged during data analysis.

Finding 1—Inquiry cycles. First, participants identified inquiry cycles as a structure needed to feel supported as they implemented the ELA Guidebooks curriculum. The inquiry cycle provided the time and structure teachers needed to support implementing new strategies within the ELA Guidebooks curriculum. Specifically, participants identified new learning with the implementation of asking text-dependent questions to scaffold students' access to complex texts. Because of the inquiry cycle model's support, participants could try out a new questioning strategy in a low-risk

environment and seek other teachers' guidance in their cohort as experts in the field. This new learning was more easily transferred to student learning because of the time and support provided to teachers through the inquiry cycle model.

Participants noted that the content of the professional learning experience with Teaching Lab was relevant to their school and classroom context. The participants in this study believed relevance was fundamental in their satisfaction with the experience. Because participants believed the content of the professional learning experience was relevant to their students' needs, they reported feeling more engaged with the content and more eager to implement their new knowledge and skills in their classrooms.

Participants also reported a shift in their mindsets, which they credited to the inquiry cycle model. The model provided sustained time on a single topic or problem of practice and utilized active engagement strategies that addressed teachers' specific needs as adult learners. Participants frequently engaged in reflection exercises independently and collaboratives, allowing them to build trust with other teachers in their cohort and think deeply about their individual and collective instructional practices. Analyzing student work repeatedly during the cycles and seeing growth in student achievement helped to shift their mindsets.

Finding 2—Collaboration. The second key finding was that collaboration is essential for participants' learning. Teaching Lab planned time for teachers to work together during the professional learning experience and inquiry cycles, which provided the structure for reviewing and analyzing student data and reflection on their instructional practices. Collaboration allowed participants to build stronger working relationships with

their colleagues, elevating the group's collective efficacy and deepening the trust teachers felt among others in their cohorts.

Finding 3—Pedagogical content knowledge. The third key finding from the current research was that participants deepened both their content knowledge and pedagogical content knowledge across the professional learning experience, which translated into favorable student learning outcomes. Experientials were utilized as active learning strategies to build participants' knowledge, and participants reported one such experiential was crucial to their understanding of the importance of building knowledge to increase students' reading comprehension. Participants cited these experientials as paramount to their understanding of their students' needs. Because they believed they understood their students' needs better, participants felt more equipped to address those needs with the strategies they gathered during the professional learning experience.

Informed Recommendations

For the reasons outlined in the Summary of Key Findings, the researcher recommends that teacher professional learning incorporates inquiry cycles that address the needs of the whole teacher. Inquiry cycles provide the structure needed to support teachers as they implement new strategies into their instructional practices, but teacher professional learning must address more than teachers' content knowledge. A high-quality curriculum should be the foundation of teacher professional learning. Professional learning must address teachers as whole persons, including their content knowledge, pedagogical content knowledge, attitudes, beliefs, and relationships with other teachers. The goal of teacher professional development is increased student learning outcomes.

Collaborative inquiry cycles that address teachers' robust needs provide the time and structure needed for teachers to practice their new knowledge and skills, elevating their instructional practice and increasing student performance.

At the beginning of this study, a scholarly review of the literature identified costly, ineffective teacher professional development as a problem in the field of education that must be addressed. This research study sought to explore teachers' perspectives of effective professional learning with Teaching Lab. From the key findings, the researcher concluded that teachers need sustained time to investigate a problem of practice and learn new knowledge and skills, a structure to try out the new knowledge and skills in their classrooms with students, and time to collaboratively analyze their student data and reflect on their instructional practice. Teaching Lab's head, heart, and habits inquiry cycle of teacher professional learning addresses these needs and supports teachers to implement changes in their instructional practice that elevate student learning and increase student academic achievement.

Recommendations for professional learning designers and vendors. Design teacher professional learning that addresses the needs of the whole teacher, utilizes collaborative inquiry cycles, and presents content relevant to teachers' contexts and students' needs. Professional learning designers and vendors should ensure that professional learning is of sustained duration on a single topic or problem of practice. Additionally, they should seek to include learning experiences that target the needs of adult learners.

Recommendations for national and state policymakers, district administrators, and school leaders. Select teacher professional learning that utilizes collaborative inquiry cycles and is presented by a knowledgeable and engaging facilitator, and offer support such as time, resources, and encouragement for teachers aligned with professional learning initiatives. This stakeholder group should also plan for and insist that teachers engage in professional learning that is relevant to their specific district, school, and classroom contexts. Furthermore, this group of stakeholders should seek out professional learning vendors that use collaborative inquiry cycles with teachers.

Recommendations for teachers. Amplify their teacher voice and advocate for professional learning that is relevant to their context, addresses their needs as whole-persons, and utilizes collaborative inquiry cycles. Insist that professional learning experiences are presented by knowledgeable facilitators and that the learning is relevant. Moreover, teachers can also monitor their increase in pedagogical content knowledge and improvements in student outcomes to identify which professional learning experiences are the most effective in their classrooms.

Recommendations for Teaching Lab stakeholders. Continue developing teacher professional learning grounded in collaborative inquiry cycles, employing knowledgeable and engaging facilitators, and conducting research that amplifies teachers' voices on their professional learning needs. Teaching Lab stakeholders should regularly seek and analyze teacher feedback to ensure learning experiences are relevant to teachers and continue to deepen teachers' pedagogical content knowledge. Teaching Lab stakeholders

can also utilize the findings from this research to ensure facilitators are knowledgeable and engaging.

Findings Distribution Proposal

Because teacher professional learning is a robust area of education reform (Ball & Cohen, 1999; Darling-Hammond, 2000; Guskey & Yoon, 2009; Hirsh, 2017), multiple audiences will benefit from the findings of this research study. Professional learning designers and vendors can glean information about best practices for effective professional learning and teachers' perspectives. Policymakers and leaders at the national, state, district, and school levels should heed teachers' voices on the matter of teacher professional learning. They should work with teachers to identify teachers' professional needs grounded in students' needs and work to support those needs through effective professional learning that addresses the whole teacher and supports teachers through inquiry cycles. Teachers will benefit from the findings within this research as well. As experts in their field, teachers should feel the agency to advocate for themselves and their professional learning needs, especially as their needs relate to their students' needs.

Professional Learning Designers and Vendors

One primary audience from this research is professional learning designers and vendors. Nonprofit organizations, independent consultants, and corporations could benefit from examining best practices for teacher professional learning, especially those amplified in this research from teachers' perspectives. States, districts, and schools rely on contracted individuals and organizations to disseminate information to teachers aligned with initiatives their institutions have developed. If vendors and professional

learning partners began implementing the characteristics of effective teacher professional learning as outlined here, they could potentially increase teacher content knowledge and pedagogical content knowledge, offer the structure needed to support teachers' successful implementation of the high-quality curriculum and, therefore, transfer their knowledge into instructional policy, and ultimately increase student achievement, which, of course, is the goal of teacher professional learning.

Proposed Distribution Method and Venue

The researcher has identified two primary avenues of distribution to this audience. First, presentation at national conferences is essential for widely disseminating the key findings of this research. Conferences such as Learning Forward's annual conference provide a platform for professional learning partners to offer their guidance and expertise to one another so that this subset of education experts can elevate the teaching profession.

A second distribution method for this audience includes publishing key findings in a book. The researcher has already written a chapter detailing how education leaders can support early career teachers through professional learning that utilizes the inquiry cycle structure. This chapter was published in *Supporting Early Career Teachers with Research-Based Practices* in May 2021.

Distribution Materials

To distribute the findings at a conference, the researcher will create a slide deck and handout that can be used during the presentation. Additionally, the researcher may choose to create a video presentation using the deck so that the presentation can be distributed virtually to multiple conferences or across learning platforms. Additionally,

fundere of teacher professional learning, such as Robin Hood and the Schusterman Foundation, are organizations that support professional learning partners. Providing a video presentation that they can use with the organizations they support may be beneficial for distributing key findings. Furthermore, Teaching Lab may choose to host a webinar, or series of webinars, focused on distributing key findings to sister organizations. The book chapter described above has been received and accepted by the publisher and will be printed in May 2021.

National and State Policymakers, District Administrators, and School Leaders

These stakeholders are responsible for selecting professional development that aligns with school, district, and state initiatives. The current research informs this group so that they can make informed decisions that benefit teachers' learning. Lifting teachers' voices to this group of stakeholders is especially critical. While this group of stakeholders tends to work directly with teachers, they often neglect to elicit teachers' voices in the space of teacher professional learning (Hill, 2009).

Proposed Distribution Method and Venue

To reach this target audience, the researcher plans to present the key findings from the research at academic conferences geared toward this audience. Organizations such as Association for Supervision and Curriculum Development, Learning Forward, and The Learning Accelerator offer national conferences for national, state, district, and school leaders to network with one another and learn about best practices in the field. This audience may also benefit from the chapter described previously in IGI Global's book entitled *Supporting Early Career Teachers with Research-Based Practices*.

Distribution Materials

As with the conferences for professional learning vendors, the researcher will create a slide deck and participant handout to be used at conferences for this target audience. Additionally, for this group of stakeholders, a social media campaign on Twitter may prove to be useful, as well. Key findings will be organized in a series of Tweets and disseminated over a designated period to raise awareness and promote engagement with the research. The social media campaign will lead up to the conference presentations as a means of increasing interest in the topic.

Teachers

While teachers are likely aware of their perceptions of teacher professional development, it is unlikely they are aware of others' perceptions on a large scale. Teaching is largely a siloed career (Molebash et al., 2019), making it difficult for teachers to collaborate on a national or global scale. By distributing the key findings from this research directly to teachers, the researcher hopes to achieve two purposes. First, the researcher intends to validate teachers' perceptions and lived experiences as experts in their field. Second, the researcher hopes to provide teachers with the information they need to advocate for their needs as lifelong learners. Teachers should have the authority to advocate for their own learning. The current research offers evidence of best practices to inform teachers of more effective models of professional learning.

Proposed Distribution Method and Venue

To distribute the research findings directly to teachers, the researcher plans to host a free webinar directly to teachers through Teaching Lab. In addition to the key findings outlined in the research, the researcher plans to include implications for how teachers can

use the information to advocate for their needs as adult learners and educators. With the communication team at Teaching Lab, the researcher will utilize social media channels to increase interest and awareness in the weeks leading up to the webinar. Additionally, a Facebook group will be created on Teaching Lab Facebook page to invite teachers who would like to learn more about the research and teacher agency and advocacy.

Distribution Materials

Materials for this audience will include a slide deck and participant handouts for the webinar. The researcher will also include several short video messages posted via various social media channels to create awareness, interest, and engagement leading up to the webinar.

Teaching Lab Staff, Board of Directors, and Potential Funders

In addition to the external stakeholders listed previously, the researcher plans to present the key findings internally to Teaching Lab staff, the Board of Directors, and possibly to potential funders. In only 4 short years, Teaching Lab has grown from a staff of 3 to one of over 100 employees and consultants. Presenting these key findings will offer a critical look at the work that Teaching Lab does as an organization and serve as a culture-building opportunity for employees.

Proposed Distribution Method and Venue

Findings will initially be presented at one of the bi-weekly “Lunch and Learn” meetings held virtually for any interested staff. This initial presentation will be a quick overview of the research and results. A deeper dive into the research’s key findings and implications will occur using the Critical Friends Protocol (“New Tech Network critical

friends,” 2016) at a monthly Full Staff Town Hall meeting. Each month, Teaching Lab staff meet in “Town Hall.” Town Hall meetings serve multiple purposes, including building community and culture among staff, welcoming new staff to the team, celebrating colleagues professionally and personally, making organization-wide announcements, and presenting problems of practice to the staff as a collective. The Critical Friends Protocol (“New Tech Network critical friends,” 2016) is a common Teaching Lab protocol that allows the presenter to offer a question, new learning, or a problem of practice and receive feedback from peers and colleagues. The protocol occurs in three phases. In the first phase, the presenter describes the problem or new learning while the critical friends remain silent. Moving into the second phase, the presenter now becomes silent while the critical friends talk about the presentation among themselves as if the presenter is not listening. Finally, in the third phase, everyone is allowed to speak so that the presenter can answer clarifying questions and respond to suggestions or ideas. This protocol will allow the researcher to present key findings and elicit feedback in the form of questions and discussions from Teaching Lab colleagues.

In addition to the Critical Friends Protocol (“New Tech Network critical friends,” 2016) feedback from colleagues and peers among Teaching Lab staff, the researcher will communicate key findings to a broader group of Teaching Lab stakeholders. A video presentation will be recorded to present to the Board of Directors at one of their monthly meetings. This presentation will focus on the key findings that align with the work Teaching Lab has completed in Louisiana. Finally, a shorter presentation will be video recorded so that it can be presented to potential funders.

Distribution Materials

A slide deck will be utilized to present key findings at Teaching Lab’s “Lunch and Learn.” For the deeper dive into the research findings at the Full Staff Town Hall meeting, a slide deck and an agenda will be used that follow the Critical Friends Protocol (“New Tech Network critical friends,” 2016), as described in the previous section. This protocol elicits feedback from staff, provides an opportunity for collaboration, and helps to sustain a learning community. For the Board of Directors and potential funders, videos will be created with the help of Teaching Lab’s communications and design teams.

Conclusion

Billions of dollars are spent annually on teacher professional learning. While archaic professional development methods of the past have proven to be ineffective, this research study shows that effective teacher professional learning is possible. Collaboration, inquiry cycles, and a focus on deepening teachers’ pedagogical content knowledge as they implement high-quality curricula are essential for teachers to transfer their knowledge and skills into advancing student learning outcomes. According to the perspectives of the four teachers in this study, it is possible to move beyond “sit and get” workshop professional development and toward engaging, collaborative professional learning that fosters collective efficacy and keeps student learning at the forefront of teacher learning. Teachers, school leaders, district administrators, and professional development designers and vendors should utilize the findings of this research to elevate and improve teacher professional learning for teachers and students globally and transform education for the future.

APPENDICES

APPENDIX A

Informed Consent

Baylor University
Edd Learning & Organizational Change

Participant Consent Form for Research

PROTOCOL TITLE: An Exploration of Teacher Professional Development through Inquiry Cycles:
An Instrumental Multiple Case Study in Louisiana

PRINCIPLE INVESTIGATOR: Addie Kelley

SUPPORTED BY: Baylor University

Purpose of the Research: The purpose of this study is to better understand teachers' perspectives of Teaching Lab's inquiry cycle model of teacher professional learning. We ask that you take part in this study because you are a teacher who participated in the Guidebooks Content Leader training and implemented the Guidebook English language arts curriculum in your classroom.

Study activities: If you consent to be in the study, attend a one-hour Zoom interview with the researcher and submit artifacts that demonstrate your learning (i.e., notes from the professional learning experience, lesson plans, student work samples, etc.).

Risks and Benefits: To the best of our knowledge there are no risks for taking part in this study. Others may benefit in the future from the information that is learned in this study.

Confidentiality: A risk of taking part in this study is the possibility of loss of confidentiality. Loss of confidentiality includes having your personal information shared with someone who is not on the study team and was not supposed to see or know about your information. The researcher plans to protect your confidentiality.

We will make every effort to keep your records confidential. However, there are times when federal or state law requires the disclosure of your records.

Authorized staff of Baylor University may review the records for purposes such as quality control or safety.

Compensation: There is no compensation for participating in this study.

Questions or concerns about the study: You can email us with any concerns or questions about the research. Our information is listed below:

Addie Kelley

Addie_Kelley1@baylor.edu

If you want to speak with someone not directly involved in this research study, you may contact the Baylor University IRB through the Office of the Vice Provost for Research at 254-710-1438. You can talk to them about:

- Your rights as a research subject
- Your concerns about the research
- A complaint about the research

Taking part in this study is your choice. You are free not to take part or to stop at any time for any reason. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw from this study, the information that you have already provided will be kept confidential. Information already collected about you cannot be deleted.

By signing below, you are providing consent.

Signature of the Subject

Date

APPENDIX B

Questionnaire Questions Aligned to Guskey's (2000, 2002a, 2002b, 2016) Five Critical Levels of Professional Development Evaluation Framework

Part I: Likert scale: Please indicate the extent to which you agree or disagree with the following statements:

Questionnaire Question	Theoretical Framework
I am satisfied with the overall quality of today's professional learning session.	Level 1
I am satisfied with the quality of the content in today's professional learning session.	Level 1
I am satisfied with the quality of the facilitation in today's professional learning session.	Level 1
I feel like today's professional learning session will improve my ability to deliver high-quality instruction.	Level 1
The logistics for today's learning session were communicated effectively ahead of time.	Level 1
The logistics for today's session ran smoothly.	Level 1
Teaching Lab staff facilitated the content clearly.	Level 1
Teaching Lab staff effectively built a community of learners.	Level 1
I plan to apply my learning from this session in the next 4–6 weeks.	Level 1

Part II: Qualitative Questions

Questionnaire Question	Theoretical Framework
How likely would you be to recommend today's Teaching Lab professional learning to a friend or colleague?	Level 1
What were the best things about today's Teaching Lab professional learning?	Level 1
What can we do to improve future professional learning sessions?	Level 1
Do you have any feedback on the logistics and communication about today's session?	Level 1

Part III: Likert scale: Please indicate the extent to which you agree or disagree with the following statements:

<u>Questionnaire Question</u>	<u>Theoretical Framework</u>
I can contribute to building a respectful, active, collaborative, and growth-oriented learning environment.	Level 3
I believe that I can get support from my colleagues as I work to implement the Guidebooks curriculum.	Level 3
I believe that I can get support from my school leader(s) as I work to implement the Guidebooks curriculum.	Level 3

APPENDIX C

Interview Protocol

Gaining Context

1. Tell me about yourself and your teaching experience (name, district, school, role, years in teaching, general teaching history/context/overview)
2. What is the worst professional development experience you can recall?
 - Probing questions:
 - Why was it ineffective?
 - How did it impact your teaching practices?
 - How did it impact your students' learning/achievement?
3. What is the best professional development you can recall?
 - Probing questions:
 - What made this PL the best?
 - Why was it effective?
 - How did it impact your teaching practices?
 - How did it impact your students' learning/achievement?

Questions According to the Theoretical Framework

Level 1: Participants' reactions

- Did you like it?
- Was your time well spent?
- Did the material make sense?
- Was it useful? *Evidence?*

Level 2: Participants' learning

- What did you learn during your professional learning experience with Teaching Lab?
- Did you acquire the intended knowledge and skills?
- What are the most important ideas you gained from this professional learning experience?
- Do you now have any new skills that will improve your abilities to help students learn?
 - Would you describe those skills, please?

Level 3: Organization support and change

- What was the impact on your organization? (district/school)
- Was implementation of the professional learning advocated, facilitated, supported?
 - Did the school/district leaders undergo the school leaders PL with teachers?
- Were sufficient resources made available?
- What role did Teaching Lab play in providing organizational support for your implementation of the Guidebooks?

Level 4: Participants' use of new knowledge and skills

- How has your instructional practice changed since attending Teaching Lab's professional learning?
- Did you effectively apply new knowledge and skills?
- What are you doing differently now from what you were doing before the PL experience?
- How could you compare what you are doing now with what you did in the past?
- How do you think things will be in the future regarding your instructional practice based on Teaching Lab's PL?

Level 5: Student learning outcomes

- In what ways did this professional development model impact student academic success?
- What was the impact on students?
- Did it affect student performance or achievement? *Evidence?*

APPENDIX D

Teaching Lab's By-Catch Experiential

Teacher Lab's By-Catch Experiential is a professional learning session designed for teachers to simulate a task that would be difficult for students who do not possess sufficient background knowledge of the topic of a complex text. Teachers are first presented with a scientific report and asked to read the report and summarize its findings.

BYCATCH

- 1.00 Bycatch in this fishery is high (>100% of targeted landings), OR regularly includes a "threatened, endangered or protected species."**
- Although less than 10% of the total Pacific Cod catch is discarded (NPFMC SAFE, 2009), the longline fishery is known for catching endangered or threatened seabirds. Roughly 15,000 seabirds per year are killed by fishing gear used in the Pacific Cod fishery (NMFS, 2008). The majority of longline-killed seabirds are fulmars, but also includes a large number of albatrosses, gulls, shearwaters, and other species (NMFS, 2004). The fishery kills Laysan, black-foot, and short-tailed albatrosses, which are all on the IUCN Red List of threatened species. The only seabird affected by the Pacific Cod fishery that is listed as endangered by the US is the short tailed albatross although population impacts are unlikely given current growth in this population (Zador et al. 2008).
- 2.00 Bycatch in this fishery is moderate (10-99% of targeted landings) AND does not regularly include "threatened, endangered or protected species" OR level of bycatch is unknown.**
- 3.00 Bycatch in this fishery is low (<10% of targeted landings) and does not regularly include "threatened, endangered or protected species."**
- 0.25 Bycatch in this fishery is a contributing factor to the decline of "threatened, endangered, or protected species" and no effective measures are being taken to reduce it.**
- 0.25 Bycatch of targeted or non-targeted species (e.g., undersize individuals) in this fishery is high and no measures are being taken to reduce it.**
- 0.25 Bycatch of this species (e.g., undersize individuals) in other fisheries is high OR bycatch of this species in other fisheries inhibits its recovery, and no measures are being taken to reduce it.**
- 0.25 The continued removal of the bycatch species contributes to its decline.**
- +0.25 Measures taken over a major portion of the species range have been shown to reduce bycatch of "threatened, endangered, or protected species" or bycatch rates are no longer deemed to affect the abundance of the "protected" bycatch species OR no measures needed because fishery is highly selective (e.g., harpoon; spear).**
- As of 2004, revised seabird bycatch regulations have been in effect for the Alaska demersal longline fleet, requiring most vessels over 55 feet to use paired streamer lines, restricting offal discards, and requiring each vessel to have a seabird avoidance plan onboard. Smaller vessels [greater than 26 ft (7.9 m) LOA and less than or equal to 55 ft LOA] must use a single streamer line or, in limited instances, a buoy bag line (Seabird Avoidance Regulations, NOAA). Management efforts have been successful at reducing the amount of seabirds caught by this fishery.

After several minutes of confusion and oftentimes frustration, teachers are provided additional texts designed to build their background knowledge of by-catch, the rating system for the report, and various types of fishing gear.



(Bycatch, n.d.)



(Wild Caught, 2014)



(Fishing Gear 101)

After some time to build their knowledge, teachers then re-read the original scientific report, usually with much deeper understanding of the topic of by-catch and what the report is measuring. Teachers find the text more accessible and are easily able to summarize the findings from the report and answer a series of comprehension questions about the report.

APPENDIX E

Critical Friends Protocol



CRITICAL FRIENDS PEER REVIEW

This peer evaluation activity can be used as either a midway feedback opportunity for longer projects or as a final assessment for shorter projects. The process forces students to practice their listening skills and provides a safe means for peer evaluation. Each phase can take from 5-10 minutes so plan accordingly. Form teams of 3 or 4 groups who will present to each other.

PHASE ONE: Presentation

Presenting Group: Describe their product, standards and phases of their project.

Critical Friends: Friends remain silent. They are not allowed to ask clarifying or follow up questions. They should be taking notes and using the Six A's rubric to evaluate the product as it is presented.

PHASE TWO: Critique

Presenting Group: Presenter(s) remain silent and are not allowed to respond to the comments of the "Friends."

Critical Friends: Friends talk amongst themselves about the project as if the presenters were not in the room and use the phrases below to start each topic. Start by focusing on the strengths, then on suggestions for improvement, and lastly, ideas for "next steps."

I like the fact that...

I wonder if...

A next step might be...

PHASE THREE: Response

Open discussion period for presenter(s) to respond to the comments of the "Friends" and to follow up on ideas or suggestions.

APPENDIX F

Teaching Lab Name Use Permission

Baylor University
EdD Learning & Organizational Change

Teaching Lab Consent Form for Research

PROTOCOL TITLE: An Exploration of Teacher Professional Development through Inquiry Cycles: An Instrumental Multiple Case Study in Louisiana

PRINCIPLE INVESTIGATOR: Addie Kelley

SUPPORTED BY: Baylor University

Purpose of the Research: The purpose of this study is to better understand teachers' perspectives of Teaching Lab's inquiry cycle model of teacher professional learning. We ask that you take part in this study because you are a teacher who participated in the Guidebooks Content Leader training and implemented the Guidebook English language arts curriculum in your classroom.

Teaching Lab consents to its name being used in the research.


Sarah Johnson, CEO

5/5/2021
Date

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