THE EFFECTS OF A TIERED LEARNING MATRIX ON TEACHERS' PERCEPTIONS, PEDAGOGY, AND SENSE OF EFFICACY

A Record of Study

by

CHARITY CAYE STEPHENS

Submitted to the of Office of Graduate and Professional Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

Chair of Committee,	Sharon Matthews
Co-Chair of Committee,	Robin Rackley
Committee Members,	Janet Hammer
	Mario Torres
Head of Department,	Michael Anthony de Miranda

December 2018

Major Subject: Curriculum & Instruction

ABSTRACT

A teacher's sense of efficacy is his or her willingness to implement pedagogical strategies to reach students at various levels of readiness. A professional learning (PL) series occurs over an extended period of time with a lead facilitator and a cohort of teachers to learn pedagogical strategies to better meet students' learning needs. At the time of this study, the researcher investigated teachers' PL needs at the research site, a suburban public high school, grades nine through 12 in Missouri. The district's PL plan focused on project based learning and Visible Learning. The researcher investigated district PL course offerings to find any gaps in course offerings in alignment to teachers' requested PL needs. Results of these investigations spurred the researcher to develop a PL course focused on a tiered learning matrix (TLM) to support differentiated instruction via tiered learning targets. Learning targets are also known as learning intentions and should drive teacher instruction. The PL course was presented to faculty during a school PL day. Teacher feedback during this PL course was used to refine the TLM and help develop a PL series focused on tiered instruction. The PL series occurred over a 12-week period with a cohort of nine high school teachers from various content areas. The purpose of this mixed methods action research study was to explore the effectiveness of a PL series focused on tiered instruction to support teaching for various levels of student readiness. The researcher was the lead facilitator of the PL session. The researcher codified and categorized qualitative data via field notes, analytic memos, participant artifacts, and transcribed PL sessions and interviews. The data analyses for this study involved inductive process to thoroughly examine the themes and deductive processes over the 12-weeks to reach saturation. The researcher examined changes in teachers' perceptions, pedagogy, and sense of efficacy as a result of their participation in the PL series focused on tiered instruction.

DEDICATION

Dedicated to educators with a desire to help ALL students learn.

ACKNOWLEDGEMENTS

Thank you to my committee co-chairs, Professors Sharon Matthews and Robin Rackley, and my committee members, Professors Janet Hammer and Mario Torres, for your guidance, support and encouragement throughout the course of this action research. Thank you to the professors and staff of the Doctor of Education (Ed.D) program at Texas A&M University. A special thanks to my cohort members for being supportive and sharing their knowledge. Thank you to my school district for allowing me the opportunity to implement the professional learning series and to conduct action research. Many thanks go to my family. Thank you to my mom, Glenna Mahoney, for answering many late night texts about American Psychological Association (APA) formatting and for helping juggle my daughters' events. A huge shout out to my girls for keeping me company as they did their homework next to me while I worked on my research. Finally, thank you to my husband, Bryce Stephens, for encouragement and support.

CONTRIBUTORS AND FUNDING SOURCES

Contributors

This work was overseen by a record of study committee: co-chairs Professors Sharon Matthews and Robin Rackley of the Department of Teaching, Learning, and Culture; committee member Professor Janet Hammer of the Department of Teaching, Learning, and Culture; and committee member Professor and Department Head of Educational Administration and Human Resource Development. All work for the record of study was completed by the student under the advisement of the committee. Field-based contacts for the record of study were the principal and the instructional coach at the target school. Members of the student's Ed.D cohort contributed the record of study proposal for research through peer reviews and discussions.

Funding Sources

There are no outside funding contributions to acknowledge related to the research and compilation of this document.

TABLE OF CONTENTS

Page

LIST OF FIGURES

Page

LIST OF TABLES

Page

CHAPTER I

INTRODUCTION

Situational Context

Katy Trail Public School (KTPS) district serves the residents of approximately 85 square miles in a large suburban district. The school district serves more than 11,800 students in preschool through 12th grade. The district has seen rapid growth over the past 12 years; so much, in fact, that it has become the 2nd fastest growing school district in the state. KTPS has 11 elementary schools, four middle schools, two high schools, an alternative secondary school, and an early childhood center. KTPS was recognized as a high performing school district for all 12 years the State of Missouri presented the *Distinction in Performance Award*, making it one of only 6% of Missouri districts to be placed in this category. Approximately, 74% or more of the employed faculty have a Master's degree or higher.

In 2017, KTPS earned accreditation status through AdvancED. AdvancED (2015) provides nationally-recognized accreditation, the purpose of which is continuous school improvement focused on increasing student performance. To earn accreditation, schools must meet AdvancED's high standards, be evaluated by a team of outside professionals, and implement a continuous process of school improvement. As part of the continuous school improvement cycle, the district was tasked to seek solutions for any identified problems by the accreditation team. AdvancED identified grading as an area of improvement and recommended KTPS focus on clarifying what grades mean for each content course. While this problem is not unique to this specific school district, it is a district targeted focus for improvement. However, the district cannot identify what grades mean without knowing what students should know and be able to do for each level of student readiness.

The district has a Professional Development Committee (PDC) comprised of a faculty representative from each building. PDC is a decision-making body that ensures the right work gets done by curriculum council, instructional coaches and the New Teacher Institute (mentor/advisors). Instructional coaches serve as a think tank to meet the professional development needs of teachers. Each building has an instructional coach to lead job-embedded professional learning (PL) and support individual teachers with instructional strategies. The PDC is responsible for the development of an overarching PL plan for the district. This overarching plan is then refined or tailored at the building level within the district. There is a wealth of opportunities for teachers to engage in job-embedded PL offered in each building and 1% building PL monies available to teachers for out-of-district PL.

The Problem

PL and teachers' sense of efficacy are closely intertwined as teachers' sense of efficacy directly impacts their willingness to implement new instructional strategies (Thoonen, Sleegers, Oort, Peetsma, & Geijsel, 2011; Zee & Koomen, 2016). Thus, if teachers' sense of efficacy is low, then it is unlikely teachers will feel that implementing new instructional strategies are worthwhile. Hence, if teachers' sense of efficacy is high, then it is more likely teachers will implement new instructional strategies. "When teachers believe stronger in their capabilities to achieve a desired result, they are more engaged in professional learning activities" (Thoonen et al., 2011, p. 514). Of course, there are always outliers. In the case of teachers with a high sense of efficacy, they may feel that their current practices are already support student learning therefore, they may not feel compelled to adopt new instructional strategies. Regardless,

"teachers sense of self efficacy appears to be the most important motivational factor for explaining teacher learning and teaching practices" (p. 517). Therefore, this study will examine teachers sense of efficacy related to PL and instructional strategies.

Significance of the Problem

Action research "often involves a small-scale test of the entire study, testing not only instruments but also the sampling plan, the intervention, the study procedures, and so on" (Polit & Hungler, 1999, p. 320). I chose a mixed methods action research (MMAR) design to identify the problem both quantitatively and qualitatively to inform the PL intervention for this study.

Reconnaissance Study Purpose (Pilot A)

The purpose of the reconnaissance phase of this MMAR cycle was to identify professional learning needs of teachers. I attempted to answer the following questions in hopes of revealing the significance of the problem:

- Quan Strand 1: What were the highest-ranking needs of PL as defined by the district's faculty needs assessment survey?
- Qual Strand 1: What categories of PL were offered in the PL district catalog?
- Qual Strand 2: How does the availability of PL course offerings align with the requested types of PL identified by the district's needs assessment survey?

Journey to the Problem

To explore the quantitative question, I examined the 2016 (Figure 1) and 2017 (Figure 2) faculty needs assessment survey. The survey asked teachers what types of PL they preferred to attend during the school year.

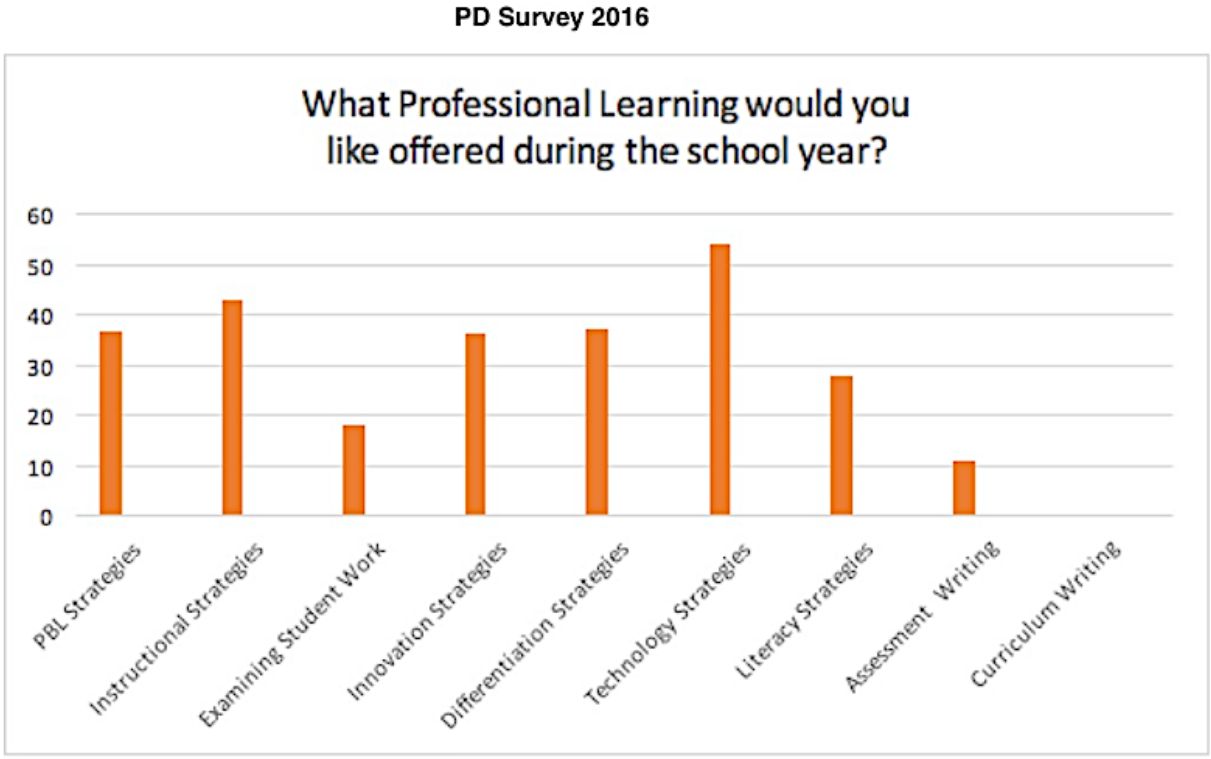


Figure 1. PL survey of faculty during spring 2016.

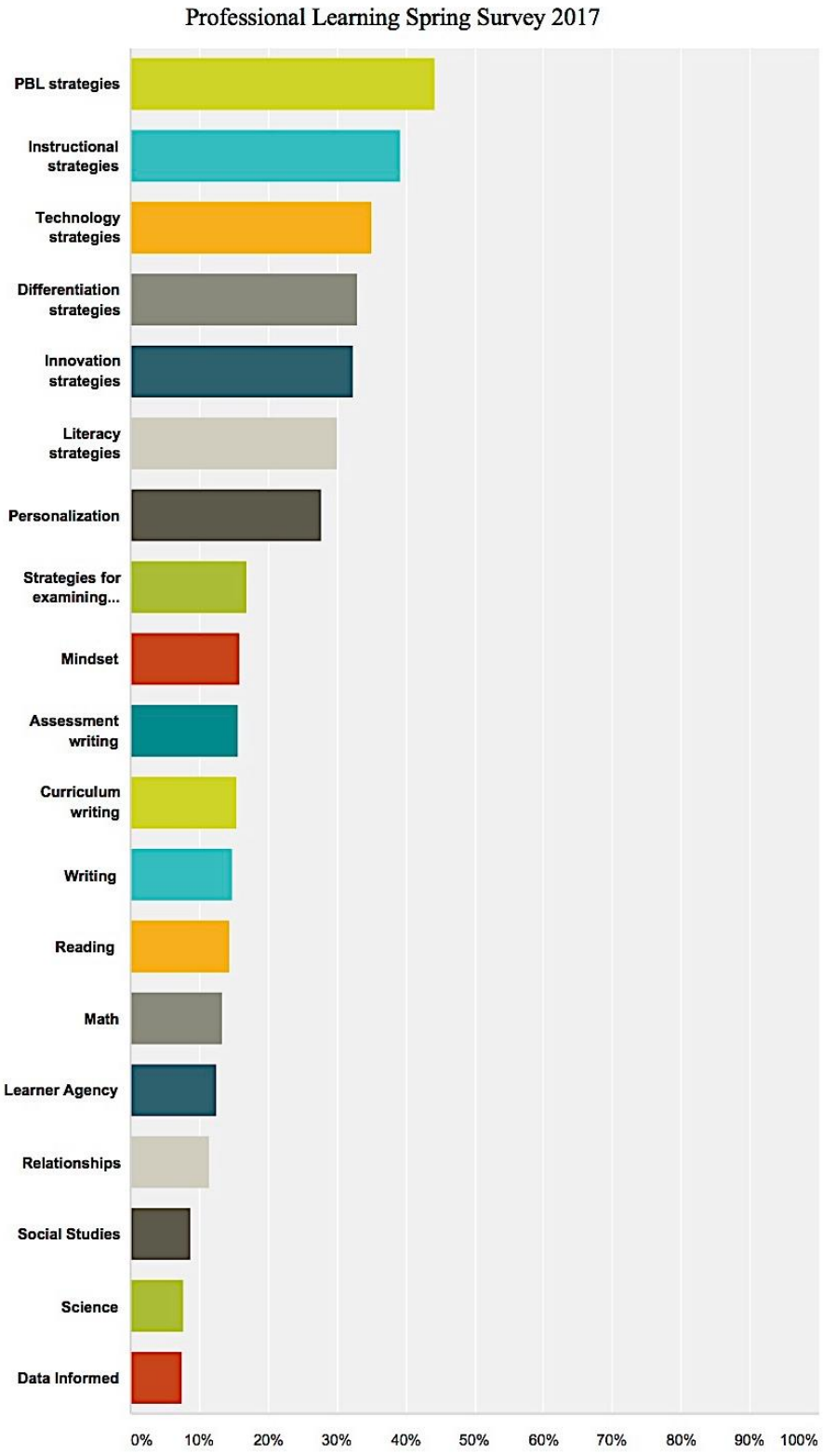


Figure 2. PL survey of faculty during Spring 2017.

In response to Quan Strand I, quantitative results from both surveys show that teachers chose the same five types of PL courses as the most preferred to attend during the school year. However, the order of the five types of PL was different for each year:

- Spring 2016 report: (1) technology strategies, (2) instructional strategies, (3) project-based learning, (4) differentiated strategies and (5) innovative strategies.
- Spring 2017 report: (1) project-based learning, (2) instructional strategies, (3) technology strategies, (4) differentiation strategies and (5) innovative strategies.

Innovative and literacy strategies closely followed differentiated strategies each year. The remaining PL choices were less focused instructional strategies and focused on either assessment for/of learning or content-specific curriculum. The remaining PL category choices were: dyslexia, reading, writing, math, curriculum writing, strategies for examining student work, assessment writing, open education resources, science and social studies. The results for both years indicated faculty would like PL related to strategies for various types of instruction.

To explore Qual Strand 1, I coded categories from archives located in My Learning Plan (MLP). This is an online PL system manager that features both in and out of district PL courses. I specifically collected data from spring 2017 to spring 2018 in-district course offerings. As of early October 2017, I found 33 courses for content instructional strategies, 27 courses for project-based learning (PBL), 18 courses for formative assessment designs, six courses dedicated to identifying student success criteria, and four courses for personalized learning.

In response to Qual Strand 2, the 33 courses for content instructional strategies support the needs assessment request for PL related to instructional strategies. The courses for student success criteria and personalization have the potential to help teachers clearly identify what

students should know and do for their content as recommended by the district accreditation team. This in turn can help the district show progress towards identifying the meaning of grades.

However, there were no courses offered that specifically identified differentiated instruction in the course descriptions. It is possible that the 33 course offerings for content instructional strategies may have touched on differentiated instructional (DI) strategies. It is also possible that job-embedded PL within buildings may have touched on DI strategies. No doubt, PBL honors student voice and choice in learning as well as utilizes cooperative learning structures which in turn supports DI strategies. Yet again, there was no clear evidence of instructional strategies to support students at various levels of readiness. This MMAR study will seek to implement a PL series focused specifically on differentiated instruction.

The top five vision priorities for the large suburban district are: learner agency, personalization, growth mindset, data informed decisions and relationships. In Spring 2017, KTPS partnered with Kara Vandas, a Corwin and Visible Learning^{plus} consultant, to study Visible Learning through John Hattie's (2009) work on effect size for instructional improvement and through work by Larry Ainsworth on *Common Formative Assessment 2.0* (2015). As of Fall 2017, curriculum council representatives, instructional coaches and administrators were the majority of faculty who received PL related to these works. While evidence available in MLP suggested the district offered courses that align to the vision priorities, there were currently no course offerings dedicated to guiding teachers in teaching for various levels of student readiness. In order to achieve common grades, as recommended by the accreditation review, teachers need to be clear about what students should know and be able to do for each level of readiness within their content. Therefore, I propose an in-house PL series that supports teachers in tiering learning targets and tiering instruction for levels of student readiness.

Research Questions

The research questions for this study are as follows:

1 How can changes in existing instructional practices related to tiered instruction enhance a teacher's sense of efficacy as measured by efficacy scores and as described through perceptions of teachers?

- 1.1 What changes in **teachers' perceptions** regarding tiered instruction occurred while participating in professional learning focused on tiered instruction?
- 1.2 What changes **in teachers' pedagogy** occurred for teachers as a result of their participation in the professional learning series on tiered instruction?
- 1.3 Are there changes in **teachers' sense of efficacy** as a result of their participation in professional learning focused on tiered instruction?

Personal Context

In 2006, I was in my seventh year of teaching and I was stuck in a rut of one-size-fits-all teaching practices. Both my student failure rate and office referrals were at an all-time high, while my sense of efficacy was at an all-time low. In other words, I lacked the ability to teach for diverse learning needs. It was at this time administration placed me on a professional improvement plan. After I let my anger and excuses run their course, I chose to turn within to rediscover why I went into teaching. The answer was simple; to give students the tools they need in order to grow. You see, it was not that I lacked the desire to teach so much as it was that I lacked the tools to teach students with diverse learning needs. That year, I independently scoured resources in search of best practices. I stopped lesson planning within the three by three box template and decided to use my new-found knowledge to create my own lesson-planning template (Figure 3).

BEST PRACTICES always gives thought to Grouping, Student Engagement, & Differentiated Supports

DATE: _____	TAXONOMY/D.O.K LEVELS
Technology & Materials Needed: ___ laptop ____ projector _____ audio _____ other **Copies Needed:**	Level *Objectives* ____ _____ ____ _____ ____ _____ ____ _____
ESSENTIAL QUESTIONS  *Chapter/Unit:	BIG IDEA 

GROUPS	ANTICIPATORY SET	TIME
WHOLE (W) SMALL (S) PAIRS (P) INDIVIDUAL (I)		
	ACTIVITIES	
	CLOSING ACTIVITY / TICKET OUT	

STUDY/HOMEWORK

Figure 3. Self-created lesson plan template.

Part of the lesson planning template focused on levels of student readiness by requiring me to identify the levels of Bloom's Taxonomy or DOK integrated within my lesson activities. The lesson planning template supports both direct and inquiry based instruction. This template is now copyrighted, recognized and used by my principal to support other teachers in lesson planning.

In 2007, I chose to pursue my Master's in Education. However, I was not interested in jumping hoops to simply climb the pay scale. I wanted a program that would inspire me both professionally and personally; one that would give me the tools I was so desperately lacking to help students grow. Therefore, I chose to pursue my Master's in DI through Graceland University. The program served as a launching pad for instructional strategies to meet students at their own levels of readiness. I received my Master's in the fall of 2010 and I have been on a mission ever since to create an educational paradigm shift from an industrial framework that favors point chasing to a differentiated framework that favors knowledge seeking. The same year I graduated, I developed a levels of understanding matrix aligned to four levels of readiness to identify what students should know and do for each unit of study (Figure 4).

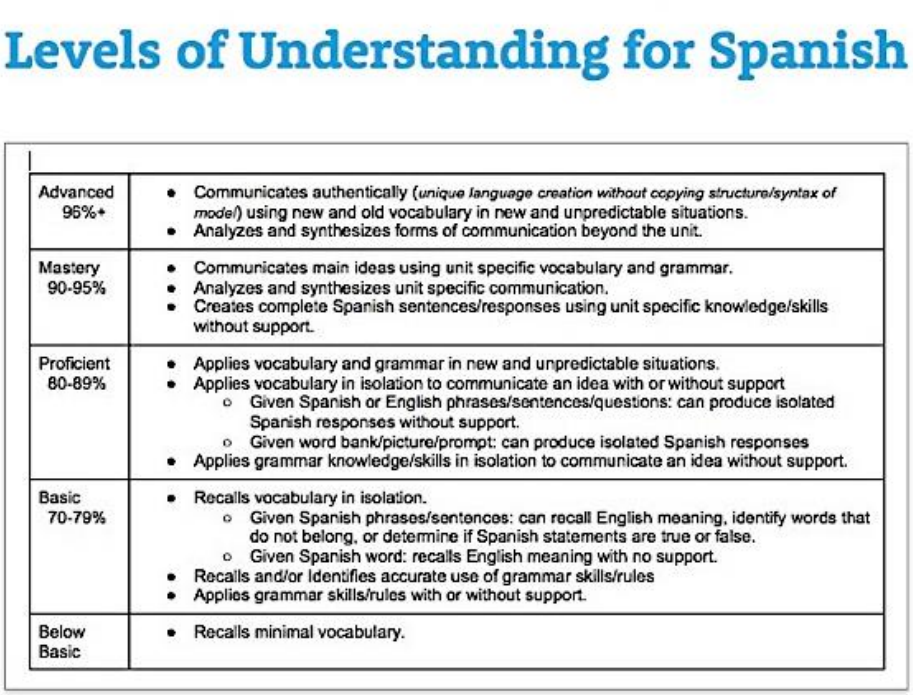


Figure 4. Levels of understanding matrix. (Stephens, C., 2015b).

Researcher's Roles and Personal Histories

I have taught in the same school district for 17 years and I currently wear many professional hats: high school teacher, department chair of International Languages, Advisory coordinator, mentor, and district professional development committee representative. In the last two years, I have been published in two online journals, *Association for Supervision and Curriculum Development Express* (Stephens, 2015a) and *Edutopia* (Stephens, 2015b), as well as contributed a vignette in the book, *Grading from the inside out: Bringing accuracy to student assessment through a standards-based mindset* (Schimmer, 2016, pp. 66-67). In addition, I am an educational blogger for my own blog Education Differentiated4u. Finally, I am a connected educator in social media spheres dedicated to educational topics such as differentiated instruction. I love participating in educational Twitter chats with other educators from around the world to share, learn and grow as an educational leader.

From my classroom to the global online learning community, I believe it is our responsibility to lead with well-established core values. In education, core values should be deeply rooted in transparent and reflective practices. As leaders, we cannot ask students or teachers to be reflective for growth if we are not reflective for growth ourselves. Ultimately, we cannot lead others in transformational journeys in which we ourselves are unwilling to participate. My personal transparent and reflective journey will help me support my ultimate goal for this research of study; to provide educators with a tiered framework to meet students at their own levels of readiness through professional learning that encapsulates tiered instructional practices and enhances teachers' sense of efficacy.

Stakeholders

In this MMAR study, I will utilize in-house support from three individuals: Dr. Casey Royal, Dr. Renee Clark, and Marie Dayne. Dr. Casey Royal is currently the Director of Secondary Education in the district that I will perform my action research. She was a classroom teacher for seven years before shifting to administration. She served as middle school assistant principal for five years and a lead principal for seven years. In addition to her administrative leadership roles, Dr. Royal serves as a doctoral advisor for the University of Missouri Ed.D. cohorts. She is also an adjunct professor for both Rockhurst University and Northwest Missouri State University. Dr. Royal will serve as a critical friend for my research of study. She will lend an outsider perspective as she does not work in the building in which I will implement my action research.

Dr. Renee Clark began her career as a special education classroom teacher for four years in both elementary and secondary schools. She also served as high school assistant principal for seven years. Dr. Clark has served as the lead principal of the building in which I will perform my

action research for the last eight years. Dr. Clark is also adjunct faculty for Park University and Northwest Missouri State University. She is my field supervisor and mentor for my internships through Texas A&M. She is part of the action research team within the building of study. She will lend an insider perspective as to the logistics of implementing job-embedded PL.

Marie Dayne is a former high school educator for both classroom and online learning. Marie also served as the K-12 Instructional Technology Coordinator where she helped design and implement KTPS's digital transformation program serving all students with 1:1 take-home devices. Marie currently supports adult learning as an Innovation and Learning Coach in the building that I will conduct action research. Marie holds two undergraduate degrees, a Masters of Business Administration and an Education Specialist in Secondary Administration. Marie is a believer in the power of informal learning through personal learning networks. Both Dr. Clark and Marie will be part of the insider action research team. They will collaborate with me in regards to developing the professional learning timeline for the study.

Important Terms

For the purpose of this study, the definitions of the following terms will deepen the level of understanding for the reader.

- AdvancED – This is an accreditation body that takes a learner-centered approach to evaluate the effectiveness of teaching and support systems at Liberty Public Schools.
- Differentiated Instruction – A teacher's instructional response to student levels of readiness.
- Learning Intentions – Learning objectives, goals or targets made explicit for students to know what they should be able to know and do by the end of a unit.

- Levels of Readiness – A student's level of learning in relation to the learning intentions.
- Reflective Practices – A teacher's ability to reflect on not only the effectiveness of instructional practices, but on any internal beliefs he or she may hold that may affect instruction.
- Scaffold – Instructional supports for each level of student readiness.
- Teacher Sense of Efficacy – The belief in which a teacher believes in his or her ability to foster learning forward for *all* children.
- Tiering – The leveling of learning intentions, student practice and assessment for various levels of student readiness.
- Tiered Learning Matrix – This learning matrix makes learning intentions (goals, objectives, or targets) visible for all learners, but also tiers the learning intentions for identified levels of student readiness.

Closing Thoughts on Chapter 1

In the following chapters I reveal literature that supports the research design and intervention for this study. In the next chapter, I detail relevant historical backgrounds, action research traditions, theoretical frameworks, and significant research that align with the study. In the third chapter, I provide an outline and justification of the proposal. I also summarize the study purpose, reveal the proposed timing, priority and mixing of the study strands, and detail the research paradigm. I finally bring to light the proposed methodologies I will use for data collection, analysis and justify the validity of the methods.

CHAPTER II*

REVIEW OF SUPPORTING SCHOLARSHIP

Have you ever traveled to an unknown destination without GPS or directions? This is the equivalent of teaching without differentiating instruction. Imagine for a moment a lesson plan as a geographical map in which strategies are implemented in order to travel from point A to point B. However, not all students have the same starting points. Therefore, it is the responsibility of the teacher and student to work together to find the best path to reach understanding of the learning objectives. Essentially, the teacher must drop pin student starting positions in order to map the best route for student understanding. "Differentiating instruction is not a passing fad; it is a revolution—a fundamentally different way to teach students with diverse learning and behavioral needs" (Rock et al., 2008. p. 39). It is a means to eliminate one-size-fits-all teaching and learning. Stephens (2015b) succinctly describes the one-size-fits-all model in a comparison to one-size-fits-all clothing.

> If you happen to be of average height and average weight, then perhaps this size worked for you. However, if you happen to be shorter, taller, weigh less, or weigh more than the average person, then the odds are that the one size that supposedly fits all does not work for you! The same goes for one-size-fits-all lessons or practice. (para. 1)

This literature review will highlight relevant historical backgrounds, action research traditions, theoretical frameworks, and significant research related to this study.

---

*Reprinted with permission from "Teacher efficacy: Capturing and elusive construct." By Tschannen-Moran, M., & Woolfolk Hoy, A., 2001, *Teaching and Teacher Education,* United States of America. Copyright 2001 Elsevier Science Ltd.

Relevant Historical Background

Almost 50 years ago, Bruner's 1966 classic, *Toward a theory of instruction*, discussed the importance of scaffolded instruction and differentiated strategies to meet the needs of the learner. Bruner (1966) specified the evaluation of student learning must not only determine if a student is successful, but also whether or not the instructional strategies are "leading one through the hierarchy of goals one is seeking to achieve" (p. 51). Bruner planted the seeds of differentiated instruction and personalization as he believed learners learn in different time frames and in different ways. Teachers must teach content to meet students at various levels of readiness. Bruner warned educators that the theory of development must be connected to the theory of knowledge and instruction or development will "be doomed to triviality" (p. 21).

Around the same time, Bloom (1956) created the Taxonomy of Educational Objectives "to specify objectives so that it becomes easier to plan learning experiences" (p. 2). He asserted that a student's level of readiness will determine how the student ascends to higher levels of student readiness. Fast-forward to the 21st century, Edwards, Carr and Siegel (2006) conducted a pilot study that investigated pre-service teachers and new teachers "understanding of, usage of, and attitudes toward differentiated instruction" (p. 584). Participants in the study attended a workshop on differentiated instruction, but prior to the workshop they completed a 5 point Likert scale questionnaire to assess their understanding of implementing differentiated strategies. The results showed participants rated lowest on:

> a) use of instructional strategies to differentiate instruction (#13, 2.76), b) use of tiered assignments (#5, 2.82), c) differentiation of lessons using major concepts and generalizations (#2, 3.18), and d) use of instructional materials that demonstrate that they promote diversity. (p. 586)

Johnson and Templeton (Eds. Wan & Gut, 2011) suggested offering students various ways to acquire knowledge and skills for each level of readiness. Dee (2011) further exclaimed that teachers differentiating instruction "create classrooms in which it is difficult for the casual observer to identify the student with the IEP, and yet extensive research supports the idea that a majority of teachers are not" (p. 55) prepared for designing tiered lessons for an inclusive classroom.

So, what is DI? Traditional implementation of curriculum draws on "teaching to the middle" (Haager & Klinger, 2005, p.19) which means that many students plateau or decline with academic success. According to Montalvo, Mansfield and Miller (2007) students must shift from learning performance to learning targets in order for them to acquire new knowledge and skills as well as encourage them to try and understand something new. They also emphasized that transparent learning targets are essential for student learning coupled with the knowledge that mistakes are part of the learning process. Hattie (2013) stated that teachers must know where each student is at on the learning continuum in order to guide the student forward in learning. Hattie stated that knowing a student's level of readiness will assist the teacher in creating different ways for the student to master the learning targets. Hattie called for teachers to adapt lessons as needed to foster learning for different levels of readiness. Landrum & McDuffie (2010) also called for teachers to "maximize each student's growth and individual success by meeting each student where he or she is at the time and assisting them in the learning process" (p. 9). A differentiated class requires a variety of differentiated interventions, processes and procedures from modification of content, process and product to furthering collaboration and autonomy while simultaneously empowering independence (Pham, 2012; Tomlinson &

McTighe, 2006). For the purpose of this study, differentiating instruction is a tiered instructional response for levels of student readiness.

Alignment with Action Research Traditions

Alrtichter, Kemmis, McTaggart & Zuber-Skerrit (2002) stated "Action research by its very nature seeks to explain the pedagogical assumptions of the researchers (participants) and their research project" (p.125). My challenge as a practitioner-researcher will be to "become just another participant, rather than one of the ones in charge of the change effort" (Anderson, Herr, & Nihlen, 2007, p. 119). M. Brydon-Miller & P. Maguire (2009) believe that participatory action research (PAR) has considerable research contributions to educational problems of practice. The authors further believe that PAR has much influence over practitioner inquiry. "The greatest contribution PAR can make to practitioner inquiry is in renewing our faith in the possibility of change and in reminding us of our responsibility to work together to transform educational policy and practice" (p. 84). This study embraces practitioner action research

This MMAR study also envelopes Schön's ideas of reflective practices in which the participants and I understand that "reflection in-action can be discovered only through an action science which seeks to make what some of us do on rare occasions into a dominant pattern of practice. (Shon, 1989, p. 7). Osterman (1990) stated that the more one participates in collaborative reflective practices then over time the process will "become less strange" (p. 139). PAR allows processes to become transparent and collaborative practices to promote transformation. As practitioners "we become more aware of our theories-in-use, we become more aware of contradictions between what we do and what we hope to do; as a result, we can shape new directions" (Osterman, 1999, p. 137). Purpose and transparency are key in action research. The participants' transparent reflections yield new understandings for the purpose of

change or innovative solutions to improve problems of practice. My practitioner action research will also rely on an eclectic mix of methods, data collection and analysis thus framing this study in the pragmatic paradigm.

Archbald (2010) situates the differences between problem-based research and traditional research in four camps of change: positionality, the literature review, the aim of the research, and resources that facilitate change. These differences enable the researcher to become a more reflective, collaborative change agent. Altrichter, Kemmis, McTaggart and Zuber-Skerritt (2002) point out there is no single neat definition for action research. Almost 15 years later, Herr & Anderson (2015) devote an entire section of their book, *The action research dissertation: A guide for students and faculty*, to the definition of action research, but in the end, the authors contend that they "prefer to remain as eclectic as possible" (p. 5) so to leave it up to the individual researcher to define. I believe that the differences between problem-based research and traditional research can be situated within three camps: positionality, empowerment, and aim of the research (Anderson, Herr & Nihlen, 2007; Archbald, 2010; Herr & Anderson, 2015).

Positionality of the Researcher

Archbald (2010) stated there is a shift from the isolated researcher to a collaborative researcher wherein colleagues within an organization help define an organizational improvement problem. In traditional research studies the researcher is an outsider that takes a "disinterested stance toward the generation of knowledge" (Herr & Anderson, 2015, p. 34). In traditional quantitative research, Creswell (2014) suggested the researcher's goal is to advance a theory, collect data to test it, and analyze the data to reflect on its accuracy or inaccuracy. In this type of traditional research, the researcher positions one's self as a separate, non-interfering observer. However, in problem-based or action research

> The researcher's challenge is to become just another participant, rather than one of the ones in charge of the change effort. By encouraging a sense of empowering participation, researchers relinquish a sense of control of the research/action and are committed instead to shared decision making, with their voice being just one in the chorus calling for change. (Anderson, Herr & Nihlen, 2007, p. 119).

Unlike traditional research, action research "seeks to locate a set of concerns about aspects of both practice and inquiry with a central goal of understanding the role of reflexivity" (Ravitch, 2014, p. 9). Ravitch stated that in action research the researcher reveals his or her "biases and assumptions and how they play out institutionally and interpersonally" (p. 9). This reflective, transparent stance inverts the top down traditional approach to research so that it becomes a collaborative grassroots endeavor. One of the major challenges a researcher will face is to "become just another participant, rather than one of the ones in charge of the change effort" (Anderson, Herr, & Nihlen, 2007, p. 119). Delamont (2012) urged researchers take action to fight familiarity of one's own environment. She outlined five ways to overcome familiarity:

- Revisiting insightful educational ethnographies of the past.
- Studying learning and teaching informal education in other cultures
- Taking the standpoint of researcher who is 'other' to view the educational process. (For example, by doing ethnography from the standpoint of participants from a different social class, race or ethnicity, gender or sexual orientation.)
- Taking the viewpoint of actors other than the commonest types of 'teachers' and 'students' I ordinary state schools. (This can mean focusing on unusual settings in the school system, such as schools for learning disabled pupils, or the deaf or blind, or in

the UK Welsh or Gaelic medium schools, or 'other' actors in ordinary schools such as secretaries, laboratory technicians, campus police, cooks.)

- Studying learning and teaching outside of formal education settings. (p. 13)

Brydon-Miller and Maguire (2009) believe that PAR has considerable research contributions to educational problems of practice. The authors further believe that PAR has much influence over practitioner inquiry. "The greatest contribution PAR can make to practitioner inquiry is in renewing our faith in the possibility of change and in reminding us of our responsibility to work together to transform educational policy and practice" (p. 84).

Empowerment

Archbald (2010) stated that problem-based research allows for more empowerment than in traditional research. Problem-based research empowers the researcher to be reflective in pursuit of organizational improvements through the epistemological lens of decision making or "reflection-in action" (Schön, 1983). Schön (1983) argued that "reflection tends to focus interactively on the outcomes of the action, the action itself, and the intuitive knowing implicit in the action" (p. 56). Kemmis (2010) furthered this argument stating that "a goal of action research is to create models of democratic dialogue and practical deliberation, and thus to offer people other ways of relating to one another" (p. 242). Problem-based research is different than traditional qualitative research "in that research participants themselves either are in control of the research or are participants in the design and methodology of the research" (Herr & Anderson, 2015, p. 1). Action researchers can take on either an outsider or insider position where as traditional researchers are "disinterested" outsiders. In the action research studies researchers assume an insider researcher positionality (Herr & Anderson, 2015; Anderson, Herr & Nihlen, 2007). The contextualization of self within the system allows for the action researcher to reflect

from the inside out, from self to the participants, from the participants to the system in order to transform practices. Empowerment comes from collaboration *by* or *with* the participants thus giving voice to the participants. This differs from traditional research wherein research is done *to* or *on* the participants.

Herr and Anderson (2015) contended that "action research is a messy, somewhat unpredictable process, and a key part of the inquiry is a recording of decisions made in the face of this messiness" (p. 98). Knight and Boudah (as cited in Henson, 2001) said that one way to ignite change is to involve more participatory teacher research which requires teachers to self-reflect on their classroom, interventions, and evaluations of interventions (p. 22). Henson (2001) stated that "teacher efficacy is indeed malleable, but that change will likely occur only via engaging and meaningful professional development opportunities, particularly activities such as teacher research initiatives that capitalize on teachers' critical thought and human agency" (p. 22). This symbiotic relationship between the participants and the researcher allows for meaning-making among the participants. Unlike its' positivist counter-part, action research is mean-making for solving problems of practice. Constructivist "learning is not uniform and cannot be specified in advance; it is not assembled like parts of a machine, but rather evolves in nonlinear ways from the experiences and attitudes of the learners" (Walker & Lambert, 1995, p. 19). Schön (1983) stated that practitioners will either stick to research-based theory that stems from traditional research or will situate themselves "in messy but crucially important problems and, when asked to describe their methods or inquiry, they speak of experience, trial and error, intuition, and muddling through" (p. 43) the problem of practice to find a solution. Therefore, problem-based research "has the potential to become a truly grassroots, democratic movement,

of knowledge production and educational and social change" (Anderson, Herr, & Nihlen, 2007, p. 32).

Schön (1989) outlined how reflective practices can affect both the researcher and the participants as they

> …enter into modes of collaboration very different from the forms of exchange envisaged under the model of applied science. The practitioner does not function here as a mere user of the researcher's product. He reveals to the reflective researcher the ways of thinking that he brings to his practice, and draws on reflective research as an aid to his own reflection-in-action. The agenda of reflective research will be generated out of dialogue between reflective researchers and practitioner-researchers, and will be constrained by the requirement that the research be of the kind that practitioners can also undertake. The extent of our capacity for reciprocal reflection in-action can be discovered only through an action science which seeks to make what some of us do on rare occasions into a dominant pattern of practice. (Shon, 1989, p. 7)

Osterman (1990) stated that collaborative reflective practices begin to "become less strange" (p. 139) and in turn "professional goals becomes a public and collaborative process" (p. 139). Lieberman and Mace (2010) called for practices to become public so that teachers are not only involved in collaborative processes, they become entrenched in cycle of sharing, reflection, and change. As practitioners "we become more aware of our theories-in-use, we become more aware of contradictions between what we do and what we hope to do; as a result, we can shape new directions" (Osterman, 1999, p. 137). Purpose and transparency are key in both traditional and problem-based research. However, the missing ingredient in traditional research is reflection. "The concept of reflective practice assumes that the learning process is purposeful, and that it is

a search not merely for knowledge, but for understanding and meaning which lead to change" (p. 142). Osterman further suggests that the combination of shared learning processes and reflective practices can generate knowledge and innovative solutions to improve problems of practice.

Knowledge Interests and Research Aims

Archbald (2010) demonstrated a shift in the aim of the research in that the literature review requires the researcher to reflect:

> to furnish analytical concepts, to deepen understanding of causes and consequences, to provide evidence to substantiate claims about causes and consequences, to establish the significance of a problem, to provide models and standards of best practice, to justify the use of specific analytical strategies or decision- making tools, and to provide cases showing what others have done in similar situations in other organizations (Archbald, 2010, p. 102).

However, traditional research takes on a technical interest focus for the pursuit of knowledge generation wherein "knowledge generated takes on the form of causal explanations and instrumentation" (Herr & Anderson, 2014, p. 35). Traditional research studies are typically one and done experiments that explain empirical findings and offer generalizations (Herr & Anderson, 2015). Archbald stated there is no one question to be asked, there are many questions to be asked in order to unearth as much information as possible. In the midst of data gathering, the researcher must be able to determine which pieces of the gathered information is the most credible.

Herr and Anderson (2015) explained that action research moves beyond casual explanations "through the process of critical self-reflection" (p. 35) to reveal "how understandings are constrained or distorted by power relations" (p. 36). While traditional

research is largely quantitative, traditional qualitative studies also seek to generate knowledge from the outside in; herein lies an overlap between traditional and action research studies. While both traditional qualitative research and action research assume hermeneutical methods, the point of departure between action and qualitative research is the aim of the research. Herr and Anderson (2015) reveal that the practical/communicative knowledge interest of the traditional researcher seeks to reveal "understandings of the participants" (p. 3) while the traditional action researcher "seeks to generate knowledge that informs and guides practical judgments" (p. 35) to improve practices.

Unfortunately, Schön (1983) pointed out that traditional researchers do not believe problem-based research is rigorous enough. On the flipside, problem-based researchers do not believe traditional research concerns itself with daily problems of practice. Schön referenced these differences as the "high, hard ground" (p. 42) of traditional research versus "the swampy lowland" (p. 43) of reflection-in-action found within problem-based research. While rigor can be defined with hard and fast rules or strict methodological underpinnings, rigor can also be defined with flexible guidelines and ever-evolving methodologies. However, due to the flexible structures found within problem-based research this leaves room for research projects to be "too broad to conduct" (Hine, 2013, 160) within a limited time frame and will likely fall short of rigor and or relevance. Schön argued that this dilemma can be resolved "if we can develop an epistemology of practice which places technical problem solving with a broader context of reflective inquiry, shows how reflection-in-action may be rigorous in its own right" (p. 69).

The overarching difference between traditional research and action research is that action research seeks to improve or transform practices while traditional research seeks to state what happens under controlled conditions. Archbald (2010) explained the problem-based research

parts ways from the traditional multi-chapter narrative and instead is a combination of narrative and actual "resources or products developed for actual uses and audiences in or connected to the organization" (p. 102). "The principal justification for action research is that it makes a direct contribution to transformative action and to *changing history*" (Kemmis, 2010, p. 425).

"If the purpose of EdD programs in educational leadership is to prepare leaders who are competent and effective in identifying and solving complex problems in education, action research seems to be an appropriate research methodology" (Osterman, Furman, & Sernak, 2013, p. 86). Archbald (2010) alluded to the fact that educational research can easily become top heavy in analysis thus leaving little emphasis on actionable solutions He further supported this as he stated that research can come "at the expense of thoughtful and detailed analysis of actual organizational improvement needs" (p. 100). I believe it is imperative for educational researchers to remain aware of striking a balance between examining the empirical evidence and developing (along with implementing) actionable solutions. Educational research should drive much needed change in areas of education that have either become stagnant or have long been ignored. Archbald believed research should be the impetus of "rigorous problem-based inquiry and the improvement of practice" (p. 105).

Social Cognitive Theory

Social cognitive theory posits that knowledge attainment occurs in social settings when one observes the interplay between persons, behaviors and environment (Bandura, 1986). Bandura's (1986) social cognitive theory stated that "human functioning is explained in terms of a model of triadic reciprocality in which behavior, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other" (p. 18). This theory embraced the duality of personal reflection and personal influence in that when one reflects on

one's experience, the individual is just as much engaged as when one executes action (Bandura, 1986). Bandura stated that an individual can simultaneously be the "agent and the object" (p. 5). Figure 5 below represents how behavioral, personal factors and environmental conditions interact with one another.

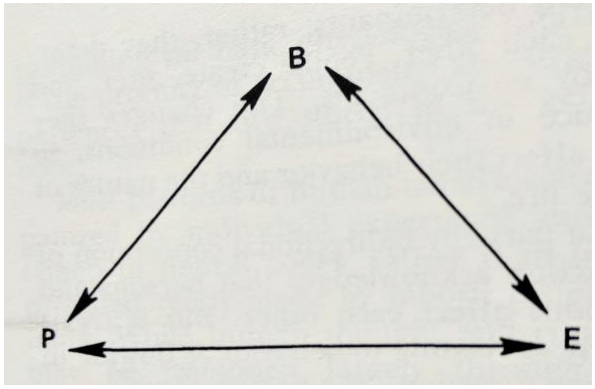


Figure 5. Bandura's Model of Triadic Reciprocality. This model features "schematization of the relations between the three classes of determinants in triadic reciprocal causation" (Bandura, 1986, p. 24).

Self-efficacy

A caveat of social cognitive theory is self-efficacy. Bandura (1986) defines self-efficacy "as people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). In the midst of the triadic push and pull, the person decides a course of action or inaction. Beliefs "constitute the key factor of human agency" (Bandura, 1997, p. 3). Self-efficacy has the potential to fissure into two lines of inaction in which people either give up trying due to self-doubt or they give up because they believe they cannot make a difference. However, when one believes action can make an impact or a change in behaviors, environment or personal events, then one is more likely to take action.

Teacher efficacy

"The task of creating environments conducive to learning rests heavily on the talents and self-efficacy of teachers" (Bandura, 1995, p. 19). Personal agency spurs a teacher onward to better meet the needs of students. A teacher's belief in the ability or inability to positively impact student learning affects the classroom environment, instructional practices and one's overall belief in the education system. Bandura (1995) states "self-regulatory capabilities require tools of personal agency and the self-assurance to use them effectively" (p. 129). Instructional effectiveness is key for crafting classroom activities based on students learning needs. "Evidence indicates that teachers' beliefs in their instructional efficacy partly determine how they structure academic activities in the classrooms and shape student's evaluations of their intellectual capabilities" (Bandura, 1982, p. 240). He asserted that one's belief in personal efficacy will not only determine their outlook on educational systems, but their outlook on instructional strategies.

Collective efficacy

Educational environments often encounter difficulties that require a collaborative effort to foster change (Bandura, 1986).

> Social changes are typically achieved in concert with others: therefore, people need to be tested for their perceptions of the groups' efficacy to effect change, as well as their own personal efficacy to execute their function in a collective endeavor. (Bandura, 1986, p. 451).

A group's ability to make decisions relies on how the group perceives its ability to make an impact (Bandura, 1986). Hattie (2016) found that teacher collective efficacy has a 1.57 effect size on student learning. Whatever a group's perceived capability may be will no doubt be reflected in how the group goes about making decisions, taking action, and responding to set backs and successes. Their ability to succeed will require a single-minded effort to achieve their

goals. "The unifying purposes must be explicit and attainable through concerted effort. Because success calls for sustained endeavor over a long time, proximal subgoals are needed to provide incentives and evidence of progress along the way" (Bandura, 1982, p. 145).

Theory of Intelligence

Sternberg and Grigorenko (2003) asserted that intelligence transcends one-dimensional mindsets and instead embraces multifaceted pathways. While successful intelligence theory is constructivist in nature it is set apart from other theories in four unique ways. First, Sternberg and Grigorenko stated that teachers should make learning meaningful by:

- Providing a variety of examples for various levels of readiness,
- Assessing student understanding of learning objectives in various ways,
- Creating student voice and choice. and
- Grading student practice and assessments that align to the course objectives.

Second, teachers should not only help draw out students' strengths, but simultaneously teach students to correct for weaknesses. The authors argued that teachers should vary teaching and assessment strategies to reach more students as well as assess both strengths and weaknesses. They stated that students need to experience learning that is both easy and challenging. However, they warned that in doing so, students may become “more and others less comfortable" (p. 213) with the learning process. Third, students need to learn how to navigate different environments. Teachers can help students achieve this by developing flexibility in teaching and assessment styles, fostering fail forward environments, and instilling grit in students. Sternberg & Grigorenko (2003) stated that traditional teaching methods

> typically shine a spotlight on a small number of students with a certain pattern of abilities and almost never shine the spotlight on a large number of students who have the ability to

> succeed, but whose patterns of abilities do not correspond to the patterns valued by the schools (p. 208).

They proposed integrating instructional strategies that require a variety of learning patterns. They called for education to "move away from single targeted measures of success" (p. 208) so to capture learning at all levels of readiness. The authors stated that successful intelligence, via successful teaching, can be achieved through balancing analytical, creative and practical abilities. Sternberg, Grigorenko, & Zhang (2008) emphasized that "If students learn best in different ways, then teaching analytically, creatively, and practically should benefit students overall because it will enable more students to capitalize on strengths and to correct or compensate for weaknesses" (p. 489). The authors called for differentiated instruction and assessment to showcase a variety of learning styles so that students have the opportunity show what they know and can do based on their matched learning style. However, this should not be misunderstood to think that matched learning styles is the end all of learning when in fact it is not. The authors stated that

> Students need to learn, as does everyone, that the world does not always provide people with a perfect match to their preferred ways of doing things. Flexibility is as important for students as for teachers. But if we want students to show what they truly can do, match of instruction and assessment to styles is essential (p. 504).

Most Significant Research and Practice Studies

Differentiated Instruction and Teacher's Sense of Efficacy

Bandura (1993) stated that academic development hinges on three contributing factors: students' beliefs in their efficacy, teachers' beliefs in their efficacy to promote learning, and faculties beliefs in collective efficacy to achieve academic progress. Bandura (1986) further

explained that perceived self-efficacy is one's ability to organize and implement actions required to achieve certain performances. Simply stated, teachers with a high sense of efficacy believe they can positively impact student learning for even the most difficult students (Bandura, 1997). However, teachers with a low sense of efficacy lack the belief that they can reach struggling students.

The Ohio State Teacher Efficacy Scale (2001), also known as TSES, developed by Tschannen-Moran and Woolfolk Hoy, is an assessment that uses a nine point Likert scale to measure three factors: Efficacy in Student Engagement, Efficacy in Instructional practices, and Efficacy in Classroom Management. Dixon, Yssel, McConnell and Hardin (2014) conducted a teacher efficacy study to examine "efficacy as a way to explain teacher willingness to differentiate instruction" (p. 117). Dixon et al. administered the TSES and focused on questions from the Instructional Strategies subscale:

- Item 1: To what extent can you use a variety of assessment strategies?
- Item 2: To what extent can you provide an alternate explanation or example when students are confused?
- Item 4: How well can you implement alternative strategies in your classroom?
- Item 6: How much can you do to adjust your lessons to the proper level for individual students?
- Item7: To what extent can you gauge student comprehension of what you have taught?
- Item 8: How well can you provide appropriate challenges for very capable students?

They further explored the following questions on the Engagement subscale in regards to differentiation:

- Item 17: How much can you do to get students to believe they can do well in schoolwork?
- Item 21: How much can you do to improve the understanding of a student who is failing?
- Item 22: How much can you do to help your students think critically?

The authors found that the TSES subscale for Instructional Strategy "was the best predictor of differentiation" (p. 124). They further found that the Personal Efficacy subscale of the Teacher Efficacy Scale (TES) "significantly predicted differentiation" (p. 124).

Henson (2001) suggested teacher efficacy studies should move beyond correlational designs to more "meaningful, active interventions" (p. 21) in order to impact teacher efficacy. Knight and Boudah (as cited in Henson, 2001) contended that one way to do this is to involve more participatory teacher research which requires teachers to self-reflect on their classroom, interventions, and evaluations of interventions. Henson (2001) stated that "teacher efficacy is indeed malleable, but that change will likely occur only via engaging and meaningful professional development opportunities, particularly activities such as teacher research initiatives that capitalize on teachers' critical thought and human agency" (p. 22).

Differentiated Instruction and Professional Learning

One dilemma in PL is figuring out a way to get teachers to unlearn "industrial-era operating practices" (Dede, 2010, p. 55). The Partnership for 21st Century Learning called for "teachers to develop their abilities to use various strategies…to reach diverse students and to create environments that support differentiated teaching and learning" (Wan & Gut, 2011, p. 60). However, Dixon et al. (2014) cautioned that PL sessions that target differentiation merely gloss over the theory thus falling short of providing any real strategies (p. 114). Dettmer (as cited in

Tempo, 1998) stated that PL sessions that target identifying students' by providing differentiation strategies can help educators adapt instruction to help maximize the learning potential of all learners.

It is no secret in education that workshops have received the most scathing of reviews in regards to types of PL. However, a 2007 comprehensive analysis (Yoon et al., as cited in Guskey & Yoon, 2009) revealed data that implied the opposite. This study revealed that workshop series or summer institutes actually show a "positive relationship between professional development and improvements in student learning" (p. 496). What makes these successful PL series more different from others is the focus on research based instructional practices, active-learning experiences and opportunities for teachers to adapt new practices to their classrooms (Guskey & Yoon, 2009). PL workshops that target differentiated instructional strategies have the potential to foster teacher efficacy in regards to meeting the needs of diverse learners. The 2007 analysis (Yoon et al., as cited in Guskey & Yoon, 2009) also showed that time spent on well-organized PL resulted in student gains. The analysis showed further improvements in student learning when it included significant amounts PL follow up sessions with participants. Another study by Blank and de las Alas (2007) revealed that "professional learning that included content focus, longer duration, multiple activities, hands-on teacher learning, specific learning goals, and collective teacher participation has a significantly better chance to improve teacher skills and knowledge and, subsequently, to raise student achievement" (p. 50).

Lieberman and Mace (2010) believed that teachers can improve instructional practices by making their practices public and transparent to other educators. They stated that while other countries have already transformed their PL of teachers to embrace public practices, the United States has "not recognized the power of teachers to analyze their own practice as a critical

centerpiece of high-quality professional development" (Darling-Hammond, Chung-Wei, Andree, Richardson, & Orphanos, 2009 as cited in Lieberman & Mace, 2010, p. 79). Fogarty and Pete (2010) explained that collaborative efforts in regards to PL communities can encourage "differentiation, emergent creativity, and real innovation" (p. 100).

Furthermore, Lieberman and Mace (2010) contended that PL requires a social process. However, many teachers work in silos with little time for peer collaboration. According to the Organisation for Economic Co-operation and Development (OECD, 2014) teachers in the United States spend "an average of 27 hours per week teaching - which may mean that they have little time for other tasks, such as lesson planning, marking students' work, or meeting students and parents" (p. 8). Darling-Hammond (2006) claimed that industrial era school systems limit the amount of time teachers have in getting to know the needs of their students as well as limits the amount of time to collaborate with colleagues. Blitz (2013) performed a literature review of over 74 peer-reviewed articles pertaining to online PLCs. Of the literature reviewed, Blitz found the flexibility of virtual learning environments reaped the most rewards in terms of "facilitating teachers' learning of subject and pedagogical content. The online environment frees teachers to collaborate without the typical time, space, and pace constraints of traditional PLCs and lets teachers access and share knowledge rapidly and comprehensively" (p. 7). McConnell, Parker, Eberhardt, Koehler, and Lundeburg (2012) stated some school districts may have difficulties when attempting "to provide sustained and differentiated professional development because of the need to customize programs to small groups of teachers" (p. 268). McConnell et al. (2012) warned that when district monies are limited, effective PL relies on large group sessions often taught in silos with rare opportunities to connect educators to other buildings. "The cost to teachers, in both time and monetary terms, deters participation in the kind of extended,

collaborative professional development shown to be the most effective in promoting teacher learning." (p. 268). McConnell et al. compared PLCs in two settings, face-to-face and virtual, wherein educators "attended a 7-day Professional Working Conference (PWC) and an additional 3-day Focus on Practice (FOP) session, followed by monthly meetings with a professional learning community during the following school year" (p. 270). They discovered "the type of discussions in the Virtual PLC groups was very similar to the discourse that takes place in face-to-face groups" (p. 272). Furthermore, McConnell et al. found both virtual and face-to face groups contained six identical components of the PLC meetings:

1. Sharing articles or information found by others
2. Group members giving new perspective on evidence.
3. Hearing practical solutions others have tried
4. Accountability to the group
5. Focus on professional discourse
6. Developing professional friendships (p. 272)

Another advantage they found to virtual PLCs is that teachers found themselves to be more on task than in face-to-face meetings that offered opportunities to discuss social or building issues not related to PL.

"Creating professional development that comes from teachers appears" to be pivotal in terms of teacher buy in (Lieberman & Mace, 2010, p. 80). Lieberman and Mace suggested that when learning targets come from teachers and are presented by teachers, "new texts of teaching can advance educators' professional development, inverting traditional top-down models" (p. 81). They asserted that when PL is structured this way "a powerful shift occurs" (p. 85) in that teachers no longer rely on others to develop them, but become active learners of their own

development. Lieberman and Mace argued that when practices are made public then teachers no longer feel alone, strong practices become the norm and insufficient teaching practices can no longer "hide behind closed doors" (p. 85). In order to DI an educator must employ reflective practices to assess student learning needs. In essence, reflective practices lie at the heart of a differentiated classroom. Levy (2008) revealed the key to differentiating is to focus on the needs and learning styles of students. However, despite this, differentiated instruction has rarely surfaced in professional development sessions (Doktor, 2010). Doktor proclaimed PL sessions must "align their pedagogy to meet the academic needs of students, including diverse learners, owning to legal mandates for individualized educational plans (IEPs)" (p. 7).

Differentiated Instruction and Student Levels of Readiness

Morgan (2014) defined DI "as a way of recognizing and teaching according to different student talents and learning styles" (p. 34). Differentiating instruction is not a newly developed 21st century concept. Lev Vygotsky's (1978) zone of proximal development emerged in the 1960s declaring that students learn when work is just outside their level of understanding, but not at the expense of causing frustration. It is remiss to neglect the obvious fact that students have varying zones of development. Therefore, when lesson planning it is imperative for educators to offer multiple pathways for students to grow as learners. One way to do this is for teachers to use the taxonomy chart and or the Depth of Knowledge (DOK) chart in order to choose instructional strategies and craft activities appropriate for various levels of readiness. Bruner (1966) stated that instruction should lead students through "the hierarchy of goals one is seeking to achieve" (p. 51). He warned that "it is only in a trivial sense that one gives a course to 'get across something,' merely to impart information" (p. 73). Bruner insisted there must be a way to teach essential learning objectives without getting weighed down by the trivialities of the course.

Fast-forward almost fifty years and Dean, Stone, Hubbell and Pitler (2012) reiterated Bruner's ideas by stating "students must know what they need to do to succeed" (p. 29). When teachers make learning objectives clear, students can assess their own efforts and recognize their achievements related to those objectives instead of focusing on their performance related to their peers. Dean et al. stated that for a student to be successful in a post-industrial world it is more important for him or her to "know how to access information and be a self-motivated learner than it is to memorize content" (p. xix). The use of clearly stated learning objectives is a strategy that helps create a culture of learning. Dean et al. (2012) stated that revealing the learning objectives to students helps reduce student anxieties about learning. Clearly stated learning objectives can assist learners in bridging prior learning to new learning and assist them in making connections to future units of study (p. 8). This marries well with Bruner's (1966) theory of instruction that emphasized there should be a focus on "achieving particular instructional ends" (p. 43). Therefore, it is vital for teachers to consider "*personalization of knowledge*" (p. 160) in order to connect with students with learning. McNulty and Quaglia (2007) urged educators to present curriculum so that students "can be excited about their learning and see the link between what they learn today and who they want to become tomorrow" (p. 21). This cannot be achieved unless the teacher has his or her finger on the pulse his or her students.

Tomlinson and McTighe (2006), gurus of DI, expanded on differentiated lesson planning with the use of backwards design as a means to offering clearly defined objectives. They stated educators should identify the desired results of student learning. In the first stage of lesson planning Tomlinson and McTighe stated that educators should ask:

- *"What should students know, understand, and be able to do?"*
- *"What content is worthy of understanding?"*

- *"What 'enduring' understandings are desired?"*
- *"What essential questions will be explored?"* (Tomlinson & McTighe, 2006)

Bruner (1966) even pointed this out by stating that lesson planning "should specify the most effective sequences in which to present the materials to be learned so that it can be most readily grasped by the learner" (p. 41). He revealed there are three aspects to the exploration of knowledge: activation, maintenance, and direction. Activation requires presenting "some optimal level of uncertainty and ambiguity" in order to capture the attention of students (p. 48). Bruner follows activation of knowledge by offering students explorations of knowledge in order to maintain interest and simultaneously increase understanding content. Finally, he urges the teacher to develop an evaluation of student understanding in order to see where the student stands in relation to the learning objectives.

In the 1990s the International Center for Leadership in Education established the Rigor/Relevance Frame-work to assist educators in examining curriculum and planning for instruction (McNulty, R. & Quaglia, R., 2007). This frame-work encompassed the six levels of Bloom's Taxonomy as well as a second tier that fosters relevant learning. In the second tier, there are four Quadrants. As learning progresses through the Quadrants, activities shift from teacher to student centered requiring students to employ thinking in complex ways to solve complex problems. Teachers must tell students what to pay attention to by clearly stating the learning objective. Finally, Hattie (2016) emphasized that every lesson requires clearly defined learning targets. According to Hattie, students should be able to identify what and why they are learning and know when they learned it.

Closing Thoughts on Chapter 2

According to Santamaria (2009) "the most prominent gap in the literature is found in DI's willingness to acknowledge diversity but not in providing practical how-to pedagogy for teachers to follow" (p.241). Mandinach (2012) urges educators to use a six-step process known as Data Driven Decision Making to guide instruction. The ultimate goal of this process is to examine students' levels of understanding in order to differentiate instruction. While Mandinach calls for differentiating assessments for levels of readiness, student backgrounds and experiences, she offers little in the way of guiding teachers how to implement these ideas. Santamaria brings to light that DI fails to "provide practitioners with specific guidelines and strategies on how to differentiate instruction" (p. 222). Due to the gap in literature on how to DI combined with the dearth of information on clearly defined objectives and tiering instruction, this study will seek to assess if a tiering matrix aligned to student levels of readiness can change teachers' perceptions, pedagogy, and sense of efficacy.

CHAPTER III

SOLUTION AND METHOD

The common thread between KTPS's focus on Hattie's instructional effect sizes, the AdvancED® committee's call for common definitions of grades and the teacher's need assessment survey is instruction. The proposed solution is a PL series that incorporates a tiered learning matrix for participants to tier learning intentions for a unit of study. The PL series will include teaching participants how to tier practice, tier formative and tier summative assessments. This PL series will provide teachers instructional strategies to alter lesson planning practices and will serve as a cog in the wheel that leads to clarity of grading practices (Figure 6).

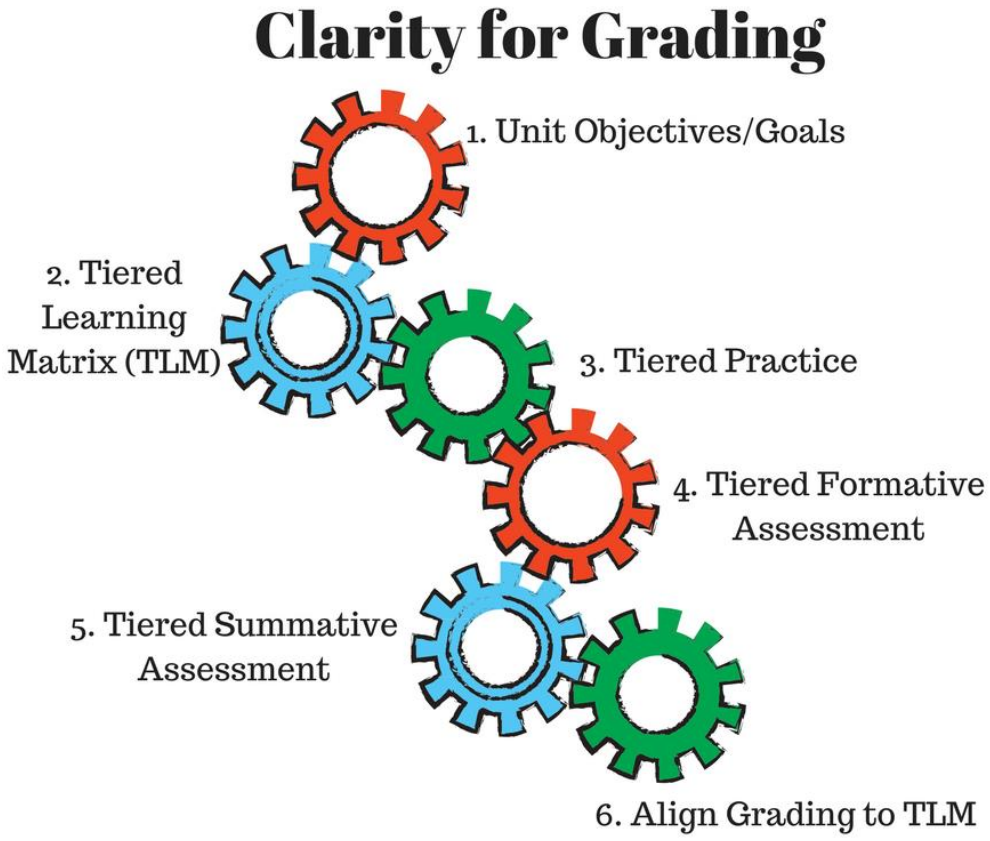


Figure 6. Proposed solution for clarity of grading practices.

Proposed Solutions

Reconnaissance Study Purpose (Pilot B)

The purpose of a second reconnaissance phase (Pilot B) of a this MMAR cycle was to identify which teacher efficacy survey to administer and to refine the PL series for the intervention. I attempted to answer the following quantitative and qualitative questions:

- Quan Strand 1: How many questions on the TSES (Hoy & Woolfolk, 1993) versus the TES (Gibson & Dembo, 1984) are related directly to instructions?
- Qual Strand 1: How did participants in a piloted PL session react and or interact with the TLM?

In response to Quan Strand 1, I counted the number of questions each survey contained related specifically to instruction. As I examined the questions in the TSES long and short form as well as the TES long and short form, I found the TSES provided more survey questions specific to instruction. The following TSES items specifically tie to instruction for various levels of readiness:

- Item 1: How much can you do to get through to the most difficult students?
- Item 2: How much can you do to help your students think critically?
- Item 6: How much can you do to get students to believe they can do well in school work?
- Item 7: How well can you respond to difficult questions from your students?
- Item 9: How much can you do to help your students value learning?
- Item 10: How much can you gauge student comprehension of what you have taught?
- Item 11: To what extent can you craft good questions for your students?
- Item 12: How much can you do to foster student creativity?

- Item 14: How much can you do to improve the understanding of a student who is failing?
- Item 17: How much can you do to adjust your lessons to the proper level for individual students?
- Item 18: How much can you use a variety of assessment strategies?
- Item 20: To what extent can you provide an alternative explanation or example when students are confused?
- Item: 23: How well can you implement alternative strategies in your classroom?
- Item 24: How well can you provide appropriate challenges for very capable students? (Moran & Woolfolk Hoy, 2001).

Therefore, I will administer the TSES to participants as this survey offers more questions related to instruction.

In regards to Qual Strand 2 in Pilot B, I used content analysis of personal journals and annotated notes from planning meetings with Dr. Clark and the instructional coach, Marie Dayne. I journaled and annotated notes on the tiered learning matrix (TLM) that I created for the PL series. After I piloted a PL session to introduce the TLM, I noted in my journal that participants became consumed by the grading components embedded in the current TLM. Participants also viewed the TLM design as a hierarchical. For example, participants assumed that if students could perform at the top level of the matrix then this level equated to mastery of all learning targets.

Marie also collaborated with me to build a PL outline to land on a specific number of sessions to include in the PL, goals for each session and time length of each session. Annotated notes from these meetings helped me build the PL timeline for the action research.

Outline and Justification of the Proposed Solution

In consideration of these comments, during the Planning phase of this MMAR study I redesigned the TLM to remove percentages and letter grades from the matrix (Figure 7). I also redesigned the matrix to shift the focus from hierarchical learning to learning for all levels of readiness.

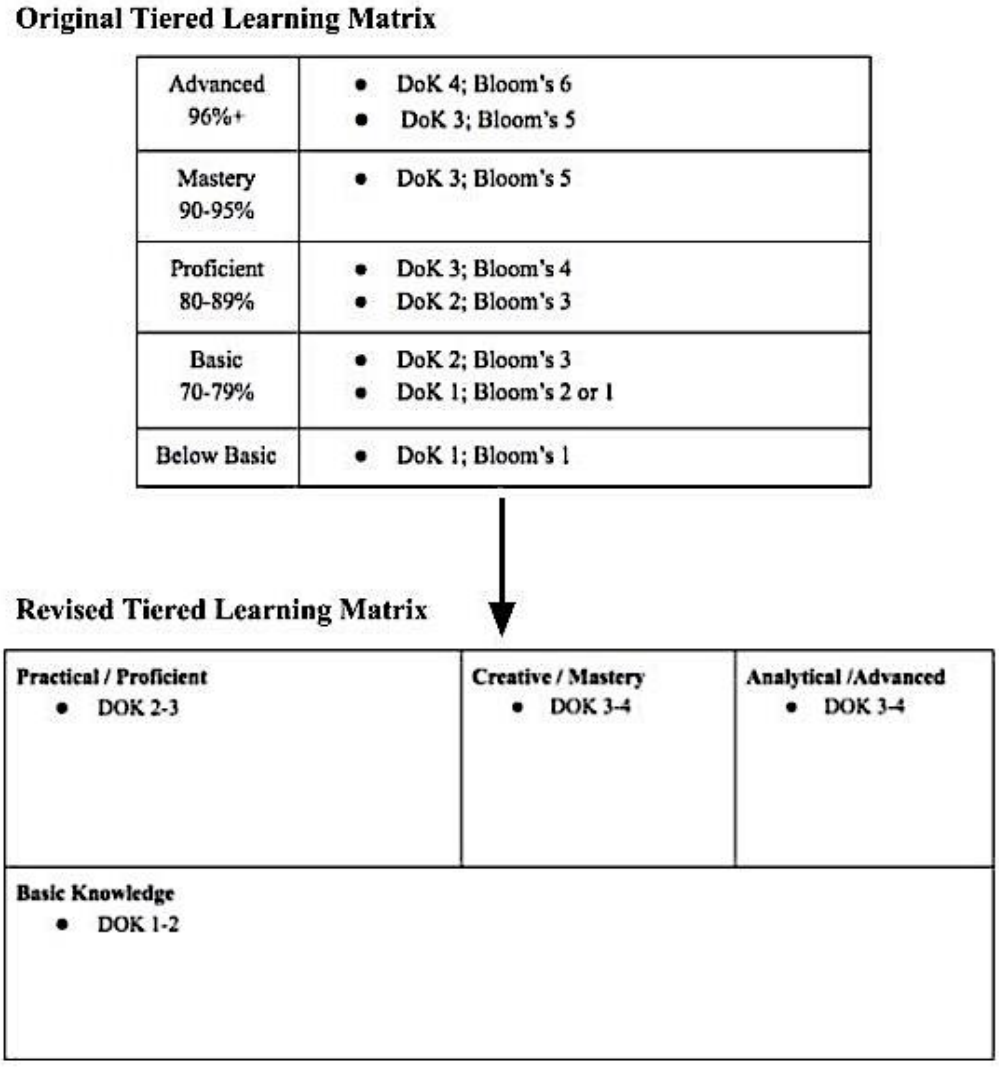


Figure 7. Revised Tiered Learning Matrix.

In addition, I crafted two possible PL timelines to deliver the action plan (Table 1).

Table 1. PL Timeline

PL Timeline Option A

Dates	When	Length of Time	PL/Activity Description
1/16	Before/After school	45 minutes	**Tiered Learning Matrix** - Introduce TLM (tiered learning targets) Participant homework to create a TLM
1/23	Before School	30 minutes	Coffee Talk - Share & Reflect on one another's TLM designs
1/30	Before/After school	45 minutes	**Tiering Strategies** - Gallery Walk of Tiered Practice, Formative and Summative Assessments. Participant homework to create a tiered activities and to annotate notes on how it went
2/20	Before School	30 minutes	Coffee Talk - Gallery Walk of participant created tiered activities
March	Before, After or Planning Hours	45 minutes	Individual or Small Group Follow Ups
4/10	Before/After School	45 minutes	Share, Reflect and Next Steps
6 days		**4 hours**	

PL Timeline Option B

Dates	When	Length of Time	PL/Activity Description
1/10	Half Day	3 hours	Participants learn about and created Tiered Learning Matrices for individual units of study. Participants learn about and create tiered activities/FAs/SAs.
2/20	Before/After school	45 minutes	Coffee Talk - Gallery Walk of participant created TLM and or tiered activities
March	Before, After or Planning Hours	45 minutes	Individual or Small Group Follow Ups

Table 1 Continued

PL Timeline Option B

Dates	When	Length of Time	PL/Activity Description
4/10	Before/After School	45 minutes	Share, Reflect and Next Steps
4 days		**5.25 hours**	

Note. Timeline proposals for the proposed PL series. The main differences between the two is that Option B includes a three-hour workshop.

Marie and I collaborated to fine tune the timeline for the study. We determined a 12-week cycle for the PL series. The first six weeks of the study I will frontload the participants with how to use the TLM in combination with a TLM protocol (Figure 8) to help participants to refine their matrices.

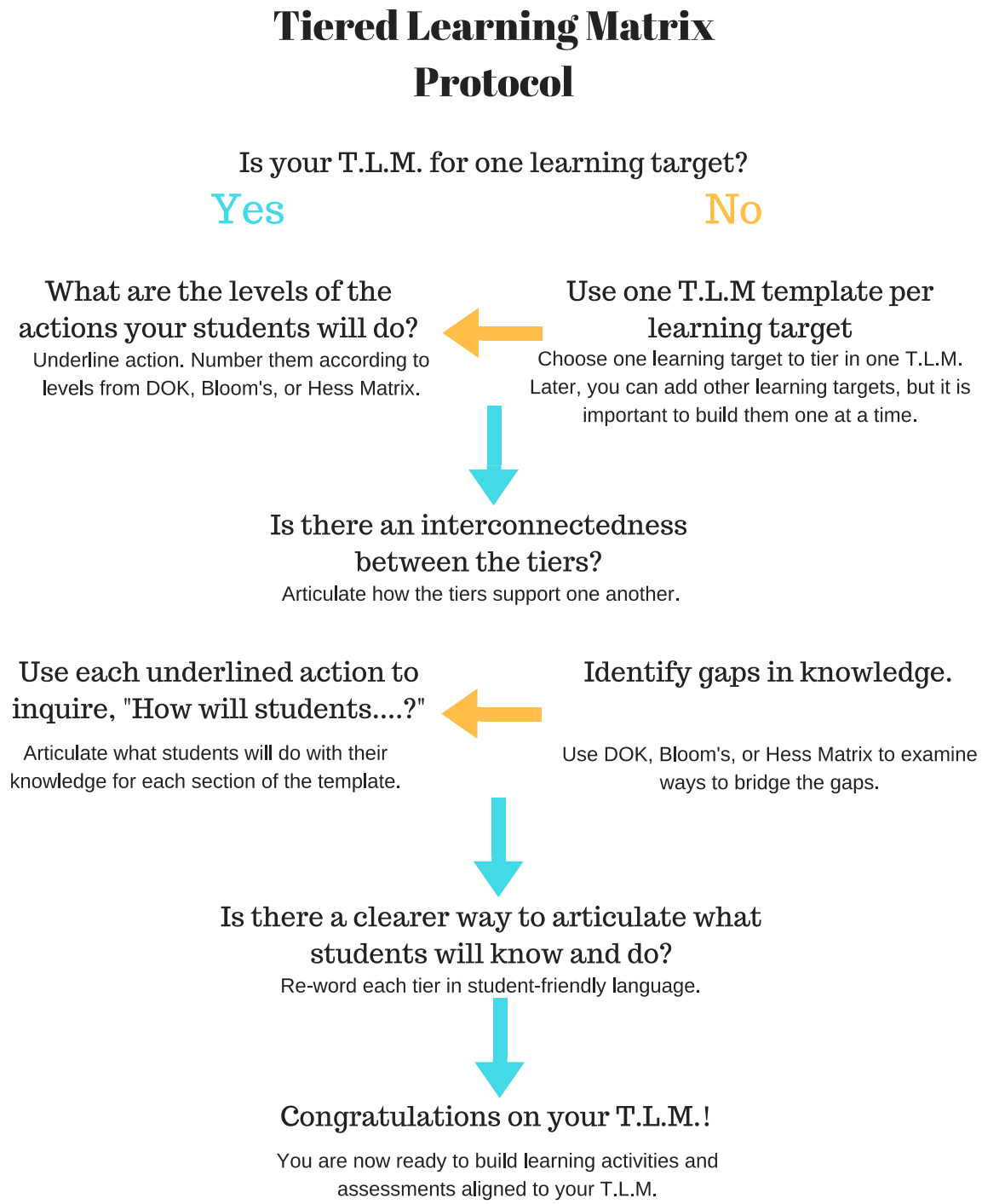


Figure 8. TLM protocol.

This flow chart assists participants in examining tiered learning targets in their self-created TLM. The chart helps unearth any gaps in knowledge to create clearer learning targets for students. Marie and I will also work to create PL to support participants in how to design tiered practices, tiered formative and tiered summative assessments. The second six weeks of the study, the participants will only meet with me once in order to share artifacts, reflect and or revise their tiered strategies or products. In order to gather participants for the study, I created a PL flyer (Figure 9) for department chairs and data team leaders to share with their faculty/teams. I also posted the fliers in the faculty lounge. It is my hope to gather eight to ten participants for this MMAR study.

PROFESSIONAL LEARNING FOR LEVELS OF STUDENT READINESS

Action Research for Tiered Learning Targets & Instruction

Spring 2018 — 5 Spring PD Hours

Tiered Learning Matrix

Practical/Proficient	Creative/Mastery	Analytical/Advanced
• **Organize** one's daily routine in a logical order • **Use context clues** to provide missing information (fill in the blank, reading or listening for understanding)	• **Use** your voice to **create a recording** of your daily routine • **Solve** multiple step problems such as answering questions in complete Spanish sentences	• **Construct** a paragraph to compare/contrast your daily routine with another's

Basic Knowledge
• **Recall** conjugation rules for regular, stem changing and reflexive verbs
  ○ Create a presentation to teach how to conjugate reflexive verbs
  ○ Whiteboard practice for basic reflexive conjugations
• **Recall** daily routine vocabulary from English to Spanish with minimal spelling errors		

Example

Teacher Efficacy.
Learn. Use. Grow.

AFTER SCHOOL SERIES

Jan. 16 - Tiered Learning Matrix

This after school session will explore the tiered learning matrix (TLM) and plan for navigating learning for various levels of student readiness.

Jan. 30 - Tiered Strategies

This after school session will engage in a gallery walk to learn about tiered practice, formative and summative assessments.

March - One to One Support

This session you will choose the date and time to meet with me to share and reflect/revise tiered strategies.

COFFEE TALKS

Attend a February and April coffee talk to share and reflect on the TLM strategies or process.

**This professional learning series will guide teachers in creating tiered learning targets, tiered practice and tiered assessments. Please contact Charity Stephens for further details.*

Doctoral Candidate - Charity Stephens - Texas A&M - Mixed Methods Action Research for Ed.D in C&I

Figure 9. PL flyer to gather participants.

Participants

No research comes without risk. However, this MMAR study was exempt from an Institutional Review Board application as deemed by the Post Approval Monitor of the Human Research Protection Program for the Division of Research for Texas A&M as the study poses minimal risk to participants and the district. Freedom High School, grades nine through 12, was the research site of study. A total of nine teachers voluntarily enrolled in the PL series. The participants ranged from new (one to three years teaching experience) to veteran teachers (four or more years teaching experience). Four male and five female teachers participated in the study. Also, four content areas were represented, two core departments (social studies and math) and two elective departments (foreign languages and fine arts). To combat identification of participants or the district, I used pseudonyms to de-identify the participants and the district. While de-identification serves to protect the anonymity of the participants and the district, it will be possible for the building principal, instructional coach, and employees with administrative access to MLP to identify the participants in this study. Although identification of participants is possible by these employees, the pseudonyms will attempt to offer protection against connecting research data to specific participants. The building's 1% PL funding was approved by the principal since the PL series aligned with the district's five vision priorities and supported the current focus on learning intentions.

Proposed Research Design

The purpose of this mixed methods study is to explore the effectiveness of a professional learning series focused on tiered instruction to support teaching for various levels of student readiness. Chapters 1 and 3 focused on the first three stages of the MMAR (Figure 10) cycle as I diagnosed the PL needs of the faculty and planned the intervention.

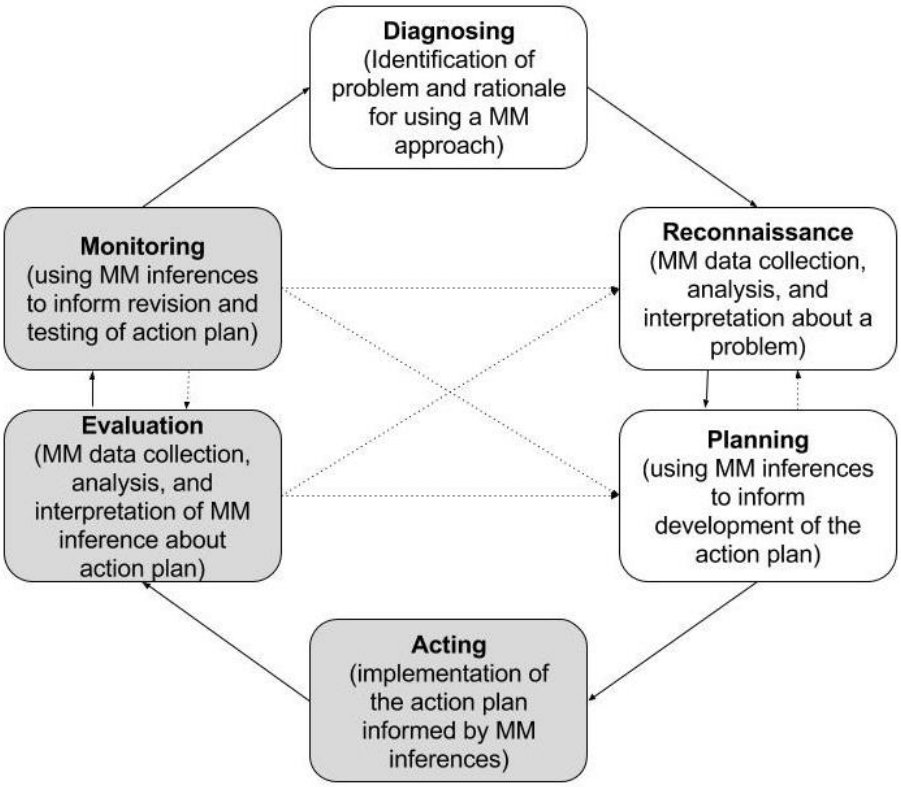


Figure 10: Conceptual Model of Mixed Methods Action Research. (Clark, V. L. P., & Ivankova, N. V. 2015)

This chapter will now focus the study context, proposed research paradigm, data collection and analysis methods, and reliability and validity concerns for the study.

Study strands

The goal of the quantitative strand is to identify levels of a teacher's sense of efficacy prior to the tiered PL intervention by conducting and analyzing the TSES administered to PL participants. The goal of the qualitative strand of the study is to explore if PL participants are tiering student practice and assessments aligned to the tiered learning framework by conducting interviews, recording PL sessions, collecting and analyzing artifacts and journals.

Sequence or Timing

I will use a concurrent sequence (Figure 11) to independently collect and analyze the quantitative survey and qualitative data. The results from both study strands will be compared at the conclusion of the quantitative and qualitative analysis.

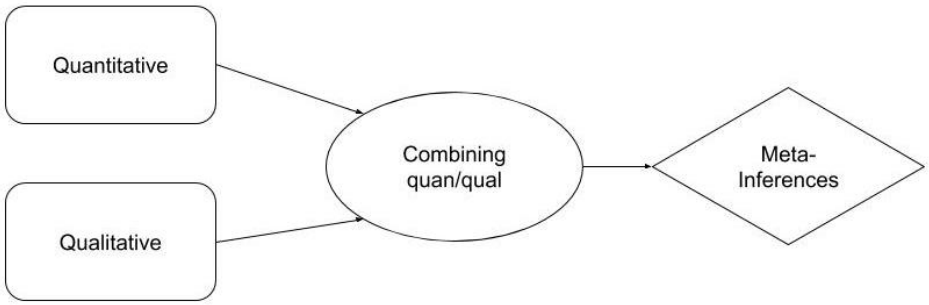


Figure 11: Conceptual Model of Concurrent Quan + Qual MMAR Strands.

Priority or Weighting

Priority will be given to the qualitative data. The quantitative survey data will focus on identifying teachers' levels of teacher self-efficacy. The qualitative data however, will provide information on how PL that teaches tiered learning framework can get teachers to integrate tiered practices and assessments for levels of student readiness; the study emphasis on exploring ways for teachers to tier learning leads to the premise of this study.

Integration or Mixing

The rational for combining quantitative and qualitative data in the study is to gain a deeper understanding of teacher self-efficacy to inform the development of PL for a tiered learning framework. Combining the data will help create meta-inferences based on what was learned from the action research process.

Research Paradigm

This MMAR study relies on a pragmatic paradigm as I will employ various worldviews, methods, data collection analysis and assumptions that will best serve the problem of practice (Creswell, 2014; Lukenchuk, 2011). Morgan (2007) stated the pragmatic approach values "*shared meanings* and *joint action*" (p. 67) so that the researcher can measure commonalities of understanding among participants and extrapolate the various types of behavior from those commonalities. Pragmatism denies the top-down approach to research (Lukenchuk, 2012). Instead, it embraces "abductive-intersubjective-transferable aspects of" (p. 73) research. Since this MMAR study will employ both quantitative and qualitative methods there are ties to the empirical-analytic paradigm as well as the interpretive (constructivist) paradigm (Lukenchuk, 2012). Johnson and Onwuegbuzie (2004) stated that pragmatism is the primary philosophy for mixed methods research. The symbiotic relationship between the participants and I will allow for meaning-making among the participants; this is also known as constructivist learning. Constructivist "learning is not uniform and cannot be specified in advance; it is not assembled like parts of a machine, but rather evolves in nonlinear ways from the experiences and attitudes of the learners" (Walker & Lambert, 1995, p. 19). Therefore, practitioner action research "has the potential to become a truly grassroots, democratic movement, of knowledge production and educational and social change" (Anderson, Herr, & Nihlen, 2007, p. 32).

Data Collection

During the Action phase of this MMAR study, I will administer TSES long form, developed by Tschannen-Moran and Woolfolk Hoy (2001) at the beginning and the conclusion of the PL series. This assessment utilizes a nine point Likert scale to measure three factors (a) Efficacy in Student Engagement, (b) Efficacy in Instructional practices, and (c) Efficacy in

Classroom Management. I am particularly interested documenting any change in participant scores from the beginning to the end of the study as related to the following questions of the survey:

- Item 1: To what extent can you use a variety of assessment strategies?
- Item 2: To what extent can you provide an alternate explanation or example when students are confused?
- Item 4: How well can you implement alternative strategies in your classroom?
- Item 6: How much can you do to adjust your lessons to the proper level for individual students?
- Item7: To what extent can you gauge student comprehension of what you have taught?
- Item 8: How well can you provide appropriate challenges for very capable students?
- Item 17: How much can you do to get students to believe they can do well in schoolwork?
- Item 21: How much can you do to improve the understanding of a student who is failing?
- Item 22: How much can you do to help your students think critically?
- Item: 23: How well can you implement alternative strategies in your classroom?
- Item 24: How well can you provide appropriate challenges for very capable students? (Moran & Woolfolk Hoy, 2001).

During the Action phase of this MMAR study, I will utilize a variety of qualitative data gathering strategies. According to Anderson, Herr & Nihlen (2007) “a single document can

rarely stand on its own" (p. 206). The authors further contended that diligent documentation can help bring organization to a somewhat chaotic process. Table 2 provides an artifact timeline.

Table 2.

Timeline for data collection of artifacts.

Dates	PL/Activity Description	Participant Data/Artifacts
1/16	**Tiered Learning Matrix** - Introduce TLM (tiered learning targets) with Edutopia article on Levels of Understanding with Participant homework to create a TLM	Participant notes during session on post-it notes, Field notes of participant observations, TSES survey, Participant annotated notes on Edutopia article, Video recording with iPad
Virtual	Padlet Wall – Participants will post a screenshot of their TLM to a virtual wall and provide comments/feedback to one another	Participant TLM screenshot, Participant written comments/feedback
1/30	**Tiering Strategies** - Gallery Walk of Tiered Practice, Formative and Summative Assessments. Participant homework to create tiered activities and to annotate notes on how it went. Participants will receive a T.L.M. Protocol to assist them in refining their matrices.	Participant notes during session on post-it notes (posted during gallery walk), Field notes of participant observations, Video recording with iPad
TBD	Coffee Talk(s) - Gallery Walk of participant created tiered activities and possible additional coffee talks as requested by participants	Participant notes during session on post-it notes during Gallery walk, Field notes of participant observations, Video recording with iPad
March	Individual or Small Group Follow Ups	Video or voice recording with iPad
4/10	Share, Reflect & Next Steps (post survey TSES)	Participant notes during session on post-it notes, Field notes of participant observations, TSES survey, Video recording with iPad

This timeline is flexible as it may change to better meet the needs of the participants.

I believe journaling can act as a linchpin of the data collection process. In addition, reflective writing can capture not only a log of events, but also my personal insights of the

events. Journals can "provide a rich source of data" (Anderson, Herr & Nihlen, 2007, p. 208). I will keep an analytic memo to capture my reflections throughout the study. I also will keep field notes to capture participant observations during PL sessions as well as video record the sessions. Participants in the study will provide lesson artifacts such as participant designed lesson plans, practice or assessments. In addition, participants will share artifacts in virtual platforms such as the use of a private Padlet wall. This is a platform that will allow participants to share and view participant artifacts developed during the PL series. To piggyback on researcher and participant journaling, I will follow up with individual or group interviews to unearth or clarify insights.

Data Analysis

I will use inferential statistics to analyze the pre-and post-data sets from the TSES. I will use continuous data to analyze the average and the standard deviation of the scores. In addition, I will run a paired t-test to compare the means of the pre-and post-data sets. (more needed…)

Qualitative data analysis is a cyclic action (Saldaña, 2009) that will occur throughout the Action and Evaluation phases of this study. I will codify and categorize the qualitative data I collected: field notes, analytic memos, participant artifacts, and transcribed PL sessions or interviews. My initial coding will utilize descriptive codes to summarize the topics and In Vivo coding of participant quotes from transcribed sessions, interviews or field notes. Coding will help me look for repetitive patterns of action. "When codes are applied and reapplied you are codifying" (p. 8). Since this is a small-scale study, I will manually code. From these codes, I will create categories and subcategories. I will use member-checking with participants to help bring clarity and or provide further insights to my codes and categories. To maintain the trustworthiness of my findings, Saldaña recommends to: "(1) check your interpretations developed thus far with participants themselves; (2) initially code *as* you transcribe interview

data; and (3) maintain a reflective journal on the research project with copious analytic memos" (p. 28).

Data Analysis and Validity

During the Planning and Evaluation phases of this MMAR study, I will use constant data analysis to help me determine next steps within the research process. In addition to these methods, it will be important to link my data to pre-existing research so that my "analysis and data can 'dialogue' with that of others" (Anderson, Herr & Nihlen, 2007, p. 213). Herr & Anderson (2015) linked five validity criteria to five goals of action research: outcome, process, democratic, dialogic and catalytic.

Outcome validity is supported through the constant reframing of the problem to lead to new knowledge. The spiral of the research process allows the participants and I to constantly reflect and refine instructional practices. The TSES will assist me in reframing the professional learning based on the level of participant self-efficacy. I very well may need to make adjustments in the PL to better meet the needs of the participants

Process validity is supported in my study through triangulation as this "guards against viewing events in a simplistic or self-serving way" (Herr & Anderson, 2015, p. 68). Data gathering and analysis methods will help me dive deeper into reframing the problem. "The notion of triangulation, or the inclusion of multiple perspectives" (p. 68) help protect me against any biases I may hold. Data gathering and analysis methods will assist the action researcher and participants to dive deeper into reframing problems of instructional practices.

Democratic validity is represented in my pilot study as participant interviews, journals and surveys will help craft and refine the various phases of the action research cycles. The PL plan

will allow for participant collaboration to empower participant voice and choice within all the action phase of the research cycle.

Catalytic validity drives transformational change for both the researcher and the participants. The action research cycle allows for participant collaboration through utilizing critical inquiry and reflective practices embedded within a PL platform. The participants will annotate their thoughts in regards to tiered instructional strategies they implement. I will also keep a journal to capture reflections about the PL plan and record any adjustments made to the plan during the study.

Finally, interviews and my critical friend will bring about dialogic validity within my study. Figure 12 features an interview framework protocol (Castillo-Montoya, 2016) I will use to ensure my interview questions address the two research strands:

- QUAL Strand 1: What are teachers' attitudes about the effectiveness of professional learning focused on tiered instructional practices?
- Quan Strand 2: What changes occurred for teachers as a result of their participation in the professional learning series on tiered instruction?

Interview Protocol Matrix

	Background Information	Research Question Strand 1	Research Question Strand 2
Interview Q1a	x		
Interview Q1b	x		
Interview Q1c	x		
Interview Q1d	x		
Interview Q1e	x		
Interview Q2	x		
Interview Q3		x	
Interview Q4		x	x
Interview Q5		x	x
Interview Q5a			x
Interview Q6		x	x
Interview Q6a		x	x
Interview Q6b		x	
Interview Q6c			x
Interview Q7		x	
Interview Q8			x

Figure 12. Interview protocol matrix. This is a modified matrix by Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol refinement framework. *The Qualitative Report, 21*(5), 811-831.

The matrix will ensure I align my individual interview questions to my research questions. The interview (Figure 13) questions will serve as a guide when I interview participants.

Participant Interview Questions

1. Before we jump in, tell me a little about your teaching background (skip during later interviews):
    a. How long have you taught?
    b. How long have you taught at this school?
    c. What subjects have you taught in the past?
    d. What subjects do you currently teach?
    e. How long have you taught the subject(s) you currently teach?

2. What is going on in your classes lately?

3. Let's take a look at the T.L.M you created. Walk me through the tiered learning targets in your matrix.

4. From a teacher perspective, what are some things you've noticed or concerns you have as a result of creating your T.L.M?
    a. Tell me more about...

5. What are some anticipated concerns your students might have with tiered learning targets?
    a. How might you navigate or address these concerns?

6. As a result of your tiered learning targets tell me about any implemented tiered practices or assessments.
    a. How did you feel it went?
    b. Did you allow for student choice? If so, how? If not, expand on why.
    c. Now that you have implemented a tiered lesson, would you make any changes or adjustments for future tiered lessons/assessments?

7. What are some upcoming practices/assessments you hope to tier and why?

8. How do you feel this PL series has impacted your instruction?
    a. What do you still need to have addressed?

Figure 13. Participant Interview Questions.

The questions I ask will depend on if information was previously known or provided. If warranted, I will ask different questions to gather more information to gain a clearer understanding of teachers' perceptions, pedagogy, and or sense of efficacy.

In addition to interviews, I will employ the assistance of a critical friend to help bring into focus my positionality within the study and to make meaning of data and or study. I will utilize two critical friends, both from within the building. I feel the instructional coach will provide insights into the intricacies of PL for the participants. I also believe the principal may offer a different lens with which I can look at the study.

Closing Thoughts on Chapter 3

I will examine teachers' changes in perceptions, pedagogy, and sense of efficacy as a result of participating in the PL series focused on tiered instruction. The pragmatic paradigm I embrace will allow me to utilize a variety of methods to individual examine these three types of changes. The mixed methods design will provide both quantitative and qualitative data to examine for meta-inferences. These meta-inferences will guide the direction of my study and provide implications for future directions. In the next chapter I will report the findings and results related to these three types of changes.

CHAPTER IV*

ANALYSIS AND RESULTS

Creswell (2014) outlines four collection procedures in qualitative research: observation, interviews, documents, and audio and visual materials. In this chapter I will outline how I employed the use of each of these collection procedures. In addition, I collected quantitative data from a survey which I will later describe. Creswell states that the goal of mixed methods is to either merge the data into a "side-by-side" (p. 222) comparison or to merge the data into "a single visual" (p. 223). Tashakkori and Teddlie (1998) state that parallel mixed analysis, "also known as triangulation of data sources…is probably the most widely used mixed data analysis strategy in" (p. 128) educational research. This chapter will reveal the types of collected data, present the data organized by research question, detail the results of the research via triangulation of data, and highlight the interactions between the research and the context.

Introducing the Analysis

I embraced a pragmatist paradigm to open "the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis" (Creswell, 2014, p. 11). The rational for combining quantitative and qualitative data in the study was to gain a deeper understanding of teacher self-efficacy to inform the development of PL for a tiered learning framework. Combining the data helped create e based on what was learned from the action research process. I utilized a concurrent sequence (Figure 11) to independently collect and analyze the quantitative survey and qualitative data. The results from both study strands

---

*Reprinted with permission from "Teacher efficacy: Capturing and elusive construct." By Tschannen-Moran, M., & Woolfolk Hoy, A., 2001, *Teaching and Teacher Education,* United States of America. Copyright 2001 Elsevier Science Ltd.

were compared at the conclusion of the quantitative and qualitative analysis for the three stages of the study (Table 3).

Table 3.

MMAR Meta-Inferences

MMAR Stages of the Study	Quantitative	Qualitative	Meta-Inferences & Planning
Reconnaissance Pilot A	Highest ranking PL needs of faculty	Real-time PL course offerings	⇒ Gap in DI course offerings. ⇒ Create PL series for DI. Create TLM as the vehicle for DI.
Reconnaissance Pilot B	Number of questions related to pedagogy on TSES (Hoy & Woolfolk-Hoy, 1993) versus TES (Gibson & Dumbo, 1984)	Participants' perceptions from a piloted PL session with the TLM as vehicle for DI	⇒ Gap in understanding tiered learning. ⇒ Refine PL series. ⇒ Refine TLM.
Implementation of Action Plan	Quantitative data from pre- and post-TSES were invalid for paired comparison	Participants' artifacts and transcripts from the revised PL session with the revised TLM	⇒ Qualitative changes in teachers' perceptions, pedagogy, and sense of efficacy.

Anderson, Herr, and Nihlen (2007) state that action research employs inductive data analyses to unearth "multiple realities" (p. 161). As I employed multiple methods for data collection and analyses, I gained "a more complex understanding" to "make meaning out of the data" (p. 161). The MMAR cycle of plan-act-evaluate-monitor allowed me to continuously reflect on the findings thus lending itself to an emergent design "rather than be rigidly stated at the beginning of the" (p. 162) study.

Qualitative

The data analyses for this study involved both inductive and deductive processes. Creswell (2014) states that in qualitative data analyses the "inductive process illustrates working back and forth between themes" (p. 186). Then, I deductively re-examined the data to reach saturation (Figure 14).

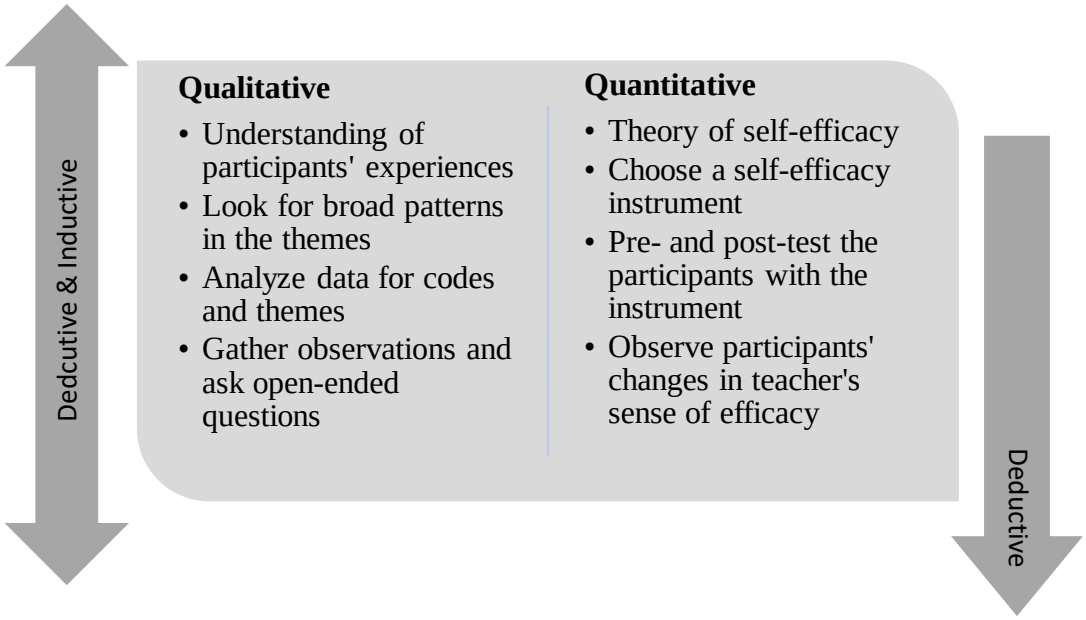


Figure 14. Mixed methods inductive and deductive approaches

Creswell states that "when gathering fresh data no longer sparks new insights or reveals new properties" (p. 189) then the research has reached saturation. In order to reach saturation, I collected multiple data over 12 weeks (Table 4).

Table 4. Timeline of Data Collection

Timeline for Data Collection	Participant Data and Artifacts
Mid- January/Mid-February	• TSES pre-survey • Participant notes during sessions • Field notes of participant observations • Participant interview via video

Table 4 Continued

Timeline for Data Collection	Participant Data and Artifacts
Late February	• Participant notes during session on TLM templates • Field notes of participant observations • Video recording with iPad • 7 participants provided video responses to Let's Recap • Researcher self-reflection via audio
March	• Mid-study individual interviews
Late April/May	• TSES post-survey • End of study interviews • Participant notes during session on TLM templates, • Field notes of participant observations, • Video recording with iPad, • Researcher self-reflection via audio

Saturation also occurred as data began to repeat itself through axial coding (Saldaña, 2009).

Survey. To begin the study, I conducted a pre-survey to assess levels of participant teaching efficacy via the TSES, developed by Tschannen-Moran and Woolfolk Hoy (2001). This assessment utilized a 9-point Likert scale to measure three factors (a) Efficacy in Student Engagement, (b) Efficacy in Instructional practices, and (c) Efficacy in Classroom Management (Tschannen-Moran & Woolfolk Hoy, 2001). I conducted the survey via Google Forms (Appendix). Each of the nine participants anonymously completed the survey at the beginning and the end of the study. The survey took approximately 10 minutes to complete at the start of

the first and last sessions of this PL series. After the PL series was complete, data from the pre and post-TSES survey was prepared for analysis.

Fieldnotes, artifacts, and documents. I utilized a dot journal to record fieldnotes after each PL meeting with the participants, the instructional coach and the principal. A dot journal is simply a notebook that utilizes dots instead of lines on the paper. I chose the dot journal as it gave me the freedom to organize each page in a way that I saw best fit for each entry. Sometimes I drew a line down the right side to create a two inch margin. Then I recorded my initial thoughts in the larger space to the left and later analyzed the notes to include further thoughts in the space to the right. Herr & Anderson (2015) state that journaling is "done from a position of involved actor, so the researcher is busily carrying out multiple roles" (p. 91). Since I was immersed in the study, not only as the researcher, but also as the PL facilitator, journaling gave me "a way of stepping back into ongoing analysis" (p. 91). Due to these multiple roles, I did not take fieldnotes during any meetings as it was simply too challenging to facilitate the session and take notes simultaneously. Immediately following PL sessions, I wrote my initial observations from the session. In the evenings, once home, I read my initial observations to search for any gaps in understanding and to refine upcoming PL sessions to fill the gaps.

Instead, I employed the use of a video camera to record all PL sessions. The first PL session, the video did not work so I had to quickly think of a way to capture the experience. I employed the use of a voice recorder immediately after the session to capture my reflections. This impromptu decision became my first line of defense when it came to capturing my reflections after PL sessions. Then, in the evenings, I played the voice recorder as I refined my reflections in a dot journal at home. I ended up with over 8 hours of video and audio recordings which I later paid to have professionally transcribed by Weloty Academic Transcription

Services. Weloty provided a non-disclosure agreement (Appendix) that stated all research will be permanently kept confidential. This service provided over 180 pages of transcribed data for me to analyze.

Interviews. I utilized semi-structured interviews with the participants. Throughout the study, I worked closely with my committee chair, Dr. Matthews, to refine my interview questions. The first semi-structured interview required the participants to respond to a series of open-ended questions via an on-line platform called Recap by Swivl. This website allowed me to set up a series of 4 open-ended questions for participants to respond via video captured within the platform. Participants were prompted to answer these questions with the intent that their responses would inform and be shared during the PL session. The questions were:

1. Finish the following statement, I teach because…
2. Thinking about the Tiered Learning Matrix that you created, what did you find challenging about tiering your learning targets? Did you have any ah-ha moments or moments of insight? If so, explain.
3. What are some concerns you have with tiering practice or assessments?
4. During our upcoming workshop you will create: a TLM for one learning target to implement in March along with tiered practice(s) and tiered formative assessment(s). Knowing the goals for this day, what would you like addressed during our workshop?

These responses were later analyzed to help develop the half day PL workshop. Since I needed an immediate transcript of these recordings, I employed the use of the speech to text feature in Google Docs. While I played the recordings, I used the speech to text feature to quickly capture participant responses. Since speech to text is computer generated text from what it thinks it hears, this method does not come without flaw. To ensure quality, I listened to the recordings

once more while reading the transcript and made any necessary changes. Once I completed the transcripts, I coded the data for categories. A major theme that emerged was an overwhelming desire to help students learn. As a result, I created an anticipatory set for PL workshop to include the participants' response. Participants read an anonymous response and then guessed which response belonged to each participant. This activity served two purposes: (1) to serve as a reminder as to why they chose teaching as a profession, and (2) to create a sense of shared purpose and community for the workshop.

After the PL workshop, another semi-structured interview was conducted face to face with each individual participant. This interview was more fluid with back and forth dialogue. The interviews varied in timing with some one week after the PL workshop and others two to three weeks later. Interview times and dates were selected by the participants so to best meet their needs. The interview questions below provided a framework for the interview, however, the use of each question depended on each individual interview with the participants.

1) Let's take a look at the T.L.M you created. Walk me through the tiered learning targets in your matrix.
2) From a teacher perspective, what are some things you've noticed or concerns you have as a result of creating your T.L.M?
    a) Tell me more about...
3) What are some anticipated concerns your students might have with tiered learning targets?
    a) How might you navigate or address these concerns?
4) As a result of your tiered learning targets tell me about any implemented tiered practices or assessments.

a) How did you feel it went?

b) Did you allow for student choice? If so, how? If not, expand on why.

c) Now that you have implemented a tiered lesson, would you make any changes or adjustments for future tiered lessons/assessments?

5) What are some upcoming practices/assessments you hope to tier and why?

6) How do you feel this PL series has impacted your instruction?

a) What do you still need to have addressed?

The questions prompted participant reflection on their experiences and attitudes with integrating the TLM within their practices. I utilized a voice recorder to capture each of the nine interviews. Transcripts from these open-ended interviews later helped me "collect detailed views from participants to help explain the initial quantitative survey" (Creswell, 2014, p. 19).

The final face to face interviews occurred at the conclusion of the study. Due to various scheduling conflicts these interviews were conducted in either small groups or individually in order to accommodate the participants' scheduling needs. Again, I employed open-ended questions. However, this interview was more structured than the interview prior so to better capture responses aligned to the research questions. The final semi-structured interview questions were:

1) Thinking back on our PD series, we met a total of three times face to face. Tell us about which PD day/activity that was most beneficial to you.

2) Aside from your curricular content, tell us about the most useful resource(s) that assisted you in tiering learning.

3) How did you feel the TLM impacted your instruction?

4) How did you feel the tiered instructional practices that your created/implemented met the needs of various levels of student readiness?
5) What changes occurred for you as a result of participating in this study?
6) How did this PD series shape your thoughts about the effectiveness of tiered instructional practices?
7) How might you proceed with learning about and or implementing tiered learning in the future?

I conducted three individual interviews and two small group interviews with three participants in each group. I used Google Slides to present and project the questions on a screen for participants to see and to keep the questions central to the interview discussion. Again, I utilized a voice recording app and later transcribed the recordings.

Manual Coding. Creswell (2014) states that there are seven steps in the coding process. The analysis process I utilized for this MMAR study aligns with Creswell's seven steps (Table 5).

Table 5.

Creswell's Qualitative Analysis Process Aligned to the Analysis Process for this MMAR Study

Creswell's Qualitative Analysis Process	Analysis Process for this MMAR Study
• Collection of Raw Data (transcripts, fieldnotes, images. Etc.)	• Voice recorder, video, researcher journal and fieldnotes, researcher and participant artifacts, self-transcribed video from Recap by Swivl
• Organizing and Preparing Data for Analysis	• Genius Scan app created PDFs of artifacts, Weloty Academic Transcription Services transcribed over eight hours of audio/video, Google Drive, Google Classroom organized raw data
• Reading Through All Data	• Fieldnotes, journal captured first impressions, general ideas
• Coding the Data	• Coding types: In vivo, structural, descriptive, provisional, pattern, and axial
• Themes & Descriptions	• Generate themes for study

• Interrelating Themes/Description • Interpreting the Meaning of Themes/Descriptions	• Narrative passage and visuals to reveal findings • Meaning making from comparison of the findings, narrative passage in connection with literature

Note. Creswell's qualitative analysis process adapted from "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches by Creswell, J.W., 2014, p. 197. Copyright 2014 by SAGE Publications Inc.

The means of which I collected my raw data were both planned and spur of the moment. At the start of this study, I envisioned using video for all PL sessions with the participants. Once the study began, I realized I had to be flexible with the use of technology. In the first session, the video failed to record. In order to quickly capture my reflections of the session, I used a voice recorder. The use of this app quickly became my go-to source to capture my reflections. After the first session I reflected that it was difficult to write fieldnotes and facilitate the PL session simultaneously. "Gosh, it's kind of a three-ring circus when you try to do research and lead it and try to get all the notes" (C. S. Stephens, personal communication, January 18, 2018). I then decided my priority for future PL sessions could not be divided. My sole focus required me to be facilitator first and then slide into researcher mode once a PL session concluded. Immediately after each session I made notes in my journal and or I recorded my reflections. In addition, I watched or listened to the video and audio to further expand my findings in my journal. On the same day, in the evenings, I made further reflections to assist me in determining next steps in upcoming PL sessions or interviews.

I utilized multiple means to organize and prepare my data for analysis. Participants completed TLM templates both virtually and on paper. In addition, in PL sessions participants recorded their reflections on either post-it notes or via the online platform Padlet (Appendix. I utilized the Genius Scan app on my phone to capture all paper artifacts to turn them into PDFs. Participants also submitted their work via Google Classroom or email. Participants also

completed the pre and post survey for the study via Google Forms. Google Forms automatically gathers the responses and exports them into a spreadsheet for analysis. I also employed Weloty Academic Transcription Services to transcribe all audio and video captured during the study. I organized all digital artifacts in Google Drive. After reading through all the data, I organized all artifacts by two types digital and journal/fieldnotes. In addition, I was able to capture first impressions and generate general ideas about the study.

I utilized multiple types of coding: provisional, In Vivo, holistic, descriptive, pattern and axial. Saldaña (2009) states that it is appropriate for some researchers to generate a provisional list of codes prior to the coding process. I employed this method and thus performed a precursory keyword search (Table 6).

Table 6.

Provisional List of Keywords.

Provisional List of Keywords	
• differentiate, • level, • tier, • DOK, • depth, • bloom, • basic, • recall, • create, • creative,	• proficient, • proficiency, • practical, • mastery, • advanced, • identify, • readiness, • matrix, • analytical, • struggling

These words aligned to terms utilized in each of the PL sessions. I highlighted each of the keywords within the transcripts so to catch my attention in the first round of coding. Next, I employed In Vivo coding to align with the emergent design of the MMAR cycle. I highlighted direct language from of participants in the transcripts to generate more words to later assist me in finding patterns in the second cycle of coding. After In Vivo coding I used holistic coding as

"preparatory ground work for more detailed coding of the data" (p. 119) in the second cycle. I also "read and re-read the corpus to see the bigger picture" (p. 120). This helped me become immersed in the data so that I could select coding procedures to move forward with in round two of coding. Finally, I used descriptive coding to create basic categories to give me a foundational understanding of the study (Saldaña, 2009).

In the second cycle of coding I employed both pattern and axial coding procedures. I used pattern coding to identify similarities in coded passages from the first cycle of coding. This helped develop themes and patterns of codes (Saldaña, 2009). Pattern coding spurred me to go back to the literature to help make connections via interrelationships of data (Saldaña, 2009). Then I used axial coding to re-group "similarly coded data…into conceptual categories" (p. 160). Analytic memo writing helped me "think of a code not just as a significant word or phrase you applied to a datum, but as a prompt or trigger for written reflection on the deeper and complex meanings it evokes" (p. 32). From this process I was able to reflect, reorder, and revise my categories for further analysis until I reached saturation of data within the categories.

Quantitative

The quantitative data were collected via a the pre-TSES at the beginning of the study and via the post-TSES at the end of the study. This assessment utilized a nine point Likert scale to measure three factors (a) Efficacy in Student Engagement, (b) Efficacy in Instructional practices, and (c) Efficacy in Classroom Management (Tschannen-Moran & Woolfolk-Hoy, 2001). I recreated the survey in a Google Form for participants to take at the beginning and again at the end of the study. Data from the Google Form were collected into an Excel spreadsheet for item analysis.

Presentation of Data

1 How can changes in existing instructional practices related to tiered instruction enhance a teacher's sense of efficacy as measured by efficacy scores and as described through perceptions of teachers?

- 1.1 What changes in **teachers' perceptions** regarding tiered instruction occurred while participating in professional learning focused on tiered instruction?
- 1.2 What changes **in teachers' pedagogy** occurred for teachers as a result of their participation in the professional learning series on tiered instruction?
- 1.3 Are there changes in **teachers' sense of efficacy** as a result of their participation in professional learning focused on tiered instruction?

The main question of the study was broken down into three separate questions for data gathering and analysis. The first question examined teachers' perceptions regarding tiered instruction which occurred while participating in professional learning focused on tiered instruction. The data I collected to answer this question were gathered qualitatively via fieldnotes, artifacts, and audio/video transcripts. I manually coded the data for analysis and then, I organized In Vivo data into tables related to the timeframe of the study and the type of professional learning activity: January/February 30 Minute PL Sessions, February Half Day Workshop, March Mid-Study Interviews, and April/May End of Study Interviews. Then I was able to further break down the data to align to each research question. In Vivo comments were captured for each of the five times the participants met from beginning to end of study to examine changes in teachers' perceptions. The second question of the study examined changes in teachers' pedagogy as a result of participating in the PL series on tiered instruction. The data were collected qualitatively via fieldnotes, artifacts, and audio/video transcripts. Changes in

teachers' pedagogy were not noted until after the half-day workshop. The reason for this is because the two 30-minute sessions frontloaded information for participants and the workshop afforded them the time to create their tiered units of instruction. After the workshop participants were encouraged to put their tiered created units into action. Data were collected from the interviews in March and at the end of the study. The data were organized into another table to specifically capture changes in teachers' pedagogy. Finally, I analyzed data for changes in teachers' sense of efficacy as a result of their participation in the PL series on tiered learning. I gathered both qualitative and quantitative data to answer this question. Qualitative data were collected throughout the study via fieldnotes, artifacts, and audio/video transcripts. Quantitative data were collected via the pre-TSES at the beginning of the study and the post-TSES at the end of the study.

I intended to use inferential statistics to analyze the pre-and post-data sets from the TSES. "Whereas descriptive statistics are used to describe a sample's characteristics, inferential statistics are used to infer something about the population based on the sample's characteristics" (Salkind, 2014, p. 178). I set up the data to run a *t*-test for dependent means to compare the means of the pre-and post-TSES data. I intended to utilize eight steps outlined by Salkind (2014) to perform the test:

(1) State the null and research hypotheses,

(2) Set the level of risk to .05,

(3) Select a t-test for dependent means,

(4) Compute the obtained value,

(5) Use a table of critical values to determine the value required for rejection of the null hypothesis,

(6) Compare the obtained and critical values, and

(7) – (8) Examine the compared values to determine if the null hypotheses can be accepted or rejected (Salkind, p. 220-223).

However, once the data was prepared for analysis, it occurred to me that I had unequal data sets. In the pre-survey, all nine participants submitted the survey. However, in the post-survey, only seven of the nine participants completed the survey. When I present the results in the next section, I will speak to the pre- and post-survey separately.

Results of Research

Teachers' Perceptions

In this results section, I chose elements from reflection-in-action theory (Schön, 1983) to illustrate changes in teachers' perceptions regarding tiered instruction as a result of participating in the PL series on tiered instruction. The participant

> may surface and criticize his initial understanding of the phenomenon, construct a new description of it, and test the new description by a new on-the-spot experiment. Sometimes he arrives at a new theory of the phenomenon by articulating a feeling he has about it. (Schön, 1983, p. 63).

Seven of the nine participants demonstrated changes in teachers' perceptions about tiered instruction. One participant expressed interest in implementing tiered instruction, but she did not actively pursue implementation of practice. The other participant had firmly set beliefs that limited her change in perception regarding tiered instruction.

Changed Perceptions. The seven participants that demonstrated changes in perceptions regarding tiered instruction were Ethan, Roger, Adam, Ken, Barb, Nancy, and Debbie. I captured In Vivo quotes from transcripts to display changes in teachers' perceptions in relation to the

timeline of the study. In Figure 15, Ethan demonstrated changes in perceptions over the course of the study.

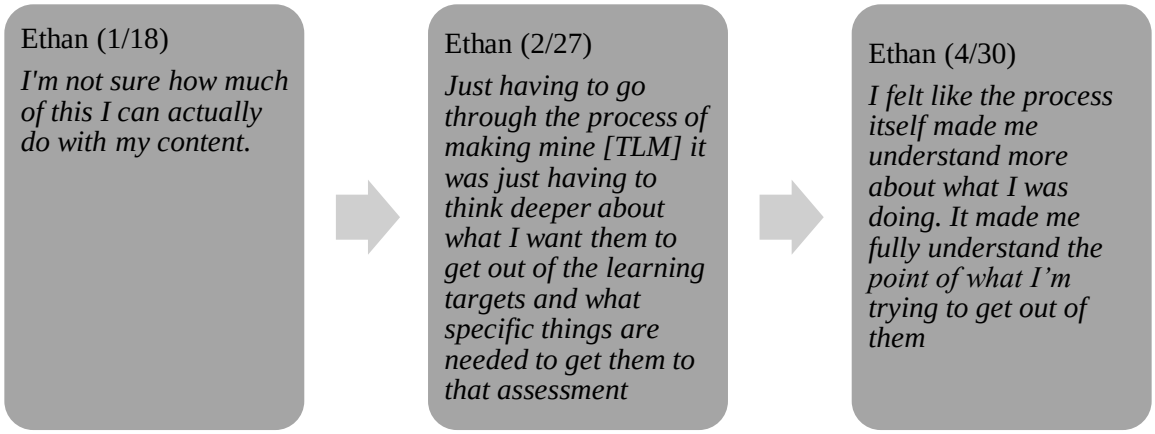


Figure 15. Ethan's Changes in Teacher Perception

In the first session, he was apprehensive about how tiered learning would fit into the context of his course. He could not see how tiered learning targets would align with his Social Studies courses. However, by the time he experienced the half-day workshop he revealed that the tiered learning process made him think deeper about his practices. During the half-day workshop, Ethan grappled with word choice as he examined the tiered learning targets in the TLM he created for the workshop.

> *Honestly, I could have probably done more to word that (target) in a way to give it more of a specific guideline to tell the kids what they need to be able to do with that.*

In our one on one interview in March he shared that he had never tiered learning activities prior to the workshop. By the end of the study, he revealed that the TLM process made him look more deeply into what he wants his students to be able to know and do for different levels of readiness.

Adam taught in the same department as Ethan. He too doubted how tiered learning targets would work for his content (Figure 16).

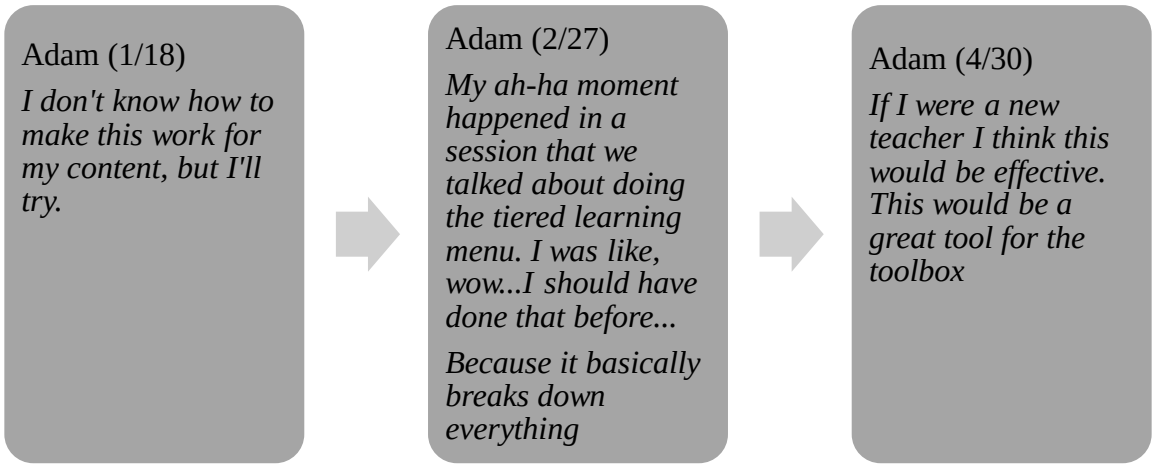


Figure 16. Adam's Changes in Teacher Perception

He saw his content unique in the sense that tiered learning might not have a place in the context of teaching his subject. Much like Ethan, by the time he experienced the half-day workshop he no longer viewed his context separate from, but connected to the tiered learning process. His perception changed so much that by the end of the study he believed the TLM could be an effective instructional tool for new teachers.

Roger was quick to embrace changes in his teaching perceptions as was evident in our first meeting (Figure 17). Roger was not able to attend most of the PL sessions nor did he attend the half-day workshop. This was not due to lack of interest on his part, but conflicts with scheduled choir competitions. That being said, his lack of attendance did not hold him back from diving into the TLM process. Roger followed up with me or Marie Dayne to catch up on the days he could not attend. Since Marie Daye attended all of the sessions, she was capable of supporting

Roger in the TLM process. She was also more readily available during the times that Roger needed to meet.

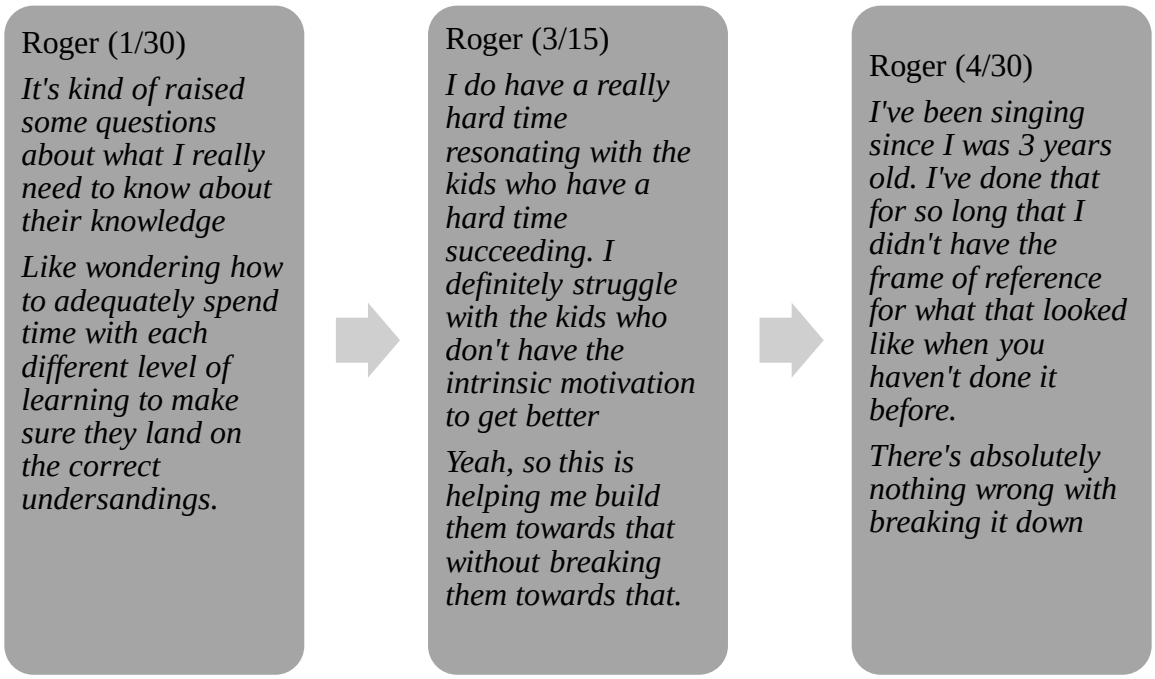


Figure 17. Roger's Changes in Teacher Perceptions

Roger showed great enthusiasm for tiered learning. Even in the first meeting, he expressed excitement about breaking down the learning targets for various levels of readiness. In our second meeting together, he opened up about the fact that he found it difficult to connect with the struggling learner. He shared that since he was always intrinsically motivated that he had a hard time identifying with students that lack motivation to learn. However, he said that the tiered learning process helped him break down learning so that he could better meet each student at his or her own level of readiness. By the end of the study, Roger said

> *It just kind of woke up the way that I looked at content and really thinking I've got to break it down to its smallest component. Because if I can't say this is the smallest piece of information you have to know, compile all those pieces and build it together. If I can't understand how that's broken down, then I am not able to understand what they don't get.*

This reflection demonstrated his change in perception from teaching to only intrinsically motivated students to teaching students of all levels of readiness.

Ken demonstrated changes in teacher perceptions by the end of the study (Figure 18). He struggled in the beginning with how to marry tiered activities with grading practices.

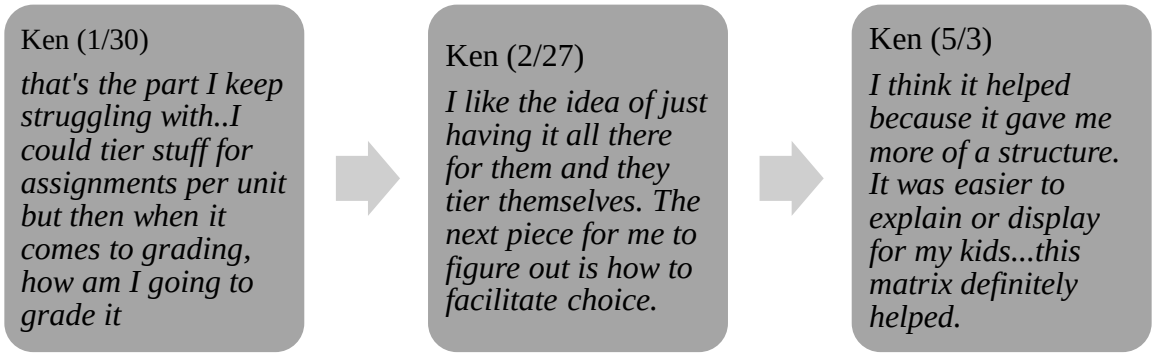


Figure 18. Ken's Change in Teacher's Perceptions

I suggested he implement some tiered practice activities for feedback only without points attached. However, he appeared reticent about the practicality of implementation without points attached. During the half-day workshop, the idea of tiering grew on Ken. He liked the idea of students seeing their learning targets laid out for them so that they could see next steps in the learning process. He was eager to learn how to facilitate learner agency via student voice and choice within the levels of readiness. By the end of the study, Ken found value in tiered learning targets as it made learning intentions clear for his students.

Barb openly embraced the idea of tiered learning from the very beginning of the study (Figure 19). She also liked the idea of learner agency via student voice and choice.

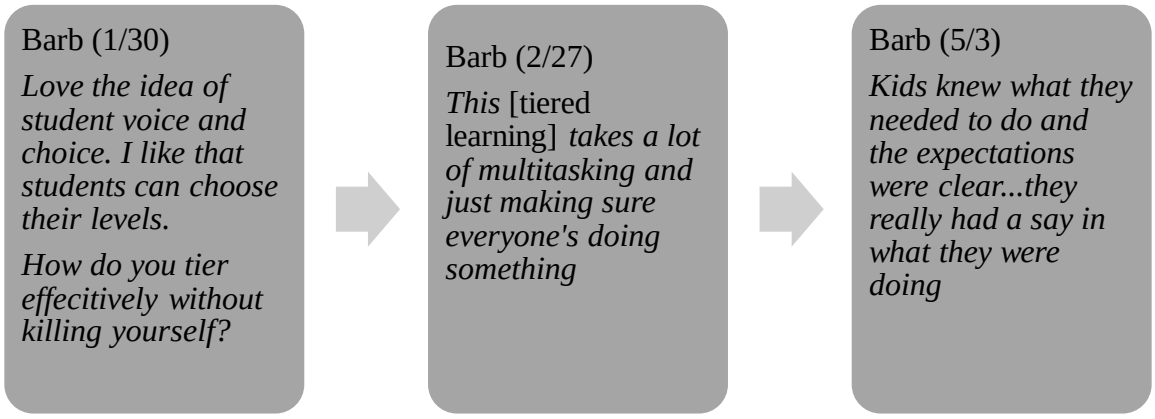


Figure 19. Barb's Change in Teacher Perceptions

However, she was hesitant about how to manage student learning for different levels of readiness. During the half-day workshop, she continued to question the organizational skills required in part of the teacher to implement tiered activities. She expressed that it seemed overwhelming to juggle student learning for different levels of readiness simultaneously. However, by the end of the study she said

> *The more you try it the better you get at making the matrix and tiering things. It just really speaks to meeting the needs of everyone.*

During our second session, Nancy connected tiered learning to an opportunity for growth on her teacher evaluations. She shared that she typically scores lowest on the indicator that looks for student voice and choice in their learning activities (Figure 20).

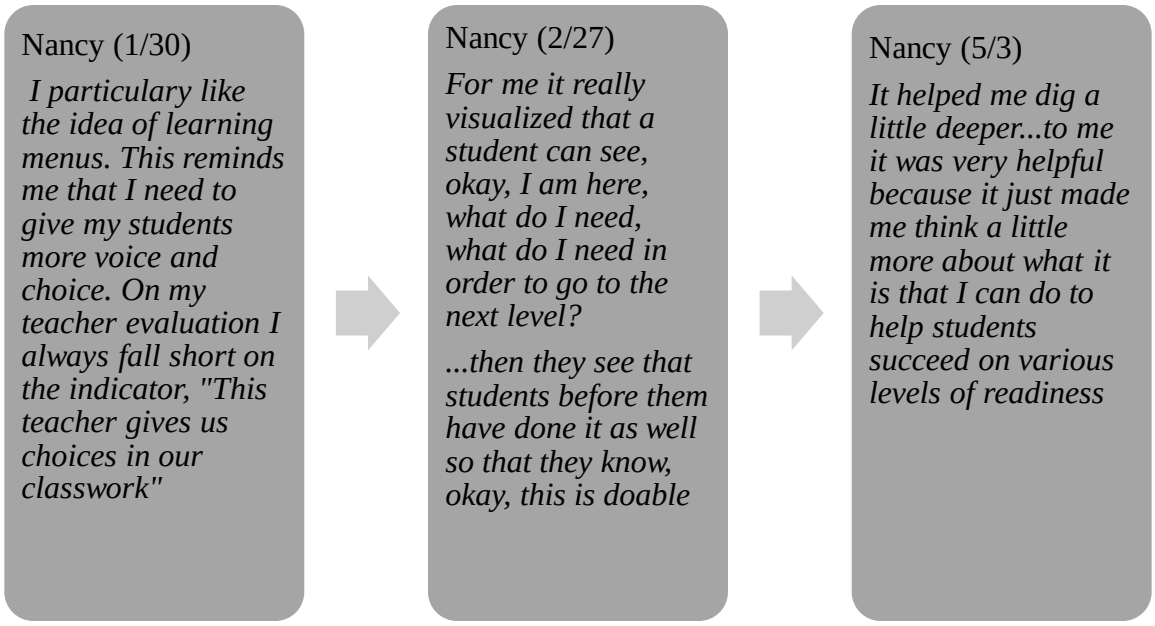


Figure 20. Nancy's Change of Teacher Perception

She viewed tiered learning as a way to create the shift she needed in her teaching practices. During the half-day workshop, Nancy shared that she did not have time to create her TLM prior to our session. When participants worked on their TLM protocols, Nancy gained insight into the advantages of tiered learning targets. She liked not only that the learning targets were visible, but that the learning intentions were visible for learner agency. By the end of the study, Nancy found a way to dig deeper into her learning targets so to offer students voice and choice for levels of readiness.

The last teacher to demonstrate a shift in teacher perceptions was Debbie. In the first session, Debbie worried that the implementation of tiered learning would water down the expectations of her content (Figure 21).

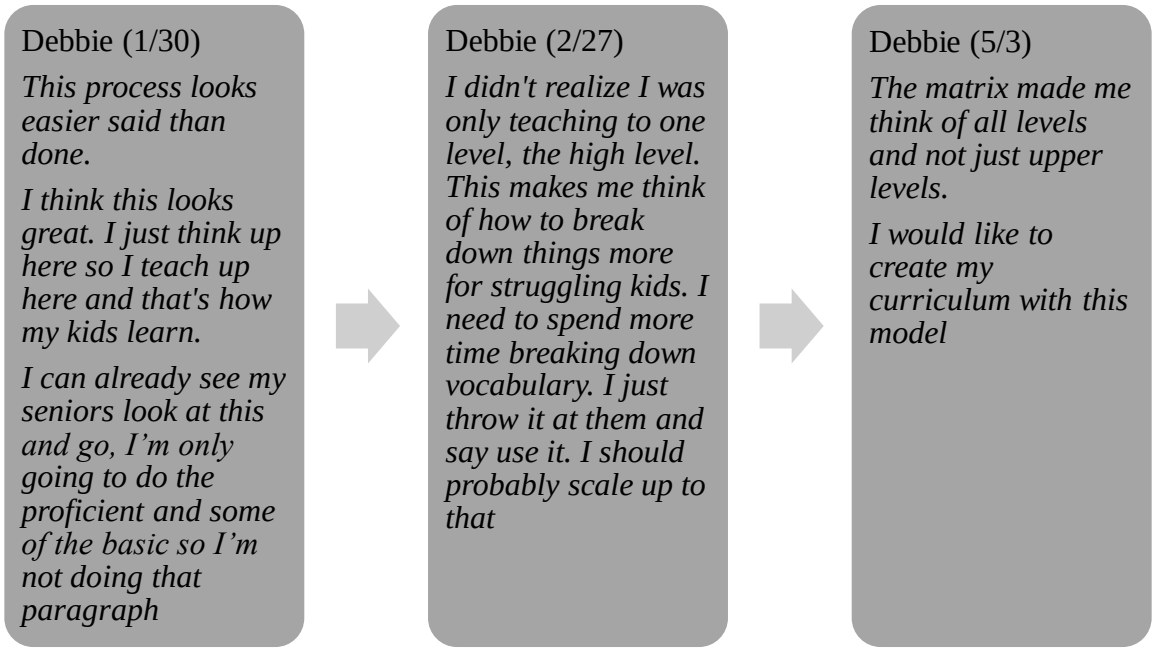


Figure 21. Debbie's Change in Teacher Perceptions

She doubted that her students would appropriately self-monitor their own levels of readiness. However, during the half-day workshop, Debbie gained insight into her teaching practices. She realized she fell short of tiering learning for struggling learners. Debbie wanted to offer students more opportunities for different levels of readiness. By the end of the study, Debbie saw so much value in the tiered learning process that she wanted to build her curriculum with tiered learning targets, activities and assessments.

Dichotomous Perceptions. Lily and Anna had fairly fixed perceptions about the practicality of tiered learning and yet at the same time they each expressed a desire to implement it. At the beginning of the study, Lily said

> *I am still wondering how to adequately spend time with each different level of learning to make sure they have landed on correct understandings. I am only one person and am currently struggling to handle honors and on-track students.*

Lily's main complaint about tiered learning was that she felt she had

> *limited time, it's like one more thing to learn about*

Lily only attend one of the two 30-minute PL sessions at the beginning of the study. In addition, she did not attend the half-day workshop as she forgot to sign up for the session in the learning management system. Therefore, she did not have a substitute teacher for her classes so that she could attend the workshop. When I tried to follow up with Lily for an individual interview, she informed me that she was too busy to meet for 30 minutes. With this in mind, I countered that our meeting could take place in 10 minutes or less and again, I inquired when would be a good time for her to meet. She finally agreed to a follow up date in mid-March after school. During this session, she said

> *I used to do this* [tiered learning] *in the olden days. I found for me it was very hard to try to get around to all the kids every day and check it, I was getting overwhelmed with checking for understanding*

That being said, she shared an activity where students all

> *Start at the same place and then they break off according to the readiness...so that's how I'm tiering that up.*

However, later in the interview when I told her that I like how she chunked her information to tier for levels of readiness. She replied that she did not know that what she was doing counted as tiered learning. This comment conflicted with her prior statement that she was "tiering up" her activities. By the end of study, she held on to the belief that tiered learning was too tedious and time consuming as she said

> *It puts me way behind. Instead of teaching something in like three minutes and then moving on, it expands into days…I just need to figure out how it can work for me in my class and in my timeframe.*

She also continued to offer conflicting perceptions as she shared

> *I've been into tiered learning for quite a while but I've just never taken the time to do it.*

Lily seemed to waffle between implementing and resisting tiered learning. In one moment, she said she tiered in her earlier years of teaching and in another moment, she said she has never

done it. In another moment she said she "tiered up" her activities, and in the same conversation she says she did not know that her activities were tiered. These dichotomous perceptions made it difficult to track her changes in teacher perceptions.

Anna attended the first of the two 30-minute PL sessions. During the first session she attended, like Lily, Anna did not sign up to attend the half-day workshop. Anna also expressed that she was busy and that it was hard to find time for an individual follow-up before or after school. Therefore, I offered to meet with her during her planning time in Mid-March and she agreed. During this interview, Anna and I brainstormed how to tier working with quadratics into a tiered art project. However, when I inquired when she would implement the assignment she said

> *There is a lot to get through before the EOC, so kind of sticking this before the EOC might be, might not fit into our plan, because I want to make sure that we get through everything we need to before the EOC.*

When I questioned if this concept was something that students needed to know and understand for state testing, she said yes. When I inquired if there was a way for her to tier learning so that students can learn from their own levels of readiness to prepare for the end of course state assessments, she said yes. Despite this, she said

> *Students want us to be in front of them going over examples…there is a note packet with practice and the students move at the same rate.*

Again, the dichotomy between her desire to tier and the reality of her practices made it difficult track her changes in teacher perceptions.

Teachers' Pedagogy

Participants began the study with questioning and insights about the tiered learning process. However, I feel it is important to point out that three of the nine participants said they had experience with tiered learning prior to the study. Nancy said she learned about it in her

Master's classes in the last year. She said that she felt like she naturally implemented tiered learning, but she never gave tiered learning intentional thought during lesson planning. Lily said she learned about it 15 years ago from her cooperating teacher. However, she said it was too tedious to keep up with so she did not continue tiering. Barb taught in the same department as me and she had observed tiered learning targets and activities in my classroom. However, she had never created tiered activities on her own. The other six participants had never experienced tiered learning prior to the study.

Cycle of Teacher Pedagogical Changes. Much like an action research spiral, changes in teachers' pedagogy was cyclic, (Figure 22).

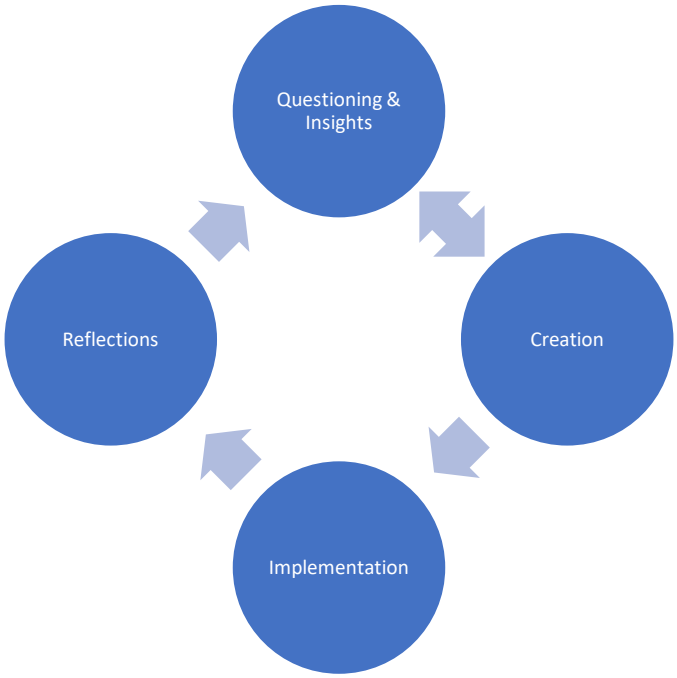


Figure 22. Cycle of Teachers' Pedagogical Changes

Once participants amassed enough background knowledge to move forward, then they created tiered learning targets within the TLM. After they created their TLM, they used the TLM Protocol to gain further insights into their tiered learning targets and adjusted as needed. Two of the nine participants, Anna and Lily, did not create a TLM. The other seven participants tiered

learning targets with the TLM and also created and implemented tiered activities. All seven participants reflected on the TLM process to gain insights for further creation and implementation.

Changed Pedagogy. At the beginning of the study the participants had many questions about tiered learning. During our first meeting, Ken expressed concerns about his competitive theater and speech and debate classes. He said that students can, and do, enroll in his course each of their four years of high school. This means he has four levels of readiness in his class and within those four levels of readiness students branch out into more levels of readiness.

> *How can I tier the learning for speech and debate students giving more responsibility or leadership roles, yet still competing individually. Finding that balance will be challenging.*

Roger questioned

> *How to ensure that lower proficiency students who might have different objectives in any given assignment are evaluated at the end of a course? Are we considering comparative growth to their baseline the end goal, or are we still aiming for finite benchmarks within our standards.*

Several participants wondered how to teach students to self-select their own levels of readiness. In addition, the participants worried about how to effectively monitor students simultaneously working on different levels.

However, despite these questions, the participants gained many insights during the first session. All participants liked the idea of student voice and choice for learning.

> *I really like how students have the choice to work towards the level of readiness they choose. Students get ownership of their work.*

This was echoed many participants in the first session, but Roger captured it best when he realized he

> *can have students doing the same assignment with different learning goals. Some students can be aiming to achieve all possible learning targets in an assignment, while*

"success" for other students might be considered proficiency on just one of those learning targets. Growth is growth, and students don't have to be measured by comparison.

After questioning tiered practices and gaining insights, seven of the nine participants created a TLM and implemented tiered activities. Ken had previously questioned how to meet the various needs of students in his class. Therefore, he chose to tier learning targets for a speech and debate class using the TLM (Figure 23).

T.L.M. - Ken

Learning Goals:

In this unit I will be able to:

- Debate a topic portraying a character against another student, portraying another character

Learning Targets: Below are the levels of readiness for this unit. You must show mastery of all 4 levels of readiness to receive an A on the unit test.

Practical/Proficient	**Creative/Mastery**	**Analytical/Advanced (During the Debate)**
• Interpret character tendencies and performance style • Organize and construct arguments against their opponent solely based on their character's information.	• Develop a logical argument against YOUR character's life. • Hypothesize what evidence your opponent may bring up against your character.	• Synthesize your arguments and adjust based on your opponent's evidence. • Prove to the audience why your character should remain in the balloon debate over your opponent.
Basic Knowledge • Identify, select, and imitate a character. • Research evidence highlighting their character's achievements, accomplishments and strengths.		

Figure 23. Ken's TLM for Speech and Debate

Ken admitted that in the first session he struggled to see how this would work in his class. However, during the half-day workshop it became clear to him how to articulate what his students needed to know and do for an upcoming debate. Ken offered student voice and choice

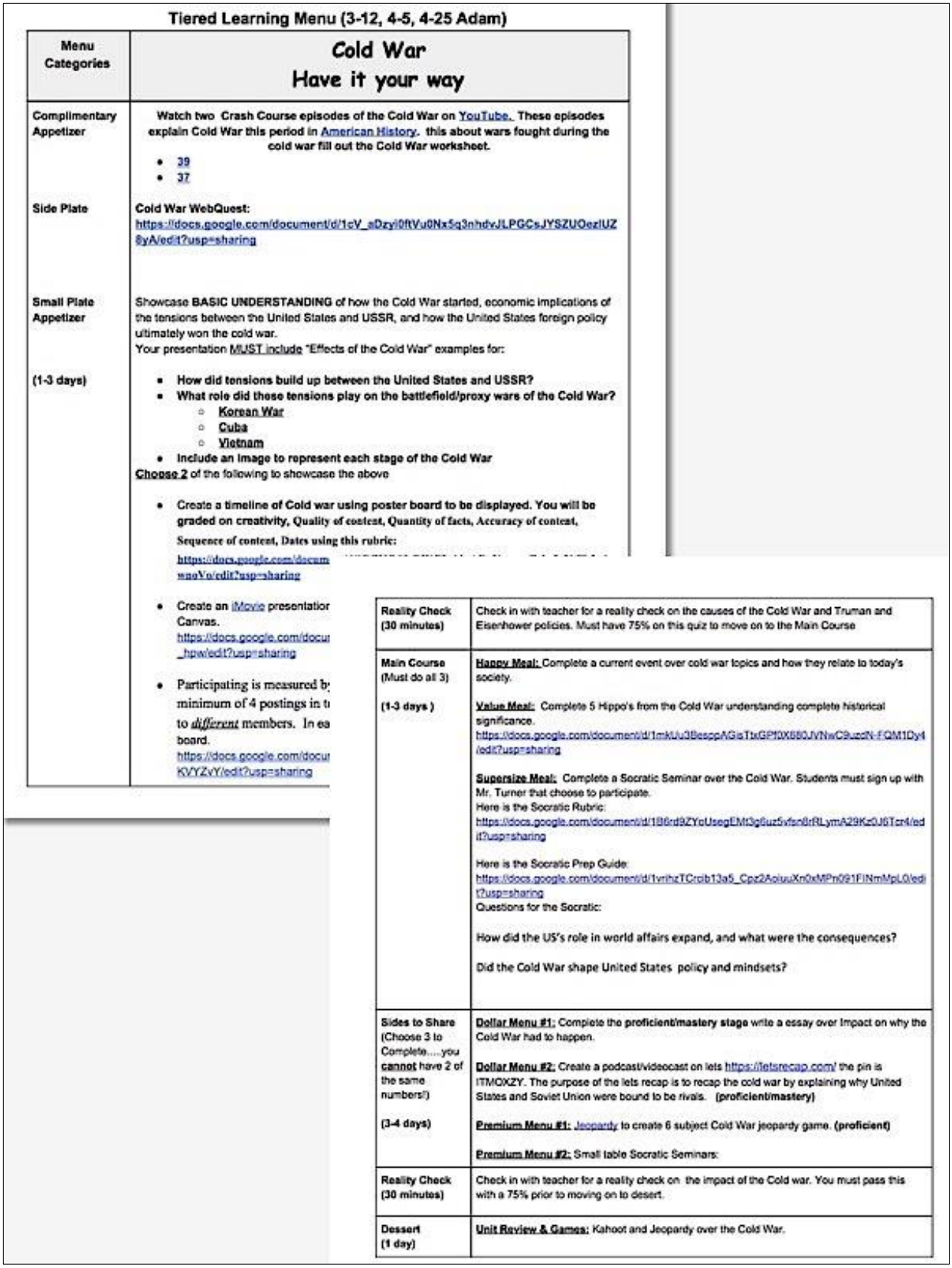
as he allowed students to select and imitate a character of their choice for a debate. Then he tiered the learning activities to build students up to the debate. At the end of the study, Ken reflected that the TLM

> *helped because it gave me more or a structure. It was easier to explain or display for my kids. This matrix definitely helps.*

At the beginning of the study, Adam came to the realization that

> *Tiering is the best way to engage students on their terms. Allowing students to master content on different levels and creating connections at each level.*

As a result of this insight, Adam used the half-day workshop to develop a tiered learning menu for an entire unit of instruction (Figure 24).



Tiered Learning Menu (3-12, 4-5, 4-25 Adam)

Menu Categories	Cold War Have it your way
Complimentary Appetizer	Watch two Crash Course episodes of the Cold War on YouTube. These episodes explain Cold War this period in American History. this about wars fought during the cold war fill out the Cold War worksheet. • 39 • 37
Side Plate	Cold War WebQuest: https://docs.google.com/document/d/1cV_sDzyi0ftVu0Nx5q3nhdvJLPGCsJYSZUOezIUZ8yA/edit?usp=sharing

Small Plate Appetizer
 	
(1-3 days)
	Showcase **BASIC UNDERSTANDING** of how the Cold War started, economic implications of the tensions between the United States and USSR, and how the United States foreign policy ultimately won the cold war.
	Your presentation MUST include "Effects of the Cold War" examples for:
	• **How did tensions build up between the United States and USSR?**
	• **What role did these tensions play on the battlefield/proxy wars of the Cold War?**
	  ○ **Korean War**
	  ○ **Cuba**
	  ○ **Vietnam**
	• **Include an image to represent each stage of the Cold War**
	Choose 2 of the following to showcase the above
	• **Create a timeline of Cold war using poster board to be displayed. You will be graded on creativity, Quality of content, Quantity of facts, Accuracy of content, Sequence of content, Dates using this rubric:**
	https://docs.google.com/docum…wnoYo/edit?usp=sharing
	• Create an iMovie presentation… Canvas.
	https://docs.google.com/docu…_hpw/edit?usp=sharing
	• Participating is measured b… minimum of 4 postings in t… to *different* members. In ea… board.
	https://docs.google.com/docu…KVYZvY/edit?usp=sharing

Reality Check (30 minutes)	Check in with teacher for a reality check on the causes of the Cold War and Truman and Eisenhower policies. Must have 75% on this quiz to move on to the Main Course
Main Course (Must do all 3) (1-3 days)	**Happy Meal:** Complete a current event over cold war topics and how they relate to today's society. **Value Meal:** Complete 5 Hippo's from the Cold War understanding complete historical significance. https://docs.google.com/document/d/1mkUu3BesppAGisTbGPf0X680JVNwC9uzdN-FQM1Dy4/edit?usp=sharing **Supersize Meal:** Complete a Socratic Seminar over the Cold War. Students must sign up with Mr. Turner that choose to participate. Here is the Socratic Rubric: https://docs.google.com/document/d/1B6rd9ZYcUsegEMt3g6uz5vfsn6rRLymA29Kz0J6Tcn4/edit?usp=sharing Here is the Socratic Prep Guide: https://docs.google.com/document/d/1vrihzTCrqb13a5_Cpz2AoluuXn0xMPn091FINmMpL0/edit?usp=sharing Questions for the Socratic: How did the US's role in world affairs expand, and what were the consequences? Did the Cold War shape United States policy and mindsets?
Sides to Share (Choose 3 to Complete.....you **cannot** have 2 of the same numbers!) (3-4 days)	**Dollar Menu #1:** Complete the **proficient/mastery stage** write a essay over Impact on why the Cold War had to happen. **Dollar Menu #2:** Create a podcast/videocast on lets https://letsrecap.com/ the pin is ITMOXZY. The purpose of the lets recap is to recap the cold war by explaining why United States and Soviet Union were bound to be rivals. **(proficient/mastery)** **Premium Menu #1:** Jeopardy to create 6 subject Cold War jeopardy game. **(proficient)** **Premium Menu #2:** Small table Socratic Seminars:
Reality Check (30 minutes)	Check in with teacher for a reality check on the impact of the Cold war. You must pass this with a 75% prior to moving on to desert.
Dessert (1 day)	**Unit Review & Games:** Kahoot and Jeopardy over the Cold War.

Figure 24. Adam's Tiered Learning Menu

Adam said that the learning menu

Gave me a roadmap to where I was going

He exclaimed that he was able to let advanced students move ahead at their own pace and in turn, he was available for the struggling learners.

On the half-day workshop, Debbie was shocked to discover that she was already implementing some tiered activities and formative assessments. I remember looking at her examples of learning activities and I simply put them in order of levels of readiness. When she saw her activities in order of levels of readiness she had a light bulb moment that allowed her to move forward with creating her TLM (Figure 25).

T.L.M - Debbie

Learning Goals:

In this unit I will be able to:

- Recall unit specific vocabulary about social injustice
- Recognize and apply the differences between the Indicative and the Subjunctive moods.
- Will be able to view text, videos or audios for understanding.
- Debate about social injustice issues using the new vocabulary and grammar

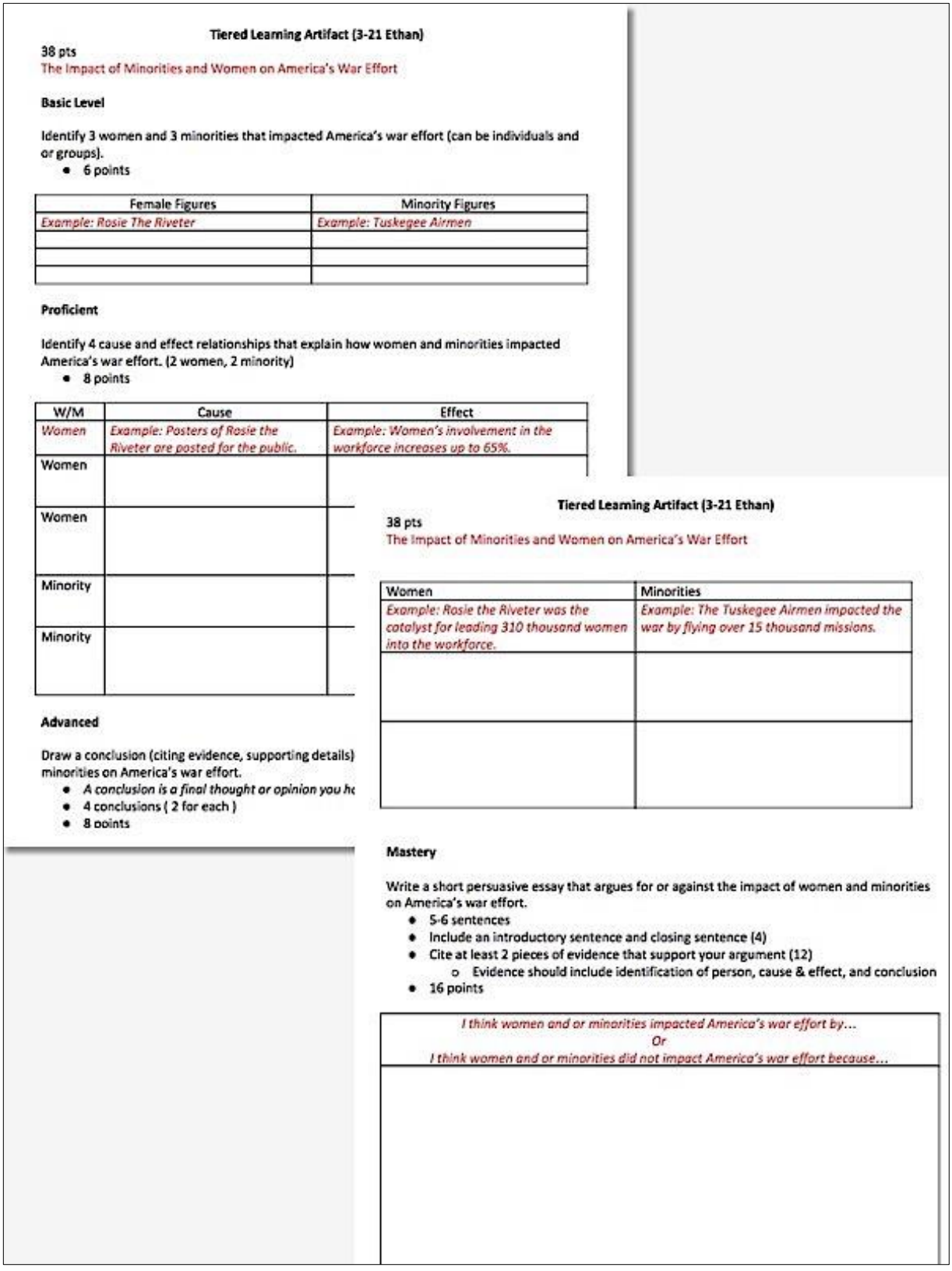
Learning Targets: Below are the levels of readiness for this unit. You must show mastery of all 4 levels of readiness to receive an A on the unit test.

Practical/Proficient	**Creative/Mastery**	**Analytica/Advanced**
• Diagram sentences to indicate Subjunctive or Indicative moods. • Read sentences to determine Subjunctive or Indicative moods	• **Create indicative sentences** • **Convert indicative sentences to the Subjunctive.** • **Create original Indicative and or Subjunctive sentences.**	• Determine indicative or subjunctive mood of images • Peer evaluate sentences for accuracy and defend their feedback.
Basic Knowledge • Recall of grammar - Indicative and Subjunctive moods using guided notes and anchor charts • Practice vocabulary using various games and techniques. (notecard games, color coded by unit theme, Quizlet) * start unit		

Figure 25. Debbie's TLM for Foreign Language

Like Adam, Debbie discovered tiering learning targets not only served as a guide for her lesson planning, but also served as a guide for her students. She said the TLM benefited her class in that it allowed her to be more cognizant of creating basic level activities so not to leave students behind. Prior to the study, she said she was in the habit of diving into upper level activities without providing foundational practices, especially in regards to students learning new vocabulary.

Ethan expressed that the TLM process made him look more thoroughly into what he wanted his students to know and be able to do. In turn, during the half-day workshop he created a tiered assignment that scaffolded activities to build up to writing an essay (Figure 26).



Tiered Learning Artifact (3-21 Ethan)

38 pts

The Impact of Minorities and Women on America's War Effort

Basic Level

Identify 3 women and 3 minorities that impacted America's war effort (can be individuals and or groups).

- 6 points

Female Figures	Minority Figures
Example: Rosie The Riveter	*Example: Tuskegee Airmen*

Proficient

Identify 4 cause and effect relationships that explain how women and minorities impacted America's war effort. (2 women, 2 minority)

- 8 points

W/M	Cause	Effect
Women	*Example: Posters of Rosie the Riveter are posted for the public.*	*Example: Women's involvement in the workforce increases up to 65%.*
Women		
Women		
Minority		
Minority		

Advanced

Draw a conclusion (citing evidence, supporting details) minorities on America's war effort.

- *A conclusion is a final thought or opinion you h*
- 4 conclusions (2 for each)
- 8 points

Tiered Learning Artifact (3-21 Ethan)

38 pts

The Impact of Minorities and Women on America's War Effort

Women	Minorities
Example: Rosie the Riveter was the catalyst for leading 310 thousand women into the workforce.	*Example: The Tuskegee Airmen impacted the war by flying over 15 thousand missions.*

Mastery

Write a short persuasive essay that argues for or against the impact of women and minorities on America's war effort.

- 5-6 sentences
- Include an introductory sentence and closing sentence (4)
- Cite at least 2 pieces of evidence that support your argument (12)
  - Evidence should include identification of person, cause & effect, and conclusion
- 16 points

I think women and or minorities impacted America's war effort by... *Or* *I think women and or minorities did not impact America's war effort because...*

Figure 26. Ethan's TLM for Social Studies

Students had voice and choice in the articles they analyzed and the historical figures they chose to write about. Prior to this study, Ethan had never tiered learning targets or activities. Ethan said this was the first time students were allowed to move at their own pace based on their level of readiness. He said

> *This makes the process a little more concrete. It gives them a framework in their own minds for what to work with.*

Roger's biggest eye opener was when he participated in the gallery walk at the beginning of the study. He said the examples of the TLM and tiered activities sparked new ideas for him.

> *I think it was a really unusual and really fresh way of looking at things which was a great adaptation to my content area.*

Roger created a TLM for students to break down the parts of learning site-reading in choir (Figure 27).

T.L.M - Roger

Learning Goals:

In this unit I will be able to:

- Perform a sight-reading exercise (at Level 4 SRF) with proficient solfege literacy, pitch accuracy, and rhythm accuracy.

At a Level 4...
I can translate pitches to solfege with no delay.
I can perform an exercise with zero incorrect pitches.
I can perform an exercise with zero incorrect rhythms

Learning Targets: Below are the levels of readiness for this unit. You must show mastery of all 4 levels of readiness to receive an A on the unit test.

Practical/Proficient	**Creative/Mastery**	**Analytica/Advanced**
• 3-4 rhythm/pitch mistakes • By the end of the year perform at Level 4 in SRF • Fluency with Curwen hand signs out of context • Intervals of 3rd & 4th in I-chord	• 1-2 rhythm/pitch mistakes • By the end of the year perform at Level 4 in SRF • Fluency with Curwen hand signs while sight reading with minor delays • Larger intervals of I-chord and 3rd/4th of V chord	• No rhythm/pitch mistakes • By the end of of the year perform at Level 4 in SRF • Fluency with Curwen hand signs while sight reading with no delay. • Larger intervals of I and V chords with 3rd/4th of IV chord
Basic Knowledge • 4+ rhythm/pitch mistakes • By the end of of the year perform at Level 4 in SRF • PDW Scalewise movement of the I-chord • Recalls the solfege syllables (do-re-mi-fa-so-la-ti-do) out of context		

Figure 27. Roger's TLM for Music

Roger admitted that he had never broke down his learning targets into different levels of readiness. As a result of his TLM, he was able to gain a different frame of reference from what learning looked like at each level of readiness.

Early in the study, Barb and I worked on creating a TLM for a unit of instruction that we both taught. However, during the half-day workshop, Barb created a TLM for a unit of instruction on her own (Figure 28).

T.L.M. - Barb

Learning Goals:

In this unit I will be able to:

- Talk/Communicate about what you did yesterday around town using the preterite past tense.
- Use DOPs and IOPS correctly in a sentence to talk about what items they bought/did around the town.

Learning Targets: Below are the levels of readiness for this unit. You must show mastery of all 4 levels of readiness to receive an A on the unit test.

Proficient	**Creative**	**Analytical**
• Use context clues to determine what people did around the town. Ex: (El lugar para comprar comida.) • **Distinguish** the correct DOP or IOP to correctly restate the new shortened sentence.	• Design a map of a "Downtown area" inclusive of both prior, current and new vocabulary words.	• Analyze a Spanish passage to develop a logical argument about what people did around town • **Cite Evidence** to support their argument about what people did around the town. • **Analyze and synthesize** from multiple around town maps created by their peers to restate what their peers did around the town. • **Synthesize** written information to construct an appropriate response using DOPs and/or IOPs.

Basic Knowledge

- **Recalls** vocabulary from English to Spanish so that words can be identified by a native speaker (in writing or spoken.)
  - Reality Check
- **Illustrate** vocabulary for "Qué hiciste ayer" unit.
  - Draw/Create paper or online maps that identify around town vocabulary
- **Label** parts of speech of a basic spanish sentence to identify Subject, verb, Direct/Indirect Object.

Figure 28. Barb's TLM for Foreign Language

In the TLM, Barb hyperlinked the tiered activities she created in relation to the learning targets.

In doing so, she said

> *Kids knew what they needed to do and the expectations were clear. They really had a say in what they were doing.*

She said that the TLM process made

> *Think about diversifying your instruction to meet the needs of everyone…giving them choices and options and really seeing that like they're going to be more motivated if they have things to do that they have a say in versus just do this worksheet because I said so*

Finally, Nancy discovered during the half-day workshop that she wanted to be more intentional about telling students what they need to know and do for a unit of instruction. She created a TLM that tiered the steps for learning a grammar concept (Figure 29).

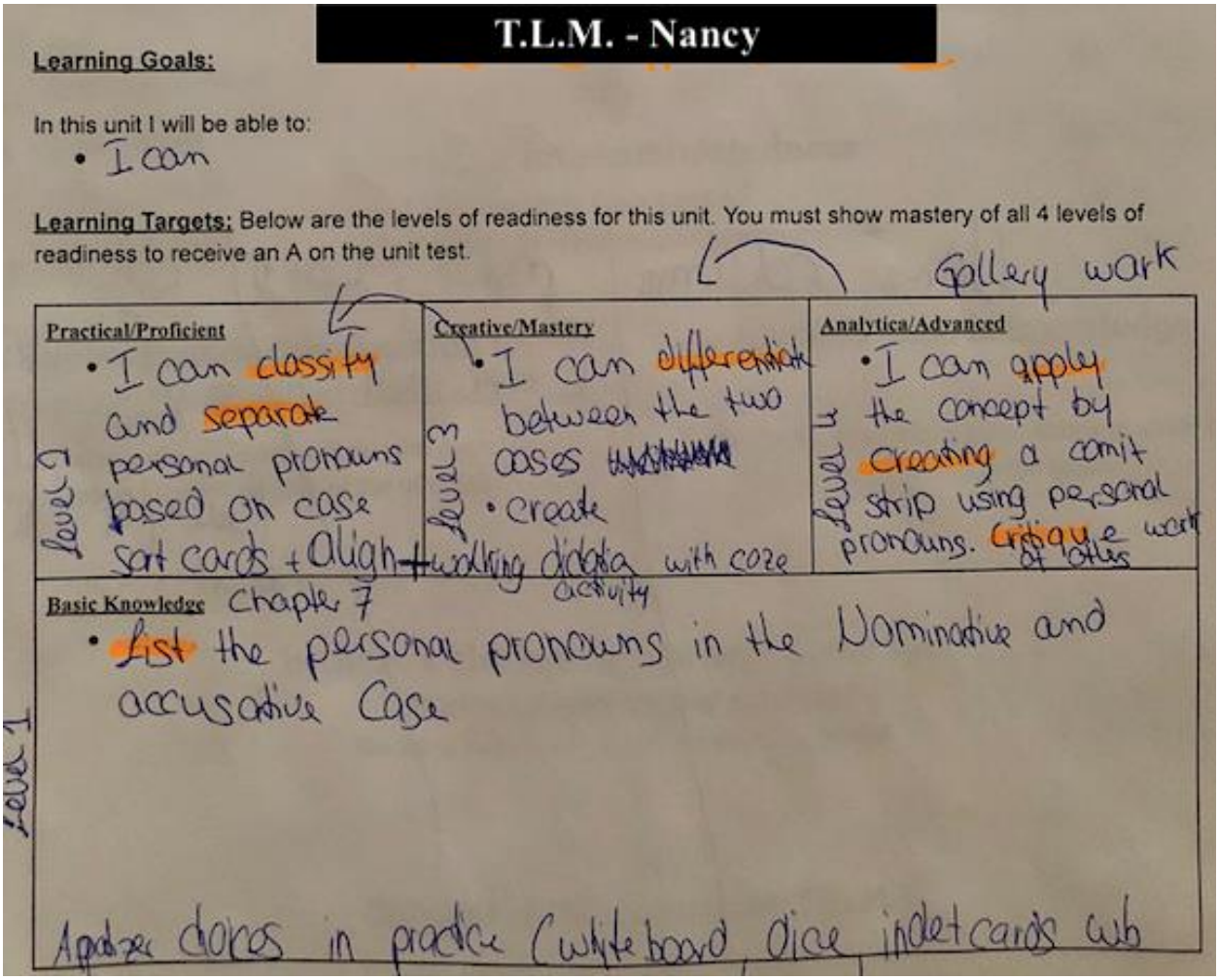


Figure 29. Nancy's TLM for Foreign Language

Nancy said the TLM

> *Helped me dig a little deeper. To me it was very helpful because it just made me think a little more about what it is that I can do to help students succeed on various levels of readiness*

She enjoyed seeing her students work at their own pace with resources available to them. She said that the release of learning gave her students more ownership in their learning.

Neither Lily nor Anna completed a TLM, nor did they submit any self-created tiered learning activities.

Teachers' Sense of Efficacy

The quantitative data for this study were the anonymous pre-TSES and post-TSES results. However, the data could not be compared in a *t-test* for this study as I did not think to have the participants self-create a participant identification code to be used on the pre and post surveys. Fortunately, I was able to use descriptive statistics to measure changes (differences) in the mean, median and the mode from the pre-and post-TSES scores on question items found in instructional strategies subscales.

The mean (average) and the mode (most frequent response) increased for four of the eight instructional subscale questions (Q7, Q11, Q17, and Q18) while the median showed no changes (Table 7).

Table 7. Subscale instructional strategies.

SUBSCALE INSTRUCTIONAL STRATEGIES								
QUESTIONS	How well can you respond to difficult questions from your students?	How much can you gauge student comprehension of what you have taught?	To what extent can you craft good questions for your students?	How much can you do to adjust your lessons to the proper level for individual students?	How much can you use a variety of assessment strategies?	To what extent can you provide an alternative explanation or example when students are confused?	How well can you implement alternative strategies in your classroom?	How well can you provide appropriate challenges for very capable students?
PRE- & POST-TSES DIFF	DIFF Q7	DIFF Q10	DIFF Q11	DIFF Q17	DIFF Q18	DIFF Q20	DIFF Q23	DIFF Q24
MEAN	0.38	0.78	2.38	0.17	0.32	-0.36	-0.36	-0.65
MODE	1.00	0.00	2.00	2.00	1.00	-1.00	-1.00	-2.00
MEDIAN	0.00	0.00	2.00	0.00	0.00	0.00	0.00	-1.00

The findings show the mean and mode responses increased in teachers' beliefs that they can respond to difficult questions from students, craft good questions, adjust lessons to the proper

level for individual students and use a variety of assessment strategies. The mean, median, and mode increased for one of the eight questions (Q11) related to crafting good questions for students.

Participant responses for both the mean and mode dropped for Q20 related to feeling confident about providing alternative explanations or examples when students are confused while the median showed no significant change. The mean, mode, and median dropped for Q23 and Q24 respectively for implementing alternative strategies and providing appropriate challenges for very capable students. The mean showed a 0.78 increase for Q10 related to teachers beliefs that they can gauge student comprehension of what was taught while the mode and median showed no significant difference.

Since the mean is the most often used measure of central tendency (Salkind, 2014) it is important to recognize the mean increased for five of the eight instructional subscale questions for this study. Participants showed the highest increase in efficacy, 2.38, related to crafting good questions for students. The second highest increase in efficacy was 0.78 related to gauging student comprehension about what was taught. However, it should be cautioned that these quantitative results are only specific to the participants in this study. Results may vary given the situational context in which the PL series is implemented.

Despite my inability to perform a *t-test*, I had a plethora of qualitative data to examine changes in teachers' sense of efficacy as a result of participating in this study. A teacher's sense of efficacy is defined as "the teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context" (Tschannen-Moran, Hoy & Hoy, 1998, p. 233). In the beginning of this study, the

majority of teachers' beliefs were challenged when presented with tiered learning targets and activities.

Skeptics and Believers. Five of the nine participants did not believe that tiered learning would fit within the context of their courses. Ethan and Adam specifically questioned how much of tiered learning could actually apply to their courses. Lily mentioned that she observed tiered learning early in her career, but she struggled with how to manage activities for various levels of learning. Ken worried if tiered learning was worth the effort if he did not know how to grade for levels of readiness.

However, four of the nine teachers were intrigued by tiered learning from the beginning of the study. Nancy had recently learned about tiered learning in her Master's classes and was excited to implement it during the PL series. Barb and Debbie had previously observed tiered learning in my class, but they looked forward to learning how to create their own tiered units of instruction. Roger showed excitement from the beginning as he loved the idea of shifting the culture in his class for students to show off understandings for their own levels of readiness.

Resisters and Doers. Two of the nine participants did not create tiered learning targets. Anna feared she would not be able to get through her curricular objectives in time for state testing. Lily had evidence of implementing a tiered activity, however, she struggled with calling it a tiered activity. Instead, she said that teaching for levels of readiness is just something she naturally does. She frequently offered conflicting views as in one breathe she said, "yeah, I just naturally do that" and in another breathe she said "I would love to do it but, it just hasn't got me yet." Neither Anna nor Lily created tiered learning targets nor did they create tiered activities in alignment with the four levels of readiness. Additionally, neither participant attended the half-day workshop.

Seven of the nine participants created tiered learning targets within the TLM for their units of instruction. Six of the nine participants (Ken, Ethan, Adam, Barb, Nancy and Debbie) attended the half-day workshop. During the workshop all six participants created tiered learning targets and activities for an upcoming unit. One more participant, Roger, created tiered learning targets and activities outside of the workshop, but in collaboration with the instructional coach. All seven participants implemented their tiered units.

Status Quo and Change. Lily and Anna maintained their instructional status quo as neither embraced implementation of tiered practices during the study. The other seven participants were able to amass new knowledge for the creation and implementation of tiered learning within their own contexts. All participants reflected on what changes occurred for them as a result of participating in the study (Table 7).

Table 8. Qualitative Data Aligned with Research Question 1.3

Date/Activity	**Participant**	**Research Question 3** *What changes in **teachers' sense of efficacy** occurred for teachers as a result of their participation in the professional learning series on tiered instruction?*
Interview Question	Q5: Researcher	*What changes occurred for you as a result of participating in this study?*
4-30	Adam	"I can see the kids who are self-motivated...that basically helps my job be a little easier just to give them activities for that mastery quarter when I'm still working with the students at the lower level." **(177-183)**
	Ethan	"I look more thoroughly into my learning targets and how those are being implemented in the central questions just how everything connects with the curriculum...there's a lot more of a thorough thought process behind that than I had previously" **(184-191)**

Table 8 Continued

Date/Activity	Participant	Research Question 3 *What changes in **teachers' sense of efficacy** occurred for teachers as a result of their participation in the professional learning series on tiered instruction?*
Interview Question	Q5: Researcher	*What changes occurred for you as a result of participating in this study?*
	Debbie	This study made her realize she was more focused on "high achiever learners" as she is one herself. She said, "I want to make my curriculum with this process."
5-3	Anna	"it just got me thinking differently about lessons...tiering my assignments and thinking about the needs of my students a little bit more and how to meet those needs" **(118-124)**
	Ken	he has students take his class each year so they are mixed abilities from 1st year to 4th year students. "I think I finally kind of hit a good point this year" **(156-157)** he discussed tiering for grouping of students (year 1-4) "this will be a good way to freshen things up for them a little bit, to challenge them even more" **(166-168)**
	Lily	"it takes a lot of frontloading...I would love to do it, it just hasn't got me yet..." **(174-176)**
5-3	Nancy	"the reinforcement of the why factor. Why is it that what we're doing? What is it that I want you to know when we're done with this unit...The learning targets...the matrix made me analyze my own materials again and I kicked a couple of things out and found some new resources" **(65-74)**
5-7	Roger	"it changes the way that I look at a content even away from instructional practice. It just kind of woke up the way that I looked at content and really thinking I've got to break it down to its smallest component...because if I can't say this is the smallest piece of information you have to know, compile all those pieces and build it together. If I can't understand how that's broken down, then I am not able to understand what they don't get" **(94-104)**
5-18	Barb	"it really made you think about diversifying like your instruction to meet the needs of everyone...giving them different choices and options and really seeing that like they're going to be more motivated if they have things to do that they like to do versus just do this worksheet because I said so" **(85-106)**

Lily remained fixed in her personal belief that tiered learning was too much to manage. Despite this, eight of the nine participants provided responses that indicated changes in personal and behavioral factors. Even Anna, who did not create nor implement tiered instruction, showed a shift in personal beliefs as she said

> *It just got me thinking differently about lessons…tiering my assignments and thinking about the needs of my students a little bit more and how to meet those needs.*

She furthered this thought by stating she would like to observe another math teacher tiering instruction in hopes that she might gain more insight into how to apply the concept to her context. This reflection demonstrated a shift in her personal beliefs regarding tiered instruction. All other participants were able to more clearly see the importance of clearly stated tiered learning targets. The TLM process allowed participants the opportunity to examine their own content for various levels of student readiness. Nancy, Barb, Debbie, and Adam said the TLM made them reassess their learning activities so to better meet the needs of both advanced and struggling learners. Debbie discovered she was teaching to only the advanced students. The TLM process made her break down learning for struggling learners as well as advanced learners. Ethan and Roger gained a deeper understanding of their learning targets. Ethan found that due to the TLM process he now gives more thought to the interconnectedness between learning targets and activities. Roger said it "woke up the way" he examined his content. Much like Debbie, Roger discovered through this study that while he easily connects with advanced students, he wants to work on improving his connections with struggling learners. Eight of the participants demonstrated a desire to better meet the needs of all learners as a result of participating in the tiered learning study.

Interactions between the Research and the Context

The MMAR design utilized an iterative cycle of inquiry to continually analyze data at various stages of the study as a means to proceed with intentional next steps (Herr & Anderson, 2015). Over the course of 12 weeks, I implemented four stages of PL for tiered instructional practices: discovery and exploration, reflection and creation, follow up and implementation, and reflections for next steps. As outlined in Table 4 in Chapter , I gathered intentional data throughout the study to: (1) help refine the timeline of the study and (2) determine and develop additional resources to assist participants in creating tiered instruction.

In the fall prior to the study, I facilitated an in-service PL session on tiered learning targets. Little did I know at the time that this PL session would serve as the launch pad for this MMAR study. During the PL session, I presented the idea of tiered learning via tiered learning targets. I collected teacher feedback on post-it notes at the end of the session to gather their perceptions about tiered learning. These perceptions helped me preemptively address participant concerns that might surface during my MMAR study such as:

- *I get stuck figuring out how to push kids beyond proficiency.*
- *How do I meet the needs of students every day?*
- *Making this kind of* (pedagogical) *shift feels overwhelming.*
- *We need collaboration and work time to actually do this.*

In the first stage of the study, the participants met for 30-minute PL sessions either before or after school based on their schedules. My timeline originally planned for the use of five 30-minute PL sessions over twelve weeks. However, after the second meeting at the end of January, my fieldnotes reflected participants desired a longer work session, in lieu multiple 30-minute sessions, to create tiered instructional practices.

In response to this request, on February 1st, I met with Marie Dayne, the instructional coach, to explore possibilities of implementing an extended PL session either on a district in-service day or through the use of our building professional development funds. Since I am the professional development representative for the high school, it was easy for Marie Dayne and I to access the PL calendar to find a date and timeframe for extended work time that did not conflict with other building or district course offerings. Marie Dayne believed a tiered workshop would be supported by administration. She voiced what the Director of Curriculum and Instruction

> *really wants pushed hard is, do kids know where they are and do they need to know what's next. If they can answer those two questions, then they have clarity in task and then process. So, those are the things that I think that marries really well to putting kids into their tier…I can see where tiered assessments would be really great for kids because you can build that self-confidence and that would breed success.*

With this in mind, we found a day towards the end of February for the participants to experience a half day workshop focused on tiered learning. We also brainstormed an outline for the workshop along with resource ideas to include. Marie Dayne challenged me to create a tiered protocol for the participants. She said a protocol

> *Makes me think of a graphic or something for them to do in terms of a process where if you…ask what are our connectors to tiered learning…and if they say it's too easy…then the next step would be what can I do in tiered learning to change it, how can I change the activities?*

As a result of this, I created a TLM Protocol seen in Figure 8 in Chapter 3. I sent multiple versions of the TLM Protocol to Marie Dayne for feedback. Ultimately, I designed the TLM Protocol to help participants dig deeper into their tiered learning targets. The protocol requires participants to examine what students are doing in alignment with DOK, Bloom's or the Hess Matrix. Next participants, look for an interconnectedness between the tiered levels to see that the

learning targets support one another. Finally, they replace any higher-level vocabulary with student friendly language and then, proceed with creating tiered activities for their units of study.

After meeting with the instructional coach, I met with the principal, Dr. Renee Clark, to request her approval of the half day workshop. Dr. Renee approved use of building funds to pay for the participants substitutes for a half day. In addition, the Director of Secondary Education and the Director of Curriculum and Instruction approved the workshop in our PL management system. Once I had approval to move forward, I notified the participants via email of the half day workshop. Participants were notified to sign up in the PL management system in advance to secure a substitute teacher for the day of the workshop. In the meantime, I encouraged participants to continue work on their tiered learning targets for an upcoming unit in March. Participants were asked to bring their completed TLM to the workshop to receive peer feedback and to help create their tiered activities during their work time.

There were several operational issues that arose during the study. The first issue occurred on the first day of the study when the video did not capture the sessions. I checked out an iPad from our school library to record the sessions. However, it was only a couple minutes into the first session when the video stopped due to insufficient memory. I did not think to check for memory space prior to recording. Fortunately, this was something I was able to remedy for future sessions by checking the memory space in advance. On the first day of the study, I quickly captured participants reactions via self-recorded reflections on a voice recording app on my phone. This recording app became my go-to source for capturing interviews and self-reflections. Once the iPad storage was resolved, I then to figure out the best location to capture the audio of all participants. I wore a microphone and therefore, I had to be near who ever spoke so to capture the audio on video. That being said, the microphone was attached by a long audio cable attached

to the video recorder. This meant that I was limited as to how far I could walk away from the recorder.

The second mishap occurred on the day of the half-day workshop. The room we reserved for the session was double-booked. Marie Dayne and I quickly scrambled to find another meeting location. This was not how I wanted to kick-start the workshop. I felt hurried and my thoughts were scattered due to the quick re-location. The room change required us to move from the upper floor to a basement location. The process of setting up in the new location delayed to start time of the workshop by 15 minutes. That being said, the participants were nonplussed and took the extra 15 minutes to settle in and chat with one another.

The last operational issue was due to the timing of the final exit interviews with the multiple end of school initiatives. In the month of April and May, our school had several weeks of testing inclusive of ACT, Advanced Placement, and state assessments. The original timeline scheduled our last meeting for April 10th. Unfortunately, this was not a convenient time for participants to meet so I changed the date to fall after the majority of the testing was completed. I proposed flexible dates for participants to choose from and ended up with five different meeting times to complete the exit interviews with all participants.

Finally, I found that I was very supported in implementing the action research at my own site. The instructional coach acted as my critical friend to ensure dialogic validity and trustworthiness (Anderson, Herr, & Nihlen, 2007). Marie Dayne and I met multiple times and shared various email communications about the PL designs for the sessions and half-day workshop. She served as a "devil's advocate for alterative explanations" (Anderson, Herr, & Nihlen, 2007, p. 45-46) and she provided productive dialogue to enhance the tiered learning experience for the participants.

Summary

This action research study investigated changes in teachers' perceptions, teachers' pedagogy and teachers' sense of efficacy while participating in professional learning focused on tiered instruction. Practitioner action research was chosen as the methodology to immerse teachers in reflection for action. In addition, insider action research was chosen as I acted as both researcher and facilitator of the PL series on tiered learning. Mixed methods were chosen for this study to examine meta-inferences from combined qualitative and quantitative data. In this study, high school teachers volunteered to participate in a 12-week PL series on tiered learning. Teachers engaged in two 30 minute PL sessions, one half-day workshop, one individual interview and an end of study interview for approximately six face to face PL hours.

CHAPTER V

SUMMARY OF THE FINDINGS

Based on the findings related to the research questions, there was one overarching theme, change. Within the theme of change I examined three interconnecting pieces: teacher perceptions, teacher pedagogy, and teacher sense of efficacy (Figure 30).

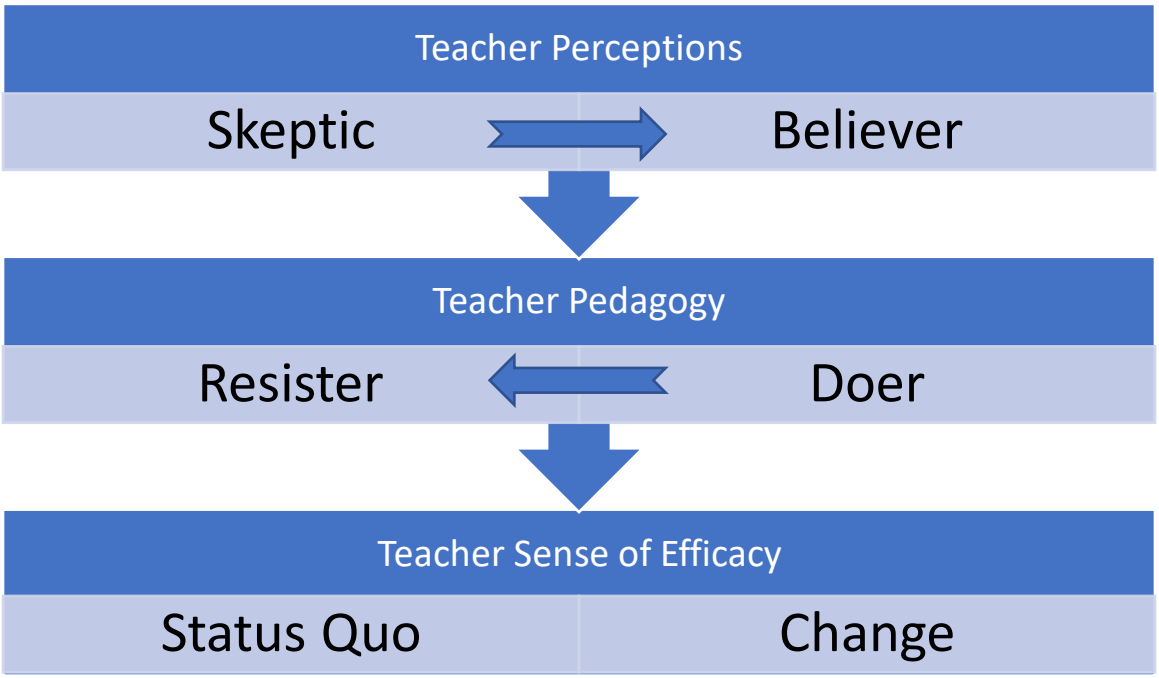


Figure 30. Evolution of Teacher Growth.

As a result of participating in this PL series on tiered instruction, teachers either:

- Held fast to or amended previously held doubts
- Resisted or implemented new courses of action
- Chose to remain unchanged or to change.

In the exploration stage of PL, teachers explored their beliefs, values and pedagogical practices. These explorations caused teachers to question either the tiered learning process and or question their own pedagogical practices. Teachers who held fast to doubts about tiered instruction did so

because they believed that their practices worked best for them as teachers. Teachers who amended doubts about tiered instruction did so because they became intrigued by what tiered learning might offer their students.

Questions and insights either caused participants to resist tiered instruction or enact a course of action to implement it. Teachers who did not enact a course of implementation did so because they felt that tiered learning was more effort than it was worth and or tiered learning would disrupt versus enhance pedagogical practices. Two participants in this study made comments that demonstrated resistance to the tiered learning process. Neither participant tried tiered learning strategies as a result of this study. However, seven participants did enact a course of action to implement tiered learning in their classrooms. These teachers made comments that demonstrated insights into their pedagogical practices that resulted in a desire to create and implement tiered learning.

By the completion of the PL series, participants chose to either remain unchanged by the process or they chose to change their perceptions and or pedagogical practices. Guskey (1998) stated that teacher efficacy was foretelling of or related to a teacher's willingness to adopt new instructional strategies. While two of the participants did not embrace the tiered learning process, by the end of the study, one participant commented that she desired to observe another teacher implement tiered learning within her own content area. The other participant made comments that she believed the tiered learning process was too time consuming and too much to manage. Therefore, she chose to remain unchanged by the PL series for this study. The other seven participants made comments and performed actions that supported a willingness to adopt changes in practices that embrace tiered instructional strategies.

Discussion of the Results in Relation to Extant Literature

In this section, I will tie the study findings to existing literature. Specifically, I will highlight the importance of reflection-in-action related to PL. I will also examine the TLM related to differentiating instruction for various levels of student readiness. Finally, I will discuss a teacher's sense of efficacy related to the willingness to adopt tiered instructional practices.

Reflection-in-Practice & Validity

As stated in Chapter 3, the main difference between traditional research and action research is that action research utilizes reflection-in-action to improve or transform practices while traditional research utilizes controlled conditions to state what happens. Schön (1983) urged for researchers to develop an epistemology of practice that embraced reflective inquiry for change. He warned that some researchers may find action research to lack rigorous methods.

My narration of the study is "akin to the bread crumbs left along the path to guide you on the way back: you can retrace your steps, remember where you have come from, even though you have traveled a long way on the journey" (Anderson, Herr, & Nihlen, 2007, p. 163). So, how do you know if my research is valid or what some might say, trustworthy? Anderson, Herr, and Nihlen (2007) state that multiple participant viewpoints and triangulation of the data "helps guard against viewing events in a simplistic or biased way" (p. 162). I utilized both process and dialogic validity in this action research study to counter what Schön warned about. Since this PL series took place over a 12-week period of time, participants were able to experience a series of reflective cycles that encouraged the participants to loop back to the problem of practice (Herr & Anderson, 2015); how is your instruction tiered to support student learning for various levels of readiness? The triangulation of multiple viewpoints that participants shared throughout this study helped support ongoing learning. Dialogic validity and reflection-in-action went hand in hand in

this study as participants were urged to think critically about tiered instruction and reflect on their perceptions and pedagogical frameworks related to tiered instruction (Herr & Anders, 2015; Schön, 1983).

Schön (1983) coined the term "the reflective practitioner" to describe how practitioner incite change. He also discussed two types of action pertinent to this study: knowing-in-practice and reflecting-in-practice. In the beginning of this study, practitioners reflected on their knowing-in-practice as they tried to situate their prior experiences within the context of tiered instruction. They also reflected on practice while reflecting-in-practice, or to say they reflected on tiered instruction while in the midst of creating and implementing it. In this study, reflection-in-practice was time bound to a 12-week action cycle. For seven practitioners in this study, reflection-in-practice led to the accumulation and adoption of new knowledge which led to a knew knowing-in-practice.

Theory of Intelligence

In Chapter 2, I stated that Sternberg and Grigorenko (2003) believed teachers should make learning meaningful by:

- Providing a variety of examples for various levels of readiness,
- Assessing student understanding of learning objectives in various ways,
- Creating student voice and choice. and
- Grading student practice and assessments that align to the course objectives.

They also proposed that teachers employ a variety of instructional strategies to meet a variety of learning patterns. The TLM, TLM Protocol, and examples of tiered activities and assessments shared with participants in this study, offered them a framework with which to create and implement tiered instruction. The TLM was meant to spur teachers to tier learning targets for

foundational, practical, analytical, and creative learning pathways. Seven participants created tiered learning targets for the four tiered domains in the matrix. At the end of the study, participants stated that the TLM caused them to think more deeply about what they wanted students to know and do for each level of readiness. In turn, they commented that the tiered targets made them think more critically about the types of activities they provided students.

Sense of Efficacy

The results of this action research study demonstrates teachers' willingness to adopt new strategies to better meet the needs of all learners. Self-efficacy is one's ability to organize and implement actions required to achieve certain performances (Bandura 1983, Woolfolk-Hoy & Hoy, 1998). Participant artifacts such as their TLMs and tiered activities feature in Chapter 4 revealed their ability to acquire and apply new professional learning strategies to reach learners at all levels of readiness. Blank and de las Alas (2007) revealed that "professional learning that included content focus, longer duration, multiple activities, hands-on teacher learning, specific learning goals, and collective teacher participation has a significantly better chance to improve teacher skills and knowledge and, subsequently, to raise student achievement" (p. 50). Extended time for collaboration and creation is one major benefit of combining action research with a PL series. As shown in the results section, the PL structure contributed to a collaborative, iterative cycle of inquiry over a 12-week time period which allowed teachers to strengthen their sense of efficacy.

Discussion of Personal Lessons Learned

Anderson, Herr & Nihlen (2007) contend that action research is a process that spirals impacting both the researcher and the participants. They further state "the researcher becomes as much a subject and learner as the participants" (p. 133). I had two different lenses with which to

look through during this study. As the researcher performing a study in her own site, I was immersed not only as the researcher, but also as the facilitator and a full-time teacher with multiple leadership responsibilities. These multiple roles were a challenge to juggle at times. Personal lessons learned from this study were two-fold.

Balls Will Drop

As mentioned in Chapter 4, operational issues arose while conducting the study. At the beginning of the study, the iPad I checked out from our school library did not record the first PL session as the storage was full. In hindsight, this is something I should have checked in advance. Another, albeit small, ball dropped when I discovered the morning of the half-day workshop that the room for our session was double booked. This caused our PL workshop to start late as the instructional coach and I tried to remedy the situation. The next ball dropped when I realized not all participants would make it to the sessions due to schedule conflicts. This happened with multiple participants throughout the study and left me frantically trying to find the time to schedule make-up sessions. Time was not on my side as I taught five of the seven class periods each day. This left me with a limited time frame to make-up sessions with participants. Unfortunately, I was unable to follow-up with three participants on separate occasions over the course of 12-weeks. At the end of the study, I ran into another issue with time for our exit interviews. The study concluded in April which coincided with the school's busiest time of year for multiple high-stakes assessments. Therefore, it was a challenge to find the time to meet with all nine participants. The last ball to drop was discovered after my study had come to an end. When I went to analyze the pre-TSES with the post-TSES, I had intended to run a t-test to measure changes in a teacher's sense of efficacy. However, I made a rookie researcher mistake and did not think to have participants self-select anonymous identifiers to use for both surveys.

After many attempts to problem solve this with a statistics professor, it was determined my quantitative data could not be compared without matched pairs.

The Study Must Go On

For each ball dropped, I had to quickly reflect-in-action for action because the study had to go on. After the first video mishap, I checked the iPad in advance for all future sessions. On the same day that the video did not record, I knew I had to quickly find a way to capture the first PL session before I forgot what was said by participants. On my phone I found an app to record my self-reflections of the first day's sessions. This became my go-to app for all post PL session reflections. Between the video and audio recordings, I captured close to eight hours of dialogue for transcript analysis.

On the morning of the half-day workshop, the instructional coach and I worked quickly to relocate the session to another room location. While change of location and set up for the work-shop caused us to start late, participants capitalized on the moment to wrap up last minute communications with their substitutes and or visited with one another. In hindsight, I do not think this is something that I could have avoided as we followed building protocol to reserve a room. That being said, I learned it is always good to think of a back-up location for meetings in the event that something like this occurs.

Schedule conflicts prevented three participants from attending either sessions or interviews. As a full-time teacher, it was tricky to find time to make-up these sessions. However, between the use of virtual platforms and persistent follow up requests on my part, I was able to make-up sessions with participants. For example, one participant could not attend the first session. Of course, this was the session that did not record. However, I was able to record a short screencast of the slideshow presentation to share with the participant that missed the session. The

building instructional coach, Marie Dayne, was also available to follow up with participants when I could not since her schedule afforded her more flexibility. Since I shared my slide presentation with all participants, Marie Dayne was able to walk the participants through any sessions they missed. While Marie Dayne was not my first avenue for make-up sessions, I had to remain open to alternative pathways for participants to receive missed information pertinent to the study. Another time conflict occurred at the end of the study during the school's testing window for high stakes assessments. While I had originally planned for the exit interview to occur in one session at the beginning of April, the exit interviews actually occurred in two small group sessions and three individual session at the end of April and the beginning of May. Since this was the end of the study, I felt it important that I administer the end of study interviews and survey. Therefore, I had to remain persistent in requesting for participants to find time for the interviews. Fortunately, persistence paid off and I was able to meet with all nine participants to end the study.

Finally, I had to resolve how to move forward after I discovered my quantitative data could not be compared from pre-TSES to post-TSES. This is when I thanked myself for my extensive due diligence in qualitative data collection. I had over 180 pages of transcripts combined with participants' artifacts and my journal. In fact, I was at first overwhelmed with the amount of qualitative data I collected. However, the further I dove into analyses, the more I appreciated the attention to detail I provided in my journal and in the coding process as this attention to detail allowed me to answer the research questions for this study.

Implications for Practice & Lessons Learned

This section will examine implications for practice to connect to context and to connect to the field of study. This action research study examined the problem of practice related to a gap

in PL course offerings related to differentiated instruction. The study monitored changes in teacher's perceptions, pedagogy and sense of efficacy related to participating in PL focused on tiered instruction.

Connect to Context via Visible Learning

As mentioned in Chapter 2, the top five vision priorities for our district are: learner agency, personalization, growth mindset, data informed decisions and relationships. With these five vision priorities in mind, the district is also cognizant of the recommendation by the accreditation review that teachers need to be clear about what students should know and be able to do for each letter grade or percent assigned within their content. In response to this recommendation, the district partnered with Kara Vandas, a Corwin and Visible Learning^{plus} consultant, to study Visible Learning through John Hattie's (2009) work on effect size for instructional improvement as one means to bring the five vision priorities to fruition and to help teachers make clear what students should know and be able to do.

Through the implementation of a PL series for tiered instruction, I documented changes in teachers' perceptions, pedagogy, and sense of efficacy. These changes directly align with the district's 2018-2019 PL plan to focus on teacher clarity. Fisher, Frey and Hattie (2016) state that "When actions are in the range of 0.40 and above, the data suggests that the learning extends beyond that which was expected from attending school for a year" (p. 10). The effect size for teacher clarity is .75 which means this action can double a student's learning in a year's time.

Teacher implementation of the TLM provides several benefits that support the district's vision priorities and PL goals. Evidence of its' ability to ignite changes in practice is found in both the quantitative and qualitative results analyzed for this study. The TLM framework shifted teachers' perceptions about tiered instruction for levels of student readiness. At the beginning of

the study, teachers were uncertain as to if tiered learning or the TLM framework would fit within their context. However, by the end of the study the majority of teachers agreed that the TLM framework helped them gain a deeper understanding of what they wanted their students to know and do for a unit of instruction.

The TLM framework offers teachers a tangible way to "consider a learning intention (also called a *learning target, goal, objective,* or *purpose*)" (Fisher & Frey, 2018, p. 82). The framework situates learning for four levels of student readiness: basic, practical/proficient, mastery/creative, and advanced/analytical. It is designed to assist teachers in creating tiered learning targets for each of the levels within the matrix. The TLM framework moves beyond one size fits all learning targets and instead breaks down the learning targets into four category skill sets required for students to gain a more complete understanding of the content.

Seven out of nine teachers in this action research study stated they will continue to use the TLM framework for future units of instruction. This new framework can benefit the district's focus on teacher clarity. Fisher and Frey (2018) state that learning targets act as a GPS for student learning and teacher feedback. This framework provides teachers a GPS for navigating facilitation of learning activities aligned to the four levels of readiness. When teachers provide students with learning opportunities for various levels of understanding, then they can clearly see what students know and can for each of the four skill sets.

The PL series for the TLM framework lasted for a 12-week cycle. Within this 12-week cycle teachers had ample time to explore, collaborate, create, implement and reflect on the TLM process. To ensure the fidelity of future implementation, there needs to be more than a one and done PL session. Instead, an extended PL series will give teachers time to reflect-in-practice on the creation and implementation of the TLM framework within a collaborative cohort. In turn,

teacher collaboration on improving teaching and learning has the potential to strengthen teacher collective efficacy (Fisher, Frey, Hattie, 2016). This particular school district has the resources to offer sustained PL series. However, other districts may lack the funds to pay for substitute teachers for half-day workshops. Instead, these district might consider the original PL series timeline that only involved before and after school sessions.

The TLM framework extends beyond improving teacher clarity and collective efficacy. The PL series on the framework creates an action research spiral that caused teachers to reflect on other high impact strategies:

- goals (0.50)
- knowing learning intentions (0.59),
- success criteria (0.59),
- teacher clarity (0.75), (Fisher, Frey, & Hattie, 2016; 2018)

The TLM framework is intended to be shared with students so that they can know the tiered learning intentions to navigate their own learning. The PL series for tiered learning will complement the PL series for Visible Learning in a variety of ways. As a result of the PL series for Visible Learning, teachers will be able to integrate clearly defined goals and learning intentions. As indicated by the results, clearly defined tiered learning targets allow teachers to speak to levels of student understanding.

Lessons Learned & Recommendations

Several lessons were learned about the implementation of the PL series for tiered instruction which leads to several recommendations. First, it is important to have one or two short PL sessions prior to an extended workshop. The mini-sessions allow the facilitator to disseminate just enough information about the TLM framework to get participants to start

questioning the process and or their own practices. During these mini-sessions, practitioners need access to tiered examples. Several participants in this study mentioned how beneficial the gallery walk of tiered examples helped bring to light what tiered learning can look like. The time between the mini-session and the workshop, when paired with a reflective check-in, allows participants the opportunity for further inquiry and or time to practice creating tiered learning targets. The space in between allows practitioners' ideas to take hold so that they may move forward with collaboration and creation during the workshop. Second, the TLM protocol is essential to the PL series on tiered learning. This process allows teachers to collaborate on their TLM for the purpose of reflection and refinement. Peer feedback is critical for practitioners to gain a deeper understanding of what they want their students to know and do. Third, within the TLM protocol there are several important resources to assist teachers in tiering learning targets: Bloom's Taxonomy, DOK and the Hess Matrix. Finally, individual follow up after the workshop is vitally important for two reasons: (1) to offer support to the practitioner as he or she implements their tiered unit of instruction and (2) to serve as an impetus for continued reflection-in-practice.

Recommendations for Future Research

"Action research is sometimes described as an ongoing series of cycles that involve moments of planning actions, acting, observing the effects, and reflecting on one's observations" (Anderson, Herr, & Nihlen, 2007, p. 3). Further practitioner action research will bring about a deeper understanding of the importance of breaking down learning targets for levels of student readiness. Beyond the scope of benefiting the district, action research with the TLM framework finds itself in a larger and much debated arena, differentiated instruction. The TLM framework specifically speaks to differentiating for readiness, learning styles and, when student voice and

choice is embedded in tiered learning activities, interest. The framework also incorporates Sternberg's (2003) triarchic theory of intelligence which allows students to experience learning with four skill sets: foundational knowledge, practical, creative, and analytical. Further action research might explore what changes in teacher's perceptions and pedagogy related to differentiating instruction occur when incorporating tiered learning activities and assessments for the four skillsets with the TLM framework.

Closing Thoughts

Teacher clarity is a high impact strategy that has a significant impact on student learning (Fisher, Frey, & Hattie, 2016; Fisher & Frey, 2018). In turn, when practitioner action research studies employ an iterative cycle of inquiry, in relation to the PL series with the TLM framework, other high impact strategies come to light such as knowing learning intentions, goals, teacher clarity, and success criteria (Fisher, Frey, & Hattie, 2016; Fisher & Frey, 2018). For school districts "to reach diverse learners, we need diverse teaching strategies" (Stephens, 2015b). However diverse teaching strategies are hard to achieve without tiered learning targets.

> It's important to reveal these levels of understanding to students. Too often, students want to know how many points they need to get the next letter grade. These clearly-defined levels of understanding shift the focus from point chasing to knowledge seeking. (Stephens, 2015b)

Industrial education thrived on a system of point chasing and dissemination of information. As education moves well into the 21st century, we are starting to see a shift in not only how teachers facilitate learning, but in what is deemed evidence of student learning. As demonstrated by the results of this study, the TLM framework is an integral part of changing teachers' perceptions, pedagogy and sense of efficacy for future forward practices that embraces all learners.

REFERENCES

AdvancED. (2015). *AdvancED accreditation policies and procedures.* Retrieved from http://www.advanc-ed.org/services/policies-and-procedures

Ainsworth, L., & Viegut, D. (2014). *Common Formative Assessments 2.0: How teacher teams intentionally align standards, instruction, and assessment*. Corwin Press.

Altrichter, H., Kemmis, S., McTaggart, R., & Zuber-Skerritt, O. (2002). The concept of action research. *Learning Organization, 9*(3), 125-31. Retrieved from http://p2048-lib-ezproxy.tamu.edu.ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=eric&AN=EJ651669&site=ehost-live

Anderson, G. L., Herr, K., & Nihlen, A. S. (2007). *Studying your own school: An educator's guide to practitioner action research.* Thousand Oaks, CA: Corwin Press, 2007; Second edition. Retrieved from http://p2048-lib-ezproxy.tamu.edu.ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=cat03318a&AN=tamug.2819492&site=eds-live;

Archbald, D. (2010). "Breaking the mold" in the dissertation: Implementing a problem-based, decision-oriented thesis project. *Journal of Continuing Higher Education, 58*(2), 99-107. Retrieved from http://p2048-lib-ezproxy.tamu.edu.ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=eric&AN=EJ893157&site=ehost-live;http://www.informaworld.com.ezproxy.library.tamu.edu/openurl?genre=article&id=doi:10.1080/07377361003617368

Arnold, I. (2011). John Hattie: Visible learning: A synthesis of over 800 meta-analyses relating

to achievement.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory. Albert bandura* Englewood Cliffs, N.J. : Prentice-Hall, 1986]. Retrieved from http://ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=cat03318a&AN=tamug.404698&site=eds-live

Bandura, A. (1997). *Self-efficacy : The exercise of control. albert bandura* New York: W.H. Freeman, 1997]. Retrieved from http://ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=cat03318a&AN=tamug.1596342&site=eds-live

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37* (2), 122-147. doi:10.1037/0003-066X.37.2.122

Bandura, A. (1995). *Self-efficacy in changing societies. edited by albert bandura*. Cambridge; New York: Cambridge University Press, 1995. Retrieved from http://lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat03318a&AN=tamug.1487176&site=eds-live

Blank, R. K., de, l. A., & Society for Research on Educational Effectiveness. (2010). *Effects of teacher professional development on gains in student achievement: How meta-analysis provides scientific evidence useful to education leaders.* Society for Research on Educational Effectiveness. Retrieved from http://ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=eric&AN=ED514190&site=ehost-live

Brydon-Miller, M., & Maguire, P. (2009). Participatory action research: Contributions to the

development of practitioner inquiry in education. *Educational Action Research, 17* (1), 79-93. Retrieved from http://p2048-lib-ezproxy.tamu.edu.ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=eric&AN=EJ829988&site=ehost-live;http://www.informaworld.com.ezproxy.library.tamu.edu/openurl?genre=article&id=doi:10.1080/09650790802667469

Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol refinement framework. *The Qualitative Report, 21* (5), 811-831.

Clark, V. L. P., & Ivankova, N. V. (2015). *Mixed methods research: A guide to the field* (Vol. 3). Sage Publications.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, Calif.: SAGE Publications.

Delamont, S. (2012). *Handbook of qualitative research in education.* Cheltenham, U.K.: Retrieved from http://p2048-lib-ezproxy.tamu.edu.ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=cat03318a&AN=tamug.3995181&site=eds-live; http://p2048-lib-ezproxy.tamu.edu.ezproxy.library.tamu.edu/login?url=http://site.ebrary.com.ezproxy.library.tamu.edu/lib/tamu/Doc?id=10537779

Fisher, D., & Frey, N. (2018). A map for meaningful learning. *Educational Leadership, 75* (5), 82-83.

Fisher, D., Frey, N., & Hattie, J. (2016). *Visible learning for literacy, grades K-12: Implementing*

the practices that work best to accelerate student learning. Thousand Oaks, California: Corwin/ A SAGE Company, 2016. Retrieved from http://ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=cat03318a&AN=tamug.5144185&site=eds-live

Gibson, S. & Dembo, M., (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology, 76 (*4), 569-582.

Guskey, T. R. (1998). *Teacher efficacy measurement and change* Retrieved from http://ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED422396&site=ehost-live

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. Routledge.

Hattie, J., Masters, D., & Birch, K. (2015). *Visible learning into action: International case studies of impact*. Routledge.

Henson, R. K. (2001). *Teacher self-efficacy: Substantive implications and measurement dilemmas* Retrieved from http://p2048-lib-ezproxy.tamu.edu.ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=eric&AN=ED452208&site=ehost-live

Heneman, Herbert G., I.,II, Kimball, S., Milanowski, A., & Wisconsin Center for, E. R. (2006). *The teacher sense of efficacy scale: Validation evidence and behavioral prediction. WCER working paper no. 2006-7*. Wisconsin Center for Education Research. Retrieved from http://lib-

ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED496313&site=ehost-live

Herr, K., & Anderson, G. L. (2015). *The action research dissertation: A guide for students and faculty*. Thousand Oaks, California: SAGE, 2015.

Hoy, W. K. & Woolfolk, A. E. (1993). Teachers' sense of efficacy and the organizational health of schools. *The Elementary School Journal 93*, 356-372.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14-26. Retrieved from http://lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ727588&site=ehost-live; http://www.aera.net/publications/?id=338

Lieberman, A., & Pointer Mace, D. (2010). Making practice public: Teacher learning in the 21st century. *Journal of Teacher Education, 61*(1-2), 77-88. Retrieved from http://p2048-lib-ezproxy.tamu.edu.ezproxy.library.tamu.edu/login?url=http://search.ebscohost.com.ezproxy.library.tamu.edu/login.aspx?direct=true&db=eric&AN=EJ879285&site=ehost-live;http://dx.doi.org.ezproxy.library.tamu.edu/10.1177/0022487109347319

Lukenchuk A. (2011). Paradigms of research for the 21st century: Perspectives and examples from practice.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research, 1*(1), 48-76. Retrieved from http://lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ804527&site=ehost-live; http://dx.doi.org/10.1177/1558689806292462

Morgan, H. (2014). Maximizing student success with differentiated learning. *Clearing House: A Journal of Educational Strategies, Issues and Ideas, 87*(1), 34-38. Retrieved from http://lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1025571&site=ehost-live; http://dx.doi.org/10.1080/00098655.2013.832130

Osterman, K., Furman, G., & Sernak, K. (2014). Action research in Ed.D programs in educational leadership. *Journal of Research on Leadership Education, 9*(1), 85-105. doi:10.1177/1942775113498378

Polit Denise, F., & Hungler Bernadette, P. (1999). Nursing research principles and methods.

Polkinghorne, D.E. (2007). Validity Issues in Narrative Research. *Qualitative Inquiry 13*(4), 471-486.

Ravitch, S. M. (2014). The transformative power of taking an inquiry stance on practice: Practitioner research as narrative and counter-narrative. *Penn GSE Perspectives on Urban Education, 11*(1), 5-10. Retrieved from http://lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1022575&site=ehost-live

Saldaña, J. (2009). An introduction to codes and coding. *The coding manual for qualitative researchers*, 1-31.

Salkind, N. J. (2014). *Statistics for people who (think they) hate statistics. fifth edition* Thousand Oaks, California: [SAGE, 2014]; Fifth edition. Retrieved from http://lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat03318a&AN=tamug.4730148&site=eds-live

Schimmer, T. (2016). *Grading from the inside out: Bringing accuracy to student assessment*

through a standards-based mindset. Solution Tree Press.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action.* Basic books.

Stephens, C. (2015a). The day I ditched points. *ASCD Express, 10* (19) Retrieved from http://www.ascd.org/ascd-express/vol10/1019-stephens.aspx

Stephens, C. (2015b). *Levels of understanding: Learning that fits all*. San Rafael, CA: George Lucas Educational Foundation.

Sternberg, R., Grigorenko, E., & Zhang, L. (2008). Styles of learning and thinking matter in instruction and assessment. *Perspectives on Psychological Science*, *3*(6), 486-506. doi:10.1111/j.1745-6924.2008.00095.x

Sternberg, R. J., & Grigorenko, E. L. (2003). Teaching for successful intelligence: Principles, procedures, and practices. *Journal for the Education of the Gifted, 27* (2-3), 207-228. Retrieved from http://lib-ezproxy.tamu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ787926&site=ehost-live; http://jeg.sagepub.com/content/by/year

Tschannen-Moran, M., Woolfolk Hoy, A., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research, 68* (2), 202-248.

Tschannen-Moran, M., & Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17* (7), 783-805. doi:10.1016/S0742-051X(01)00036-1

Waack, S. (2017). Visible learning. Retrieved from https://visible-learning.org/about-visible-learning/ .

Walker, D., & Lambert, L. (1995). Learning and leading theory: A century in the making. *The Constructivist Leader*, 1-27.

Woolfolk, A. E., & Hoy, W. K. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Journal of Educational Psychology, 82*, 81-91.

APPENDIX A

From: "Douglas, Kory" <kodouglas@tamu.edu>
Date: Thursday, March 30, 2017 at 2:40 PM
To: "Dr. Radhika Viruru" <viruru@tamu.edu>
Cc: Aliese Seawright <a.seawright@tamu.edu>
Subject: RE: IRB 2 page statements

Good Afternoon Dr. Viruru,

I have taken a look at the summaries that you sent and have made the following determinations based on the federal regulations:

1. Here is the list that do NOT need an IRB application:

Berthold, Cordray, De Hoyos, Leverett, Perez, Pierce, Stephens, and Stringfellow

2. Here is the list that do need to file an IRB Application:

Elliott, Maraffa, McNeil, Mohler, Shapiro, Tabor, Taylor, Whitaker, and Yoo

3. I have additional questions for Baine, Hurst, and Sifonte. I will be emailing them shortly.

If you have any questions, feel free to let me know or give me a call.

Sincerely,

Kory C. Douglas, PhD
Post Approval Monitor
Human Research Protection Program
Texas A&M University | Division of Research
Office Phone: 979-458-5532

APPENDIX B

Teacher professional learning for student levels of readiness..
A mixed methods action research project.

Important information. Please read before going any further.

You are invited to take part in a mixed methods study being conducted by Charity Stephens, a doctoral candidate in the Ed.D program at Texas A&M University. Due to the nature of this study, it was deemed exempt from IRB review. This study was approved by committee co-chairs, Drs. Matthews and Rackley, and the Director of the TLAC Ed.D program, Dr. Viruru.

The purpose of this study is to provide you with an opportunity to learn, use, and grow from a professional learning series. The Department of Teaching, Learning, and Culture wants to prepare teacher-leaders of high caliber, to improve teaching and learning in school systems. You are being asked to be in this study because you are a teacher at the school research site. Approximately 10 participants will be invited to participate in this study. As part of the study you will be asked to complete an electronic questionnaire at the beginning of the professional learning series and again at the end of the series. In addition, you will be asked to submit any artifacts that you create as a result of the professional learning series. If at any time there is a question you do not want to answer or an artifact you do not want to submit, you are not obligated to do so.

Your participation will be anonymous. No identifying information will be collected as part of the study. This research is voluntary and you have the choice whether or not to be in this research study. You may decide to not begin or to stop participating at any time. If you choose not to be in this study or stop being in the study, there will be no effect on your personal status, employment status, relationship with Texas A&M University, relationship with a school district in which you are teaching, or relationship with a school district in which are not teaching.

You may contact the Principal Investigator, Charity Stephens., to tell her about a concern or complaint about this research at (816) 665-3267 or differentiated4u@tamu.edu . For alternative contact, you may also contact Dr. Adams april.adams@lps53.org.

Participant Name:_____

Participant Signature: _____ Date: _____

APPENDIX C

THE OHIO STATE UNIVERSITY COLLEGE OF EDUCATION AND HUMAN ECOLOGY

ANITA WOOLFOLK HOY, PH.D.

PROFESSOR
PSYCHOLOGICAL STUDIES IN EDUCATION

Dear

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research. A copy the scoring instructions can be found at:

http://u.osu.edu/hoy.17/research/instruments/

Best wishes in your work,

Anita Woolfolk Hoy

Anita Woolfolk Hoy, Ph.D.
Professor Emeritus

COLLEGE OF EDUCATION
29 WEST WOODRUFF AVENUE
COLUMBUS, OHIO 43210-1177

WWW.COE.OHIO-STATE.EDU/AHOY

PHONE 614-292-3774
FAX 614-292-7900
HOY.17@OSU.EDU

APPENDIX D

TSES LONG FORM QUESTIONS

Teachers' Sense of Efficacy Scale[1] (long form)

Teacher Beliefs Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	How much can you do? Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1. How much can you do to get through to the most difficult students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to help your students think critically?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you make your expectations clear about student behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How well can you respond to difficult questions from your students ?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How much can you do to foster student creativity?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
13. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
14. How much can you do to improve the understanding of a student who is failing?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17. How much can you do to adjust your lessons to the proper level for individual students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
18. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
19. How well can you keep a few problem students form ruining an entire lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
20. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21. How well can you respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
22. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
23. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24. How well can you provide appropriate challenges for very capable students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

TSES LONG FORM QUESTIONS

Teachers' Sense of Efficacy Scale[1] (short form)

	Teacher Beliefs	How much can you do?								
	Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1.	How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2.	How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3.	How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4.	How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5.	To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6.	How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7.	How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8.	How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9.	How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10.	To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11.	How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12.	How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

APPENDIX E

WELOTY CONFIDENTIALITY LETTER

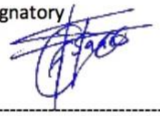
weloty
Academic Transcription Services

Non-Disclosure Agreement for Transcription Services

I hereby agree that any audio recorded information I obtain as a transcriber during Charity Stephens's research will be kept confidential on a permanent basis.

I am not to inform anyone else about any of the content of the interviews. I also refrain from making any copies of the recordings of the interviews. The recorded interviews will be kept safe on a password-protected computer.

Moreover, the recorded material will be deleted immediately upon the completion of the transcription. None of the content will be forwarded to any third party under any circumstances.

Date	Signatory
June 16, 2018	
----------	----------